

GYAN VIGYAN SARITA:शिक्षा

A Non-organizational, Non-remunerative, Non-commercial and Non-political Initiative
To Mentor Unprivileged Children with a Sense of Personal Social Responsibility (PSR)

Monthly e-Bulletin GgyanVigyanSarita:शिक्षा August 01, 2020 (59th Issue)



Happy 74th INDEPENDENCE DAY



Let us comit our self to our Mother India in making it a Nation of
Peace, Development Prosperity and Sovereignty with Dignity

Stay Home

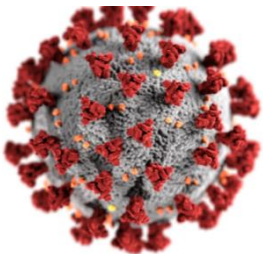
Stay Safe

Stay Healthy

Distance Socially

Keep Growing and Involve in Other's Growth

Let us Conquer CORONA, Collectively and Globally



कोरोना महामारी: चुनौतियों को अवसर में बदलें

(निम्न सन्देश व्हाट्सअप पर खूब चल पड़ा है। इस बार यह सन्देश कार्यरत मजदूरों के चित्र के साथ है, जिससे समाचार की विश्वसनीयता बढ़ जाती है। इस घटना का सत्यापन हम नहीं कर सके, परन्तु सम्बंधित प्रेरणात्मक, सन्देश प्रशंनीय एवं अनुकरणीय है।)

राजस्थान के सीकर में एक गांव के प्राथमिक स्कूल में मजदूरों को कॉरेंटाइन में रखा गया था।

उन मजदूरों ने देखा कि दो दशकों से स्कूल की पेंटिंग नहीं हुई है, साफ सफाई नहीं हुई है। तब उन मजदूरों ने सरपंच के सामने पेंटिंग करने का प्रस्ताव रखा।

तुरंत ही पेंट, चूना, ब्रश इत्यादि का इंतजाम हुआ और उन मजदूरों ने अपने कॉरेंटाइन के दौरान पूरे स्कूल की शक्ल सूरत बदल दी।

और इसके लिए उन्होंने कोई पैसा नहीं लिया बल्कि सरपंच से कहा कि हम यहां पर हैं मुफ्त में खा रहे हैं, तब हमारा फर्ज है कि हम कुछ न कुछ इस स्कूल को दें।



नैतिक सन्देश: दूसरी ओर कुछ लोग सामाजिक-दूरी और लॉकडाउन के निर्देशों का उल्लंघन के साथ कोरोना-जाँबाजों से अभद्र व्यवहार या उन पर हमला करने व उसका औचित्य ठहराने में शौर्य का अनुभव कर रहे हैं, जो कि इस गंभीर वैश्विक विपदा के समय सर्वथा निंदनीय है। उन मजदूरों की सोच प्रशंसनीय और इनकी जिम्मेदारी का बोध अनुकरणीय है। साथ ही उस गांव के सरपंच, शाला प्रधान और कर्मचारियों का आगे बढ़कर श्रमिकों को आवश्यक सुविधा प्रदान कर प्रोत्साहित करना भी प्रशंसनीय है।

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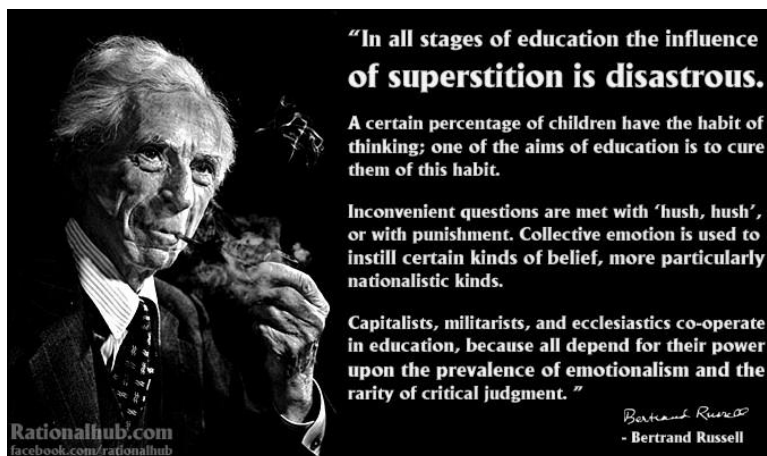
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—00—

Thrill is in the journey and not the destination. The only treasure at destination is sweet memories of adventure with passion, patience, pursuance and perseverance and last but not the least, the inspiration to start a new journey.

—00—



—00—

At its Best, but...

Conceptual Representation
of
Online Mentoring
An Initiative To Bridge Gap between
Passionate Teachers
and
Desperate Students
A Selfless Endeavour
to
Democratize Education
with a sense of
Personal Social Responsibility (PSR)



An Ideal Smart Training Hall



Online Mentoring From Texas

Equipments at Learning Center

1. Desk-Lap-top
 2. WebCam
 3. A Mixer-cum-amplifier with Speakers and Wireless Microphone
 5. Overhead Projector.
 6. UPS (For Continuous Power Supply to computer, internet modem and L&F)
- AND**
Broadband-Internet Connection:

Equipments at Mentoring Center

1. Desk-Lap-top
 2. WebCam
 3. Headset with Microphone
 4. Digital Pen AND
- Broadband-Internet Connection

Cloud Internet
(Linking platform: cloud based with as low bandwidth as possible for seamless connectivity of audio-video-whiteboard across all Six nodes. Presently Google Hangouts is in use)



Mentoring Centre



Screen Sharing From Mentoring Centre To Learning Centre



Mentoring-cum-Learning Centre (Demo)

Important Links

1. Good Internet Connectivity (Wired Broadband Connection)
2. Subject-wise Coordinator for Each Session to Bridge Learning Gaps between Mentor & Students



Special Features

1. Free and Open to all to adopt. Modify, change, correct
2. Welcomes participation, promotion and facilitation on Zero-Fund-Zero-Asset (ZFZA) basis
3. More details on Technological and Operational – please write on <http://www.gyanvigyansarita.in/contact/>



Set-up at Learning Centre



Learning Centre Directly on Desktop

Projector Connected to Computer



Learning Centre With Projector Display

... start, without losing time, with whatever is available

Infrastructural requirement for Centres in Interactive Online Mentoring Sessions (IOMS)

Learning Centre (if asked for by Mentor)		Mentoring Centre (if asked for by Mentor)	
Estimated Capital Cost (One Time)			
Particulars	Cost (in Rs)	Particulars	Cost (in Rs)
Desktop (without monitor)	20,000	Laptop	25,000
Projector	9,000	Projector	-
Web camera	2,000	Web camera	-
Mixer cum amplifier with Speaker and Wireless microphones	14,000	Headset with Microphone	3,000
Total (Max. if nothing is available)	45,000	Total	28,000
Wireless Surface Writing Device (WSWD). It shall be required when Learning Centre is ready for collaborative use of Whiteboard.	15,000	Wireless Surface Writing device	15,000
Total with WSWD (<i>at a later date once IOMS stabilizes</i>)	60,000	Total with WSWD	43,000
Estimated Recurring Cost			
a. Internet charges, based on estimated monthly data transfer which depends upon choice of cloud platform, and tariffs of ISP b. Cloud Platform Charges, to be shared across Learning Centres		Internet charges, based on estimated monthly data transfer which depends upon choice of cloud platform, and tariffs of ISP	
Cloud platform: Microsoft Teams, extended by Ramakrishna Mission, Vijaywada for this selfless initiative, covering their students also, is being used. The platform is found to be suitable in prevailing requirement of social distancing. This will suit even after LockDown when students continue to get mentored in an uninterrupted manner even after situation becomes normal.		IOMS is since an initiative driven with Personal Social Responsibility (PSR) operating on Zero-Fund-&Zero-Asset (ZFZA) basis. The IT Infrastructure with the Mentors has been in use and is working. But, at any stage if upgradation becomes essential, support of facilitators or learning centres would be gratefully welcomed, on ZFZA basis, to maintain continuity of this selfless initiative. Operating cost of Mentor, if required, shall be supported by Learning Centres	

Specification: These are based on ground level operating experience and need of optimizing the cost on the initiative. This is essential to utilize financial resources, considered scarce, for benefitting more number of students at more number of centres and mentoring centres. These specifications have been updated based on experience of operation of IOMS with available options. MS WhiteBoard a free App of MS office has been tried out in IOMS and is found satisfactory, until a better option is available.

Web Camera: iBall 20.0 HD with a wall mounting

Projector: Portronics POR 624 LED Projector Beam 100 Lumen, Screen Size 130 Inch, 800x480px resolution

Sound System: Ahuja Make PA Mixer Amplifier Model DPA-370, 30 W Max/37W Max, with PA wall speakers PS-300T 10W, and a wireless unit AWM-490V2 Dual Cordless Microphones. This sound input/out when decoupled with USB sound adopter to connect to the computer required echoless environment is achieved in the Classroom and networked mentor and Learning Centres.

Cloud Platform: Ramakrishna Mission, Vijaywada, with whom we are in Fourth Year of association through *Interactive Online Mentoring Sessions (IOMS)* for students of RKM School, Sitanagram, AP. They have extended this facility for mentoring students being mentored in this initiative as Guest participants. It offers uninterrupted sessions to the students registered for this purpose. It suits to mentor students staying at home, during social distancing. Alternately, other freewares viz. Google Meet, or other Indian products like SayNamaste and others coming up can be used.

Surface Writing Device: HUION make Model WH1409, or Wacom model Intuos with wireless device makes it suitable for communication with base computer in class in an interactive online environment.

UPS: An additional accessory, for uninterrupted continuity of session, based on power availability to be decided by Learning Centre, **not included in above cost estimates.**

Furniture and Lighting: At Learning Centre, as deemed fit by local administration of Learning Centre, **not included in above cost estimates.**



संपादकीय

चीन की जमीन हड़पने की भूख : विश्व-शांति के लिये खतरा

भारत एक शांति प्रिय देश है। यह वह देश है जहां भगवान भी दुष्टों का समूल नाश करने और आम जनता को शांति देने के लिये अवतार लेते हैं।

यह वह देश है जिसने महाभारत जैसा समग्र विनाश का युद्ध लड़ा ताकि भविष्य सुरक्षित और सर्वार्थित हो।

कृष्ण ने सर्व शक्तिमान होते हुये भी अंत समय तक युद्ध को रोकने, खून-खराबा टालने और शांति स्थापित करने की कोशिश की। जब शांति-स्थापना का उनका हर प्रयास असफल हो गया तब उन्होंने सुदर्शन चक्र उठाने में भी परहेज नहीं किया।

आज का भारत शक्तिसंपन्न है। यह विकास के लिये निरंतर काम कर रहा है। जल, थल, आकाश और अंतरिक्ष में वह प्रगतिमान है।

यह सर्वमान्य सच्चाई है कि वही देश विकास करता है जिसकी बाहरी सीमायें सुरक्षित होती हैं और आंतरिक भाग खुशहाल रहता है।

भारतमाता के वीर सैनिक निरंतर देश की सीमाओं की सुरक्षा में निडर भाव से डटे हैं और आंतरिक भाग सरकार की विकास की नीतियों के कारण अपने रोजमर्रा के कामों को करने में लगा है।

शांति के लिये जरूरी है कि हमारा आस-पड़ोस भी शांत रहे। भारत चाहता है कि उसके पड़ोसी विकास करें और शांति से रहें, परंतु पड़ोसियों को यह सब पसंद नहीं है।

अब समय आ गया है कि इन पड़ोसियों को शांति से रहने के लिये गंभीरता से सिखाया जाये। हमसे कोई तभी डरेगा जब हम ताकतवर होंगे। भारत इसी क्रम में लगातार अपने को सामरिक दृष्टि से मजबूत कर रहा है। शांति की बात केवल शक्ति-सम्पन्न व्यक्ति ही करता है। कमजोर तो केवल शांति की भीख मांगता है।

दिनकर जी की पंक्तियां हैं -

क्षमा शोभती उस भुजंग को
जिसके पास गरल हो
उसको क्या जो दंतहीन
विषरहित, विनीत, सरल हो

चीन आतंक का पहचान है। हर देश इसके व्यवहार से त्रस्त है। हाल में, पूरे विश्व में, कोरोना का फैलाव हुआ। सबने आरोप लगाया कि इसकी शुरुआत चीन से हुयी। पूरा विश्व चीन से नाराज है, पर चीन यह मानने को तैयार नहीं है कि कोरोना उसकी देन है।

चीन चालाकी और धोखेबाजी का पर्याय होगया है। जिस प्रकार चीनी सामान की गुणवत्ता पर विश्वास नहीं किया जाता है, ठीक उसी प्रकार चीन के व्यवहार पर भी विश्वास नहीं किया जा सकता है।

अब भारत सतर्क है। भारत के बहादुर सैनिकों ने गलवान घाटी में चीन को सिखा दिया कि डराने और लड़ने में बहुत अंतर होता है। डरता वह है जो कमजोर होता है। नया भारत न डरता है और न ही किसी को डराता है।

भारत ने चीन से व्यापारिक रिश्ते कम करने, उसके मोबाइल ऐप बैन करने, उसकी कंपनियों को ठेका न देने आदि का निर्णय करके उसे स्पष्ट संकेत दे दिया है कि उसे आर्थिक रूप से कमजोर करना ठीक कदम है।

भारत एक बहुत बड़ा बाजार है। इसे जो नजरंदाज करेगा वह अपने पैर पर कुल्हाड़ी मारने का काम करेगा।

चीन साम्राज्यवाद की राह पर चल पड़ा है। आधुनिक साम्राज्यवाद के सिद्धांत का विकास लेनिन ने किया था। उसके अनुसार जब पूंजीवाद अपने विकास के चरम पर पहुँच जाता है तब उसका परिवर्तन साम्राज्यवाद में हो जाता है।

साम्राज्यवादी सोच को दुनिया ने नकार दिया है। उन सभी साम्राज्यों को लोगों ने धूल में मिलते देखा है जिन्होंने जमीन की भूख के लिये दूसरे देशों को रौंदने की हिम्मत दिखायी थी।

जिस प्रकार 1930 और 1940 के दशक में दुनिया के लिये नाजी जर्मन साम्राज्यवाद खतरा था, ठीक उसी प्रकार चीन का विस्तारवाद आज विश्व-शांति के लिये खतरा है।

चीन विश्व के बाजार में स्थानीय निर्माताओं की तुलना में आधे दाम पर अपने सामानों को बेचकर समस्त उद्योगों को नष्ट करने में लगा है, जबकि वास्तविकता यह है कि चीनी सामान घटिया किस्म के होते हैं।

चीनी सामानों के बारे में एक कहावत प्रचलित है कि चले तो चांद तक, ना चले तो शाम तक।

यह सोचना कि भारत और चीन के संबंधों में सुधार आयेगा, असंभव बात है। ऐसा विश्वास करना ठीक वैसे ही है जैसे लोमड़ी और मुर्गी को एक ही पिंजरे में साथ रहने को कह दिया जाये।

आज जरूरत है कि हम अपने देश में बनी चीजों का उपयोग करें और चीन से आने वाले सामानों पर रोक लगाएं ताकि चीन आर्थिक दृष्टि से कमजोर हो।

ज्ञानविज्ञानसरिता परिवार यह शपथ लेता है कि भविष्य में वह कभी भी चीनी सामानों का उपयोग नहीं करेगा। हम भारत में बने सामानों के उपयोग को वरीयता देंगे। हम यह भी निश्चय करते हैं कि अपने मिलने-जुलने वालों को भी ऐसा ही करने के लिए कहेंगे।

जयहिंद, जय भारत!

—00—

CORONA virus has become a global disaster. Though it is stated to have originated in China, the most populous country, yet, it has been the FIRST to contain it.

How China could do it?

It is important for us to learn from China.

They firmly implemented shutdown, without exception. China has a different kind of socio-political system, to be able to do that.

In a democracy like ours, for the success of such shutdown, people's participation is a must. It requires to respect need of survival and coexistence above personal, social, geographical, communal and political preferences.

It is a time for all of us to know, think, introspect and decide upon priority between coexistence, and personal liberty vis-à-vis human rights. We need to ask ourselves - what for are the human rights?

—00—

Let us be honest and judicious about the priority and its implementation. Let us exercise patience to bear order of the day unambiguously.

Instantly, at times curtailing human liberties may appear to be cruelty. But, such a cruelty if self-inflicted, brings home altogether a different experience. It is vouched from first-hand realizations that such self-impositions build a kind of resilience and a self-discipline, necessary to accomplish tasks which are apparently impossible. It helps to reap thrill of survival, and an ability to grow in tougher times.

Without this, all the talks of human liberty may turn out to be only cosmetic.

Let us stay safe, impose self-restrictions and collectively emerge as victorious nation.

It is time to patiently and bravely capitalize this disaster, like any other challenge, as an opportunity to carve better times ahead all human beings...

May GOD bless us all...

—00—

Isaac Newton discovered gravity while in Quarantine during Plague Epidemic



Isolation is good for creative ideas. So use that time wisely .

Be Like Newton. Seek The Truth !

*Very relevant when globally, we are fighting to survive out of
CORONA*

—00—

Never let crisis go to waste

- Winston Churchill

INVITATION FOR CONTRIBUTION OF ARTICLES

Your contribution in the form of an article, story poem or a narration of real life experience is of immense value to our students, the target audience, and elite readers of this Quarterly monthly e-Bulletin **Gyan-Vigyan Sarita: शिक्षा**—and thus create a visibility of the concerns of this initiative. It gives target students a feel that you care for them, and they are anxiously awaiting to get benefitted by your contributions. We request you to please feel free to send your creation, by 20th of each month to enable us to incorporate your contribution in next bulletin, subhashjoshi2107@gmail.com.

We will be pleased to have your association in taking forward path our plans as under-

- With the the release of 1st Monthly e-Bulletin in its consecutive Fourth Year, we are gearing up for next Monthly e-Bulletin **Gyan-Vigyan Sarita: शिक्षा** due on 1st of ensuing month.
- This cycle of monthly supplement e-Bulletin **Gyan-Vigyan Sarita: शिक्षा** is aimed to continue endlessly, till we get your **तन** and **मन** support in this selfless educational initiative to groom competence to compete among deprived children.

Formatting Guidelines: (a) Paper Size A4, (b) Fonts: Times Roman (English), Nirmala UI (Hindi), (c) Font Size Title/Author Name/Text: 14pt/12pt/10 pt (d) Margins: top/bottom/left/right – 1”/1”/0.4”/0.4”, (e) Photoprofile of author – In 4-5 lines with mail ID and Photo. We will be pleased to provide softcopy of template of an article, in MS Word to the author on advise.

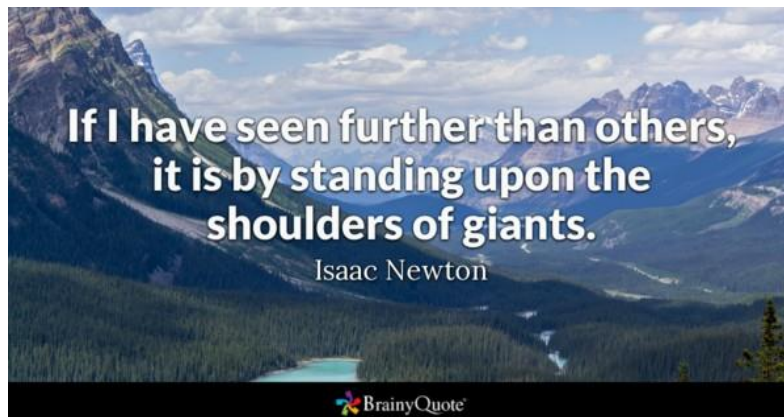
We believe that this e-Bulletins shall make it possible for our esteemed contributors to make its contents rich in value, diversity and based on their ground level work and/or experiences.

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*We have learnt that LIFE is neither fast nor sudden leaps;
It grows gradually and sreadily through pits and rises.
We have learnt on every fall; more was needed from us;
Irrespective of how others were.*

*We have learnt that when tide is against, swim hardest to keep moving ahead;
When in favour swim fastest to create a reserve in case of contingencies.
We have also learnt that reasons are in abundance to justify losses,
But there is only ONE reason to do good beyond self.
LIFE is MUST for sustainable coexistence.*

—00—





Coordinator's View

Beautiful Society - A Vision

Anything that is beautiful infatuates and generates in the observers a pleasant feeling, until it is reached. The continuation of infatuation requires just not exploiting the beauty, but it needs a considered effort to maintain and preserve the beauty. In absence of such efforts the beauty starts depleting rapidly. Here, beauty is in a wider perspective right from abstract thoughts to anything which may be objective and capable of attracting us; be it within us or around.

Society is a complex composition of people and their creation. It has taken efforts of innumerable generations to reach the society its present form, be it social norms, economic prosperity, living comforts and educational opportunities leading to enlightenment. In absence of this, it is frightening to recall the trace through which our ancestors might have undergone. Yet, for them those times were not bad, rather they lived on without much of grudges. The reason attributed to their complacency is that then society was compact and led to strong personal bondages, fewer were the means making life contended, they had ability to work hard. This gave them a resilience in case of adversities.

Today, society has grown with population creating economic challenges as well as new opportunities. These challenges have created inter-dependence on each other as a global village replacing personal bondages with economic interests and survival needs. Growth of infrastructure has made life easier and made multiple options available in any situation. These developments have been continuously inflating personal and social expectations and priorities. That has got reflected in a kind of intolerance which is on the rise. In addition to this, increase in facilities with technology is making everyone increasingly comfort savvy and thus, ability of physical exhaustion is continuously depleting and leading to numerous health, psychological and emotional problems. People are resorting to artificial means of exhaustion so as to get an appetite and enjoy food. They are craving to join laughing clubs to refresh through laughter; they take sleeping pills or liquor for a sound sleep to be ready for next day. These appetite, laughter and sleep are a natural gift to all, yet they have been squeezed only to the poor. These poor are neither bound by protocol, nor norms of decency, nor any cultural reins while fulfilling their natural urge for appetite, sleep or laughter. Shouting, jumping, chasing, clapping and thumping each other, in their surroundings, is their normal way of life and expression of their feelings. But, sophistication caused by un-natural living style is causing an additional stress of daily long ride to reach clubs, gym and lawns for relaxation.

This poses a million-dollar question: *Is reversal of society the answer to make social life beautiful and worth living happily?* The answer is “**Certainly not**”. The only answer to this question lies in reframing education in its right

perspective. Comparing education in a society with the flow of blood in a living body is devaluating it. Blood flow is needed to keep a body living, but, education leads future generations to thrive on. Thus importance of education is highly vibrant and prospective.

Education is generally construed as a means to acquire a comfortable life, enjoyment of belongings and expanding them. This is an imperialistic and expansionist approach. God forbid! such pandemic recur, but Covid-19 has brought forth the bitter truth of life that *none, howsoever powerful, rich or omnipotent, is above nature.* China, assumed it to be most the powerful, resourceful, and omniscient, omnipotent and omnipresent through its products on shelf across the globe. It tried to exploit the devastations caused by the pandemic, unsparingly across the globe, as an opportunity to encroach upon sovereignty, economy, geography, culture and believes of its neighbours and other prosperous countries.

China has had illustrious ancient history of great philosophers who travelled across the globe to share their wisdom. But, result of degradation in China, in last few centuries, has led to its global offensives. World community has become wary of recent Chinese misadventures and united against its expansionist and imperialist policies.

Are these offensives driven with a wisdom to achieve economic objectives? Here, it is essential to understand that human sensitivity and, sensibility is a result of wisdom acquired through education in proper perspective. Competing and over taking competitors in fair weather conditions is an economic prerogative and is open to all and necessary for progressive developments. It is also as per law of the nature – ***Survival of the Fittest***. But, economic, political, geographical, sociological and cultural offensives against competitors, while they are struggling for survival amid pandemic, can be a brain child of only a vicious and perverted mind; they are groomed in envy and hatred. It is perpetuation of Jungle Law of animals in domain. It should not have any place in human civilization a thoughtful creation of nature. Overtaking competitors in their tough times might accrue immediate or short-term benefit to a country, society or person but, ultimately it culminates into not only self-destruction, and leave a legacy for descendants to shy off, misdeeds of their ancestors, for

generations to follow. History has numerous cases of such tyrants.

Education, with right perspective, in no way can support such perverted thought process. Thus, importance of education for making a society beautiful and worth living happily, in a prosperous manner, is invincible. India has cultural principles, belief and practices founded on three ancient Mantras –

Mantra 1: वसुधैव कुटुम्बकम् ,

भावार्थ- “धरती ही परिवार है । ”

Mantra 2: सर्वे भद्राणि पश्यन्तु मा कश्चिद् दुःखभागभवेत्

भावार्थ - " सभी सुखी होवें, सभी रोगमुक्त रहें, सभी मंगलमय घटनाओं के साक्षी बनें और किसी को भी दुःख का भागी न बनना पड़े। "

Mantra 3: ॐ असतो मा सद्गमय।

तमसो मा ज्योतिर्गमय।

मृत्योर्मा मृतं गमय ॥

ॐ शान्ति शान्ति शान्तिः ॥

भावार्थ - “ हे ईश्वर, मुझे असत्य से सत्य की ओर ले चलो।

मुझे अन्धकार से प्रकाश की ओर ले चलो।

मुझे मृत्यु से अमरता की ओर ले चलो॥

हे ईश्वर हमें शांति प्रदान कर॥

In modern era in 1910 Gurudev Ravindranath Tagore, a son of the soil, came up with collection of his poems the famous Geetanjali conveying similar spirit and is recognized globally for its spirit of collective complementing of efforts for growth and welfare of one-and-all.

This requires to review education as a process, a means and not an end for comfortable living and growing in isolation. Education leads to a beautiful happy society, it is the basic unit of a nation; and in turn family is the basic unit of society for the purpose of education. But, with growing diversity in knowledge, skills, practices and expertise, institutionalization of education has become a necessity. The basic purpose of institutionalization of education is to universally open up the learning and knowledge to all without discrimination. It is basically create a cross-ventilations of wisdom across the globe. It requires students to join educational institution to acquire education. Inception of Universities is driven with this philosophy.

Education is basic means of developing thought process which starts at (a) **observations**, (b) **differentiating observations** in respect of their pros and cons, (c) investigating how and why of each observation, (d)

exploring alternatives to maximize desirable effects of observations and minimize undesirable effects, which in totality is called **optimization**, (e) **selection of an alternative** which is economical, feasible, viable and sustainable for coexistence and growth, and (f) last but not the least **implementation of the selected alternative**; it is epitome of **practical wisdom**. There is acute scarcity of persons with practical wisdom; advisers are in plenty. Such wisdom requires passion, dedication, commitment and perseverance.

It is pertinent to appreciate that the roadmap discussed above is apparently more specific to mathematics and science; yet it is generic and is applicable to any discipline of education and excellence. In fact, in education, subject is just a medium to develop thought process. It creates ample of opportunities to a teacher to explore and apply his ingenuity.

Making these aims and objectives of education to see a day, has to be a national responsibility of government, administration and every citizen. In commercial domain such objectives cannot be accomplished. The very nature of commercial venture is to maximize profit, be at any cost . Thus, commercial advent in education is counter-productive in accomplishing a beautiful, happy and progressive society. Such a society needs that every person is answerable to other, be it a king or a popper. *When this is accomplished it is making the vision of Ram Rajya becoming a reality, and it will no more be confined to epics.*

Conclusion: We have a great cultural heritage of coexistence and prosperity. During centuries of exploitation and slavery, we as a country, have lost our shine. We can be true Indian if we can restore glory of our country. But, it cannot be accomplished with mere sloganeering मेरा भारत महान; that is waste of synergy. Making this vision a reality is possible iff (if-and-only-if) we revamp our education to its deserving place. While doing so, we need to exercise care and concern with wisdom such that at no stage obsession of the glory, so accomplished, distracts us to rule the globe as some of our neighbours are indulging in. **God Forbid! We even think to act so unwisely.** Our collective aim must be to lead the human race towards self-dependence blended with inter-dependence of sovereign entities. That would be true adherence, in letter and spirit, to the **Three Mantras** cited above, and for us to claim to be bona fide descendants of a rich culture which earns a **recognition from human civilization across the world, out of their respect, to India as विश्व गुरु (Vishwa Guru)**, but not the least out of either of fear or favour.

Jai Hind!!!

An Appeal: for Interactive Online Mentoring Session (IOMS) at your establishment

By Gyan Vigyan Sarita – A non-organizational educational initiative

Philosophy: Socio-economic reform through education with **Personal Social Responsibility (PSR)** in a non-organizational, non-remunerative, non-commercial and non-political manner.

Objective: Groom competence to Compete among un-/under-privileged children from 9th-12th in Maths, Physics and Chemistry, leading to IIT-JEE.

Financial Model: Zero-&-Fund-Zero-Asset (ZFZA). It calls for promoters and facilitators to provide infrastructure for use to the extent they feel it is neither abused nor there is a breach of trust. And, reimbursement of operational expenses, as and when they arise, to the initiative

Operation:

- a. **Mode:** [Interactive Online Mentoring Sessions \(IOMS\)](#) since July'16, which has been recently switched over to A-VIEW, web-conferencing S/w, with connectivity upto 5 Learning Centers, with One Mentoring Center.
- b. **Participation:** Voluntary and Non-remunerative, Non-Commercial and Non-Political

Involvement:

- a. **Promoter –**
 - i. Initiate a Learning Center,
 - ii. Sponsor a Mentor who is willing to join on certain terms,
 - iii. Sponsor cost of operation and up-gradation of infrastructure to voluntary mentors,
- b. **Facilitator –**
 - i. Provide space and infrastructure for **Interactive Online Mentoring Sessions (IOMS)**. Most of it is generally available, and may need marginal add-on,

- ii. Garner support of elite persons to act as coordinators at the Learning Centre.

c. **Participator –**

- i. As a Mentor,
- ii. As a Coordinator,
- iii. Operational support
- iv. E-Bulletin and Website promotion for increasing its depth and width across target students

Background: *The initiative had its offing in May'12, when its coordinator, a non-teacher by profession, soon after submission of Ph.D. Thesis in 2012, at one of the IITs, under taken after retirement got inspired to mentor unprivileged students.*

The endeavour started with Chalk-N-Talk mode of mentoring unprivileged students starting from class 9th upto 12th. Since then it has gone through many ground level experiences and in July'16 it was upgraded to IOMS, a philosophy in action to reachout to more number of deprived students. Currently regular sessions of IOMS are held regularly for students of class 9th and above at few Learning Centeres. Efforts are being made to interegate more learning centers and mentors to diversify its scope and utilize our full capacity.

*It is a small group of Four persons including **Prof. SB Dhar**, Alumnus-IIT Kanpur, **Shri Shailendra Parolkar**, Alumnus-IIT Kharagpur, settled at Texas, US and **Smt. Kumud Bala**, Retd. Principal, Govt. School Haryana. More details of the initiative are available on our [website](#) and operational aspects of can be online accessed at [IOMS](#).*

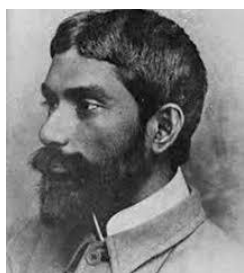
Actions Requested: *May please like to ponder upon this initiative. **Queries**, if any, are heartily welcome. We would welcome your collective complementing in any of the areas listed above at **Involvement**, to make the mission more purposeful and reachable to target children.*

Contact: Dr. Subhash Kumar Joshi, **Coordinator**, Gyan Vigyan Sarita.

Address: #2487, Mahagun Moderne, Sector-78, NOIDA, UP– 201309, (M):+91-9711061199,

e-Mail ID: subhashjoshi2107@gmail.com, **Website:** <http://www.gyanvigyansarita.in>

Inspirers of the Month



Prafull Chandra Ray
Father of Indian Chemistry

Born: 2 August 1861
Birth Place: Raruli-Katipara, Bangladesh
Education: University of Calcutta, University of Edinburgh
Awards: Companion of the Order of the Indian Empire, Knight Bachelor, Fellow of the Chemical Society, Foundation Fellow of the National Institute of Sciences of India, Fellow of the Indian Association for the Cultivation of Science
Famous For: Founder of [Bengal Chemicals & Pharmaceuticals](#), *A History of Hindu Chemistry from the Earliest Times to the Middle of Sixteenth Century*



M D Swaminathan
Father of India's Green Revolution

Born: 7 August 1925
Birth Place: Kumbakonam, Tamil Nadu
Education: University of Kerala, University of Madras, University of Cambridge
Awards: Tyler Prize for Environmental Achievement, Padma Vibhushan, World Food Prize, Padma Bhushan, Ramon Magsaysay Award, Padma Shri, Shanti Swarup Bhatnagar Award
Famous For: Father of Green Revolution in India



Manali Kallat Vainu Bappu,
Father of modern Indian astronomy

Born: 10 August 1927
Birth Place: Chennai, India
Education: Harvard University, University of Madras
Famous For: C/1949 N1 (Bappu-Bok-Newkirk comet), Only Indian to have a comet and an asteroid after his name



S. R. Ranganathan
Father of Library science in India

Born: 12 August 1892
Birth Place: Shiyali, Tamil Nadu, India
Education: [Madras Christian College](#)
Awards: Padma Shri
Famous For: Father of [library science](#), The Five Laws of Library Science, Ramanujan: the Man and the Mathematician

His birthday is observed every year as the [National Librarian's Day](#) in India

**Vikram Sarabhai***Father of Indian Space Program*

Born: 12 August 1919
Birth Place: Ahmedabad, India
Education: University of Cambridge
Famous For: Indian Space Program, Indian Institute of Management Ahmedabad
Awards: PadmaBhushan, Padma Vibhushan

**Pierre De Fermat***All time great mathematician*

Born: 17 August 1601
Birth Place: France
Famous For: Fermat's Last Theorem. This theorem states that $x^n + y^n = z^n$ has no non-zero integer solutions for x, y, z when $n > 2$.

**Modadugu Vijay Gupta***Pioneer in the blue revolution of Southeast Asia*

Born: 17 August 1939
Birth Place: Bapatla, Madras, India
Education: PhD in Biology, University of Calcutta
Awards: [World Food Prize](#)
Famous For: Blue revolution of Southeast Asia, [Sunhak Peace Prize](#)

**Sudha Murthy***First woman engineer to be selected in Telco*

Born: 19 August 1950
Birth Place: Shiggaon, Karnataka, India
Education: New York University, Indian Institute of Science
Famous For: How I Taught My Grandmother to Read
Award: Padma Shri

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*Humanity is acquiring all the right technology for all the wrong reasons.**-R. Buckminster Fuller*

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अंदाज ए बयां

मसरुफ़ ज़माना मेरे लिए, क्यों वक़्त अपना बरबाद करे॥

समीर लाल 'समीर'

शाम को थके हारे लौटे और ईमेल खोला.

पहला ईमेल लॉटरी वाला था ५ मिलियन की फिर खुल गई. यह जानते हुए भी कि यह झूठ है, अच्छा लगता है. इन नेताओं के चलते झूठ बातों से अच्छा लगने का सिलसिला हर भारतीयों के खून में रच बस गया है. दशकों से झूठ बोल बोल कर बहला रहे हैं और हम सब आदतन बहल रहे हैं. कभी पंच वर्षीय योजना से बहल कर खुश हो लेते हैं तो कभी भारत विकास की राह पर है, सुन कर तो कभी १५ अगस्त से भ्रष्टाचार की समाप्ति की बात सुन कर, तो कभी कुछ और. रोज देखता हूँ अपने ईमेल में ऐसे कई ईमेल. कोई कोकाकोला से, तो कोई याहू से ५ मिलियन जितवा कर प्रसन्न किये हुए हैं. हर बार डिलीट करने के पहले नमन करता हूँ और फिर डिलीट. डिलीट करने का कतई दुख नहीं होता, मालूम है कल दूसरे तीन आयेंगे जितवाने. सोचता हूँ इस बाबत आये ईमेलों को दफ़्तर से प्रिन्ट कर कर के ला ला कर रखा होता तो अब तक ५०० रुपये तो रद्दी बेचने के मिल ही गये होते. वो भी लॉटरी ही कहलाई.

इनको मिटाता हूँ और फिर उसके आगे की श्रृंखला में किसी की दर्द भरी ईमेल देख आँख नम हो जाती है. यह भी नित होता है. मैं फलाने राष्ट्र के फलाने सुपर डुपर की इकलौती संतान हूँ. सत्ता पलट में मेरे पिता जी को राष्ट्रद्रोह का मुकदमा चला कर मार डाला गया है. उनके खाते में १८ मिलियन यू एस डॉलर रखे हैं जो मैं आपको स्थांतरित करवाना चाहती हूँ. इस मदद की एवज में आधा आप रख लेना और आधा मुझे दे देना. आपके बारे में पता चला कि आप बहुत भले आदमी हैं और लोगों की मदद करते हैं. मेरी भी करिये, यह अनाथ आपका एहसान कभी नहीं भूलेगी. पहले तो सोचता हूँ कि एकदम सरासर झूठ बोल रही है चोट्टी कहिकी. फिर लगता है कि सरासर तो नहीं, बेचारी ने जब इतना सच सच लिखा है कि आप बहुत भले आदमी हैं और लोगों की मदद करते हैं. तो शायद बाकी बातें भी सच हों. कौन जाने, दुखियारी किस हाल में हो?

नम आँखें पोंछ सोचता हूँ कि चलो, रात में एक दो पैग पीने के बाद, जब भावुकता चरम पर होगी तब विचार करके जबाब देंगे. जैसा कि अक्सर देखा है कि नितीगत निर्णय सरकार देर रात में ही लेती है और फिर चल पड़ा अगली ईमेल पर, वो किसी बैंक अधिकारी की है जिनके पास एक खाते में २० मिलियन यू एस डॉलर हैं. उस खाते का असली मालिक एक हवाई दुर्घटना में मारा गया है और खाते पर उसका कोई वारिस नहीं है. ये अधिकारी मेरे डिटेल्स, मेरे खाते का विवरण, शपथपत्र मँगवा कर उसे खाते में नथ्थी कर देंगे और फिर २० मिलियन ये मेरे खाते में डलवा कर मेरी इस घोर मेहनत के लिए आधी रकम याने १० मिलियन मुझे दे देंगे और आधी खुद लेंगे. इस कार्य के लिए मुझे चुनने का कारण

मेरी विश्वश्रियता और शराफ़त बताया गया है. यहाँ भी लगा कि बंदा यह वाली विश्वश्रियता और शराफ़त की बात तो सही ही कह रहा है. खुद की कमीज के छेद भला आज तक किसी को दिखे हैं क्या जो मुझे दिखें?

अगला ईमेल भी ऐसा ही, फिर २० मिलियन मगर इस बार किसी की इन्श्योरेन्स का पैसा. फिर कोई नामित नहीं.

ओह!! अब समझ आया कि सभी आधा आधा बाँट रहे हैं. ये तो अपने खदरधारियों जैसे निकले. चेहरे अलग अलग, स्टेटमेन्ट अलग अलग और कर्म सबके एक. शायद भ्रमित हो गये हों कि ये बंदा कनाडा में रहता है तो केनेडियन होगा गोरा वाला. शायद जानते न हों कि मैं भारत से हूँ. सब समझता हूँ ऐसी चालबाजियों को. दरअसल, बचपन से सीखते समझते हालात तो ऐसे हुए हैं कि अब सिर्फ चालबाजियाँ ही समझता हूँ. आदत भी ऐसी पड़ गई है कि कोई सच में कुछ सच सच बताये तो उसमें भी चालबाजी खोजने लगता हूँ. अतः अनुभव के आधार पर इन सभी को डिलीट कर देता हूँ. मालूम है कि कल फिर और दुख के मारे, वक़्त के सताये मुझे १०-१० मिलियन देने आकर खड़े हो जायेंगे. कोई कमी थोड़ी है हमारी भलमनसाहत, विश्वश्रियता और शराफ़त पर विश्वास रखने वालों की. भारत से भले ही कोई न करे मगर हमारा ऐसा स्तुति गान करने वाले, इंग्लैण्ड, हाँगाकॉंग, नाईजिरिया, सूडान और भी न जाने कहाँ कहाँ फैले हैं, कई देशों के नाम तो उनसे मिली ईमेल से ही पहली बार सुनकर नक्शे में खोजता रहता हूँ. धन तो खैर हाथ का मैल है आना जाना लगा रहेगा मगर सामान्य ज्ञान और भूगोल के ज्ञान में हुआ इजाफ़ा काबिले तारीफ़ रहा इन ईमेलों के माध्यम से. इनका साधुवाद इस हेतु.

आज एक ईमेल चाईनीज़ में लिखा आया है. हो सकता है कोरियन में हो या जपानी में हो मगर हम हिन्दी के सैनिकों के लिए तो उस दिशा की सारी गोली बोली एक सी हैं कम से कम दिखने में तो. अगर सच में भाषा जान भी जायें कि कौन सी है तो पढ़ सकने से तो रहे. पुलिस वालों का सा हाल है कि जिस भी हत्यारे को न पकड़ पाओ, आतंकवादी घोषित कर दो. फुरसत! अब पड़ोसी देश सफ़ाई देता रहे कि हमारे यहाँ का नहीं है.

तो खैर मैं उसे चायनीज़ में लिखा मान कर चल रहा हूँ. डिलीट करने की इच्छा होते हुए डर रहा हूँ या यूँ कहें कि संकोच कर रहा हूँ कि कहीं चाईना में कोई सम्मान समारोह में सम्मानित करने के लिए तो नहीं बुलाया गया है और मैं डिलीट करके बैठ जाऊँ. बाद में पछताने के सिवाय क्या हाथ लगेगा? हो सकता है हिन्दी के प्रचार प्रसार का हमारा जज्बा देखकर वो चाईनीज़ के प्रसार प्रसार के लिए मुझे प्रेरणा पुँज मानते हों और बुलाकर सम्मान करना चाहते हों, कौन जाने!!! वैसे भी सम्मान समारोह में, मुद्दा आपका

काम नहीं, मुद्दा उनके द्वारा सम्मान देने का है। दृढ़ इच्छा शक्ति सम्मान के प्रायोजकों की मायने रखती है, फिर एक बार उन्होंने यह तय मान लिया कि आपका सम्मान करना है तो सम्मानित करने की कोई न कोई वजह तो हर व्यक्ति में निकाली जा सकती है।

बहुत संभव है कि शायद मुझे बुला कर सम्मान में चाईना रत्न या चाईना का साहित्य भूषण देना चाहते हों। हो सकता है कि चाईना रत्न बिना जुगाड़ के सच में सराहनीय कार्य करने के लिए दिया जाता हो या चाईना साहित्य भूषण वाकई साहित्यिक प्रतिभा को आधार मान कर देते हों। भारतीय होने की वजह से यह किंचित आश्चर्यजनक बात लग सकती है किन्तु हर देश के अपने अपने रिवाज और नितियाँ होती हैं। हो सकता है चाईना में ऐसा होता हो।

और जब बात सम्मान की हो तो यूँ भी हिन्दी वालों को सम्मान के सिवाय और उम्मीद भी कौन बात की रहती है। नगद या बुकर प्राइज़ तो मिलने से रहा!! जो भी नगद राशि सम्मान प्रशस्ति पत्र के साथ नथी कर दो, सहर्ष स्वीकार कर लेते हैं। वरना तो शाल और नारियल में भी हर्षित रहते हैं।

समारोहों के नाम पर सम्मान समारोह ही एक ऐसा समारोह है जिसमें जब भी किसी ने बुलाया है, आज तक चीटिंग नहीं हुई। हमेशा सम्मानित किये गये। भले ही हड़बड़ी में पचास सम्मानितों की भीड़ में भागते दौड़ते सम्मानित हो गये हों - भूलवश किसी और का सम्मान पत्र हाथ में थामें मंच से उतरे हों मगर सम्मानित हुए जरूर। इसलिए इसे तो किसी से पढ़वा कर, समझ कर ही डिलीट करेंगे। आपमें से कोई चायनीज़ जानता हो तो मदद करो इस दुखियारे की। कहीं सम्मान से वंचित न रह जाऊँ।

जब इसे छोड़ बाकी ईमेल डिलीट कर रहा हूँ तब ऐसे में..मैं पल दो पल का शायर हूँ - गीत की पंक्तियाँ नया रूप धर कान में गुँजने लगती हैं:

कल और आएंगे नगदी की थैली तुमको देने वाले,

मुझसे बेहतर ऑफर वाले, मुझसे बेहतर कहने वाले ।

कल कोई मुझ को डिलीट करे, क्यों कोई मुझ को याद करे

मसरुफ़ ज़माना मेरे लिए, क्यों वक़्त अपना बरबाद करे॥



लोकप्रिय चिट्ठाकार समीर लाल व्यवसाय से चार्टर्ड एकाउंटेंट हैं। आजकल वे कैनेडा में रहते हैं। उन्होंने कहानी लिखना पाँचवीं कक्षा में ही शुरू कर दिया था। आप कविता, गज़ल, व्यंग्य, कहानी, लघु कथा आदि अनेकों विधाओं में दखल रखते हैं। भारत के अलावा कनाडा और अमेरिका में मंच से कई बार अपनी प्रस्तुति कर चुके हैं। आपका ब्लॉग “उड़नतश्तरी” हिन्दी ब्लॉगजगत में एक लोकप्रिय नाम है।

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Ayurveda- Health Care

Vibhitaki (Terminalis Bellirica)

Dr Sangeeta Pahuja

Vibhitaki (Baheda) is one of the important components of the Triphala. Bheeta means fear and vibheeta means lack of fear. Vibhitaki means which takes away the fear of disease.

In charak samhita, this herb mentioned as

विभीतकम् स्वादुपाकम् कषायम् कफपित्तनुतं।

उष्ण वीर्यम्, हिमस्पर्श, भेद नम, कासनाश नम॥

**रुक्षम्, नेत्रहितम्, केश्वम्, कृमि वैस्वरय नाशनम्, विभीतक
मज्जा, त्रुट, छर्दि, कफवातहरि लघु।**

The herb is:

Jwarhara :	Antipyretic
Kasahara :	Expectorant
Virechnopaga :	Purgative
Rasayana :	Rejuvenator
Chakshushya :	Beneficial for eyes
Keshya :	Beneficial for hair
Kanthya :	Effective in treating the hoarseness in voice

The Herb is Kashaya ras (Astringent) pradhan , Dry (Ruksh), light to digest (laghu) and Ushn virya (Hot potency).

It is Madhur vipak (metabolic property after digestion), and Sparsh is (touch) cold. **This herb balances all three Doshas but Commonly known as kaphapittashamak.**

Terminalia Bellirica has antioxidant, Anti-microbial, Antihypertensive, Hepatoprotective and Antipyretic properties. It is helpful in the treatment of respiratory problems. It alleviates cough, control bleeding in the sputum and reduce bronchospasm.

Pulp of dry vibhitaki is fried in the ghee and can be chewed to get relief from cold, cough and sore throat. It also Improves hair quality and promotes hair growth.

Vibhitaki fruit reduces kapha and meda dhatu(fat)so it is used in weight reducing ayurvedic preparations.

Bibhitaki for Diabetes:

Vibhitaki is beneficial in diabetic patients ad it normalises kapha and meda (body fat), which are main causes for diabetes; it reduces fluctuating blood sugar level.

Seeds of this plant are known to have aphrodisiac properties. The dry fruit powder of this fruit helps to reduce increased motility of intestines IBS It also helps to reduce the inflammation of walls of intestines.

This herb should not be used in excess and contraindicated in pregnancy.

It's Wormicidal and also eases the hoarseness in voice. It can be used as mouth wash or gargles in case of hoarseness of voice.

Seed kernal of Vibhitaki relieves excessive thirst and vomiting and the ripened fruit is antidiarrheal.

It has anti-inflammatory properties. It has been used in case of muscular aches by applying vibhitaki powder in warm oil. The paste of the fruit can be applied on the eyelids in case of conjunctivitis.

This herb is used in case of eye ailments like myopia, corneal opacity, pterigium and immature cataract.

Vibhitaki also prevents premature ageing and is immune-modulator.

!

Follow Ayurveda and stay healthy



Author is an Ayurvedic Medical Practitioner. She did B.A.M.S. from M.D. University, Rohtak. She has consultation centres at Delhi and Noida. She is keenly interested in spiritual, women and social developmental activities. Contact No.: 9953967901,

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If you can find a path with no obstacles, it probably doesn't lead anywhere

- Frank A. Clark

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ठहरिए ...

मुकेश आनंद

ठहरना भी जरूरी है जिंदगी में, यूँ भागते रहना ठीक नहीं,

सो जाइये कई बातों पे, हर बात पे जागते रहना ठीक नहीं।

कुछ वक्त लगता है नई बात समझने में लोगों को, थोड़ा रुकिए,

कहा है तो धीरज रखिए, एक ही बात बार बार कहना ठीक नहीं।

ये जिंदगी की रेस है, देखिए पांव पीछे रख के अपने दोस्तों से,

आप जीत जाएंगे, हर जगह दौड़ के आगे जाना ठीक नहीं।

ये समय है जनाब, कभी ठहरता नहीं, बदलना इसकी फितरत है,

कभी कुछ बुरा हो जाए तो मन को उदास ज्यादा रखना ठीक नहीं।

काट डाला लोगों ने बारह, तेरह और चौदह साल जंगल में,

करना है बड़ा काम, तो छोटी बातों पे धीरज खोना ठीक नहीं।



कविअधिवक्ता एवं सामाजिक कार्यकर्ता हैं। सामाजिक विषयों पर पाठन, चिंतन –मनन, लेखन एवं उन पर कार्यान्वयन उनकी अभिरुचि है।
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धान हमारे प्रान

किसमत्ती चौरसिया 'स्नेहा'

झूमि- झूमि बरेसला बदरा अकासे
आवा सखि खेते चली मिलि- जुलि साथे-२

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झूमि- झूमि बरसेला बदरा अकासे

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चला सजादा धरती धानी चूनर से...



कवयित्री , सम्प्रति इलाहाबाद विश्वविद्यालय में डॉ विजय कुमार रविदास के शोध निर्देशन में अब्दुल बिस्मिलाह के कथा साहित्य पर शोधकार्य में संलग्न हैं। आजमगढ़ में गांव से ही स्नातक तक की शिक्षा प्राप्त किया है। स्नातकोत्तर शिक्षा काशी हिन्दू विश्वविद्यालय से वर्ष २०१७-१९ में प्राप्त की किया। इसके अतिरिक्त एनएसएस, कम्प्यूटर डिप्लोमा CCC और DCA भी किया है। पढ़ाई के साथ- साथ कविताएं एवं गीत लिखने का शौक है। कुछ कविताएं राष्ट्रीय- अंतरराष्ट्रीय समाचार पत्र- पत्रिकाओं में भी प्रकाशित हुई हैं। ई-मेल : sneha9628bhu@gmail.com

ग्लानि

भावना मिश्रा

आज बहुत राम को ग्लानी हो रही है। आज बहुत निस्सहाय अनुभव हो रहा है। अस्पताल के बिस्तर पर पर सोये - सोये थक चुका है। मन परेशान हो गया है, पर आज आँख से आँसू नहीं निकल रहे हैं, आँसू बह-बह कर अब आँखें सूज गयीं और आँख के आँसू अब सूख गये। आज अपने कर्म पर प्रायश्चित्त करने का मन हो रहा है। पर अब कोई सामर्थ्य नहीं बचा है। अब कुछ नहीं कर सकता ... कुछ भी नहीं कर सकता हैं

सात बहन के जन्म के बाद राम का जन्म हुआ था। पूरे घर-परिवार में सब आनंदित हो गया, पूरा घर-आँगन को खूब सजाया गया और बड़ा सा भोज हुआ। बहुत यश मिला।

हमेशा सभी के मुँह और मन में राम ही था। बहुत स्नेह और आदर से राम नाम रखा गया। पंडित जी बोले

"र" सं नाम रखना है।

"राम" नाम कैसा रहेगा ...?

सब बोले --- बहुत बढ़िया नाम है, सुबह-सुबह नाम लेगे तो दिन अच्छा हो जाएगा।

चाचा जी बोले --- भगवान् राम के जैसे ही माता-पिता भक्त होगा मेरा "राम" आदर्शवाद।

बहुत बढ़िया से लालन-पालन हुआ राम का।

राम जो बोलता, वही होता।

सभी बहनों का विवाह साधारण घर-परिवार में हुआ।

राम की पढाई-लिखाई उच्च स्तर का हुआ। खानदान का नाम तो बेटा ही बढ़ाएँगा। पापा कहते सब मनोरथ तो हम सब का राम ही पूरा करेगा।

माँ राम को अपने जान से ज्यादा

प्यार करती थी, पापा राम को देख कर ही प्रसन्न हो जाते थे। दादा-दादी को लगता था कि मेरा पोता के जैसा बढ़िया कोई नहीं है।

कितना भी राम गलती कर ले कोई कुछ भी नहीं कहता था।

छोटी बहन मीता पढ़ने में बहुत अच्छी थी। वह कहती थी कि डॉक्टर बनेगी, पर उसकी पढाई पर किसी का भी थोड़ा भी ध्यान नहीं था। मीता कहती की वो अभी शादी नहीं करेगी, पर सबने कहा कि इतना अच्छा लड़का नहीं मिलेगा। मैट्रिक पास होने के साथ ही मीता का विवाह हो गया।

राम के जिद पर डोनेशन दे कर राम विदेश पढ़ने के लिए चला गया।

सभी सेमेस्टर में जमीन बेच-बेच कर के राम को रूपया भेजा गया। किसी तरह राम की पढाई पूरी हुई और विदेश की बड़ी कम्पनी में नौकरी मिल गई।

सब बहुत खुश थे। बढ़िया से बढ़िया शादी के लिए रिश्ता आने लगा। माँ राम से बोली --- "बहुत लड़की का फोटो भेजी हूँ, जो पसंद आये बता देना।" राम बोला--

"माँ मैं अगले महीने घर आ रहा हूँ और तुम्हारे लिए गिफ्ट ला रहा हूँ।"

सब बहुत खुश थे, इतने दिनों बाद राम घर आ रहा है।

दादी पूछी -- "ये जीन्स टॉप में कौन है?"

राम बोला -- "ये मेरी पत्नी रीटा हैं। दिल्ली में इसके माता-पिता रहते हैं। हम दोनों एक साथ विदेश में पढाई और हम दोनों कोर्ट में विवाह कर लिये।"

सब अवाक रह गये। रीटा राम से बोली गाँव के रीति रिवाज उनको पसंद नहीं है। ये साड़ी पहनना भी उसे पसंद नहीं है। सुबह जिम नहीं जा पाती, घूमने भी नहीं जाती। वह अब उब गयी है। चार दिन किसी तरह बीता और राम जाने का टिकट बना लिया।

राम माँ से बोला -- "हम दोनों कल दिल्ली जाएँगे और अगले सोमवार को हम विदेश चले जाएँगे।

सबने रोकने की कोशिश की पर वो दोनों चले गए।

एक दिन माँ का फोन आया-- "राम दादा जी तबियत बहुत खराब है, तुम बहुत को लेकर जल्दी आ जाओ दादा जी तुम्हारा ही नाम हमेशा लेते रहते हैं, आ जाओ राम।"

राम -- "माँ छुट्टी नहीं मिल रही है। छुट्टी मिलने के साथ ही मैं आ जाऊँगा।

कुछ दिन बाद माँ का फोन --- "दादा जी अब नहीं रहें।

फिर माँ का फोन -- "दादी पूरे दिन तुम्हारा ही नाम लेती हैं आ जाओ जल्दी तुम राम दादी की तबियत ठीक नहीं हैं।"

राम -- "रीटा को माँ बनने वाली है, मैं नहीं आ पाऊँगा माँ।"

कुछ दिन बाद माँ का फोन -- दादी नहीं रहीं।

हमेशा राम कुछ ना कुछ कह कर गाँव नहीं ही आया।

10 साल के बाद एक दिन अचानक माँ के फोन आया --- "राम तुम्हारे पापा के किडनी खराब हो गया है। एक महीने से डेलीसिस पर हैं, तुम्हारी छोटी बहन मीता जैसे-तैसे पढ़कर डॉक्टर बन गयी थी, इसलिए तुम्हारे पापा अभी तक जिन्दा हैं।

10 लाख रूपया भेज दो। ऑपरेशन में लगेगा।"

राम --"माँ इतना रूपया भेजना अभी मुश्किल है, बच्चे बड़े हो गए हैं, उस पर बहुत खर्च है। 2 लाख भेज देता हूँ।"

माँ बोली-- 2 लाख से कुछ नहीं होगा।

माँ अपनी किडनी पापा को दी, सब कुछ बेंच कर पापा का आपरेशन सफल हुआ।

माँ बेटा राम का नाम लेते भगवान् के पास चली गयी।

पापा भी माँ के शोक में चल बसे

राम के बच्चे भी बड़े हो गए।

सब इस कोरोना के कारण दिल्ली आ गये।

राम का मन अच्छा नहीं लग रहा था। रीटा को बोला राम - "चलो अस्पताल में डाक्टर थोड़ा दिखा लेते हैं।"

रीटा बोली--"कैब बुक कर के चले जाइये, कोरोना है अभी, मैं क्या जाऊँगी, आप अकेले ही चले जाइये।"

राम अकेले ही कैब से अस्पताल पहुँचा। दो दिन में ही प्राइवेट अस्पताल का बिल बहुत हो गया रीटा फोन पर बोला --"बहुत रूपया अस्पताल का बिल हो गया, तुम रूपये लेकर आओ और पेमेंट कर दो।"

रीटा बोली -- अभी मेरा तबियत ठीक नहीं लग रहा है, मैं अस्पताल नहीं आ पाऊँगी।

बेटे को फोन किया ---तुमी जल्दी अस्पताल आ जाओ मेरा लीवर खराब हो गया है, आपरेशन के लिए मेरा क्रेडिट कार्ड सब लेते आओ। "

बेटा बोला -- पापा अभी कोरोना में हम नहीं आएंगे, अस्पताल की स्थिति बहुत ही खराब है, चारों तरफ कोरोना के ही मरीज़ भरे हैं।"

आज राम को अपनी माँ की बातें याद आने लगी, और आँख से आँसू बहने लगे।

राम को प्राइवेट अस्पताल से सरकारी अस्पताल में भर्ती करा दिया गया, एक पल राम के लिए पहाड़ होने लगा। उसके आँसू रुके ना रुक रहें थे।

राम को अपनी गलती पर बहुत पचतावा हो रहा था, पर आज जिस पत्नी और बाल- बच्चा के लिए वह अपने माँ- पापा, दादा- दादी को तड़पते छोड़ दिया था, आज उसको उसकी पत्नी और बच्चे सब तड़पते छोड़ दिये।

तड़प - तड़प के राम अपने पश्चाताप के आग में मर गया। पर राम से मिलने रीटा और बच्चे नहीं आये।

छोटी बहन डाक्टर मीता को पता चला, तो कि उसका भाई राम अस्पताल में भर्ती है, तो वह भागी - भागी पहुँची।

अस्पतालक कर्मचारी ---- राम के घर से कोई नहीं आया ये लावारिश लाश है, इसका दाह-संस्कार कोई कर दो।

डाक्टर मीता बोली --" ये मेरा भाई है, ये लावारिश लाश नहीं है।

आज ये पता चल गया अपना कौन होता हैं

सब के आँख से आँसू बहने लगे



लेखिका कला संकाय से स्नातक तथा एक गृहणी हैं। वे अपने पुत्र मनन और पुत्री नव्या के साथ अपने परिवार तथा बुजुर्गों की सेवा का आनंद लेती हैं। संगीत (गायन), नृत्य एवं भ्रमण इनके शौक हैं।

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*The most beautiful thing we can experience is the mysterious.
It is the source of all true art and all science.
He to whom this emotion is a stranger,
who can no longer pause to wonder and stand rapt in awe,
is as good as dead: his eyes are closed.*

- Albert Einstein

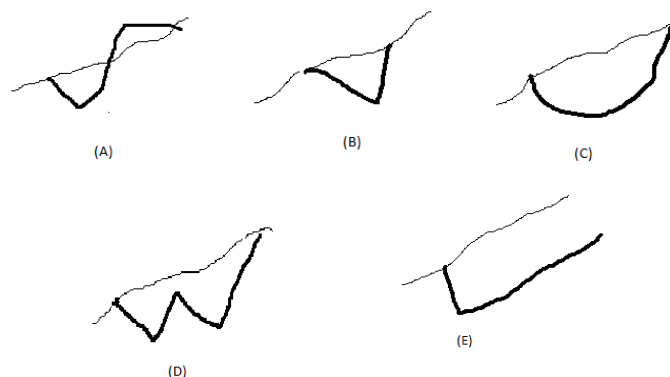
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Privatizing Profits and Socializing Losses?

Prakash Kale

From point of view of health, now Covid-19's effect and line of action to deal with it are more or less well decided. But what is uncertain is its economic effect and there is more than one debatable way to deal with it. ***Economy being a subject of zero sum of Money***; that is to support someone, someone else has to forgo or sacrifice. Every economic unit be it government, bank, industry ordinary citizen and so on is ultimately an intermediary, taking from someone and giving to someone else. Thus, under this unprecedented situation, this role and behavior of intermediaries has raised many ethical, political, legal etc. questions and issues to deal with it which can be clubbed under domain of political economy. For example, one view is, as government has prohibited economic activity it should foot the whole bill. Counter view is, as government has saved citizen from more adverse effect of disease and has also spent money to manage it and has suffered loss of own income by way of lower tax collection etc, government is entitled to increase its income by way of tax rate or otherwise. Another question is, when enterprises earn profit under normal or favorable condition, why they should not bear losses now? Or do losses of many should be compensated by the select enterprises (telecom, pharmacy, hygiene) that have enriched themselves under abnormal situation? When wages/ salary are based on work done, are workers entitled for payment for no work under lockdown. Should support to citizen or enterprise be based on its essentiality of activity to society (food items etc) or long term effect of situation on activity (tourism, hospitality). Though all type of cases cannot be dealt in short space, a few cases are being dealt in detail below.

Before we discuss the type of help or sacrifice that will be required due to Covid-19 crises, it is important to understand the factors that determine the shape of recovery and effect of type of the recovery on different sectors/ citizens. Factors include the overall duration of the pandemic, the effect on jobs and household incomes, the extent of fiscal stimulus (Govt. support) provided by government Etc. For instance, if the economic disruption was just for a small period wherein more



than people's incomes, it was their ability to spend that was restricted, then when the lockdown opened, it is possible to imagine a **"Z"-shaped** recovery (figure A). In this, the GDP — and here we are talking about absolute GDP, not GDP's growth rate — actually overshoots the trend path because of ***the pent-up demand***. Imagine, deferred parties, salon visits, movies, purchase of new cars, houses and appliances etc. — all of them get bunched up together. ***The way Covid -19 has extended in India such recovery seems out of question.*** But what if the economic disruption lasts longer resulting in several activities being ***forgone instead of being deferred***? For instance, all the summer vacations in Europe that won't happen this year. Or, even the monthly haircut — when you go to the salon after 3 months, you have already lost 2 haircuts-worth of economic activity forever! In such a scenario, and ***assuming incomes and jobs are not permanently lost***, the economic growth recovers sharply and returns to the path it was following before the disruption. This is called a **"V"-shaped** recovery (figure B). But what will happen if this recovery is slower and takes more time ***because the economic disruption*** resulted in several jobs being lost and people losing incomes, drawing down on their savings etc.? Then the economy will follow a **"U"-shaped** path. In such a scenario, after the initial fall, the recovery is gradual before regaining its momentum. If this process is more-long drawn than it throws up the **"elongated U" shape**. (Figure C). Since we are talking about a Covid-19 induced disruption, it makes sense to also look at a **"W"-shaped** recovery as well. This shape allows for the possibility of a V-shaped recovery, which is pegged back by a second wave of infections until of course, the economy recovers for the second time (Figure

D). The last scenario is the one policymakers most dread. It is called the “**L**”-**shape** recovery. Here, simply put, the economy fails to regain the level of GDP even after years go by. As the shape shows, there is a permanent loss to the economy’s ability to produce (Figure E). Given the weakness of the economy going into the Covid-19 crisis as well as the less than adequate fiscal stimulus, India is likely to end up with an “elongated U-shape” recovery. However, more than expected GST collection for month of June-20 gives hope that we may get V shaped recovery. Now, let us take a few cases to scrutinize, sacrifice and support based on above factors.

First question arises from concept of the government’s duty towards its people. From the onset and growth of infection, it was understood that the severe dislocation of the economy it would cause could not be compared to an *economic recession* or a *natural disaster*. The first results from vagaries of the domestic and international market and could be mitigated by countervailing policy measures. The second could be as catastrophic as a lockdown but the government could not be blamed for it. But the decision of lockdown, consequent to Covid-19, is a conscious act of any government. It therefore imposed a specifically *moral obligation* upon the government to make sure that the victims – *employers and employees* – suffered as little from it as possible. Thus recognizing that the lockdown would cause a crash in sales and drying up of revenues and would make it difficult for employers to meet their fixed costs and wage bills, and destroy income and demand. This had to be prevented at any cost. A view is that the government, therefore, *should spend* whatever is needed to meet the production and minimum wage and salary costs that would have to be paid to keep *factories in working condition and workers in place* to resume work when the lockdown was lifted. This is more important from technical point of view also, because Government is the only organization which can spend more than income.

But Government did not went by this line and in an order stated “employers shall make payment of wages of their workers at their work places, on the due date, without any deduction, for the period their

establishments are under closure during the lockdown.” The question is when there is generally well established practice of “No Work No Pay”, and employers are not earning anything why should they pay. *Matter went to SC*. The petition by MSMEs said they should be allowed to pay the employees 70% less (pay only 30 %) and argued that the government should take care of the rest, utilizing the funds collected by the Employees’ State Insurance Corporation or the PM Cares Fund or through any other government fund. The petitioners argued that they have not been able to conduct business because of the nationwide lockdown and that being forced to pay workers in full in these compelling circumstances has put extreme financial and mental stress on them. The top court expressing its reservations about order said, “So the question is, do you (government) have the power to get them (industry) to pay 100%, and on their failure to do so, prosecute them?” The bench observed that some discussions should be held to find solutions, after negotiations with industries, and government should play the role of facilitator. There are many more such orders which are being challenged or being circumvented.

One more example of differing perception about who should bear losses or sacrifice under present condition is from education sector (school, college and or coaching center). Parents have paid fees (or institutes are demanding) for which personalized attention to each student in class room was expected. But now institutes are offering an online program that consisted of pre-recorded lectures. Parents are questioning why they should pay hefty fees for vastly diminished services. Online learning also came with significant costs to parents, they have to buy separate laptops and mobile phones for student and also bear the cost of additional stationery items like printer, paper and cartridges to download hundreds of pages of pdfs of the course books. *All cannot afford it*. (This is another angel of exclusion etc). If students decides to drop out fees is not refunded. Institute’s version is not having class room lecture etc is not their failure and fixed expenses (like rent and salary) are not lowered for them. Instead, for benefit of student they have heavily invested (extra cost) and trained their teachers and staff to deliver online education and asking for the same (not higher) fees as earlier. *Who is right, definite answer is difficult*.

Ideally, support and sacrifice in above *illustrative cases* should be decided based on points stated earlier, but more or less what trend is visible at this point of time is, can be called as ***Privatizing Profits And Socializing Losses***. Privatizing profit and socializing losses refers to the practice of treating company/ enterprise earnings as the rightful property of shareholders/owners, while losses are treated as a responsibility that society (read government) must shoulder. In other words, the profitability of corporations is strictly for the benefit of their shareholders. But when the companies fail, the fallout—the losses and recovery—are the responsibility of the general public. The basis of this concept is that profits and losses are treated differently. The idea of privatizing profits and socializing losses generally comes ***in the form of some type of intervention from governments or and support from lending Banks (which hold the money of public)***. This may be through bailouts or any number of subsidies or write off of loans. Large corporations, their executives, and their shareholders are able to benefit from government subsidies and rescues in large part because of their ability to cultivate or buy influence through lobbyists. At the same time, defenders of controversial subsidies and bailouts contend that some firms are too big to fail. This rationale is based in the assumption that allowing them to collapse would ***cause economic downturns and have much more dire effects on the working and middle class population than rescues do***. This was the basis for the bailouts given to the big banks and automakers following the economic crisis of 2008 and presently being done world over to minimize economic effect of Covid-19. Let me explain by an example, industry A takes a loan of certain amount X at certain rate of interest Y from bank B. It means irrespective of amount of profit, Bank is entitled of Principal Amount X and fixed interest Y there on. But if loss occurs, Bank does not get agreed amount and interest. There is heavy hair cut (discount) in settling the loan account. ***In profit Loan is treated as Loan but in loss it is traded as Equity?*** Loss of Bank is compensated by Govt. (public money), or if ultimately Bank fails, saver's whole deposit goes in flame. Otherwise also generally to incentivize entrepreneur to take loan, rate of interest is reduced and then ***depositor suffers*** in the form of lower interest.

What is side effect of this theory or practice? While the pandemic ravaging economies and destroying livelihoods across the world and have pushed the world economy into a tailspin, the super rich, at least a select group, are getting richer. In the US, billionaires have become richer to the tune of \$565 billion since March 18. The total wealth for billionaires stood at \$3.5 trillion, up 19 per cent from the low point near the beginning of the pandemic. This is when nearly 43 million Americans filed for initial unemployment benefits. The surge in wealth of the richest Americans is being driven by the sharp bounce back of the stock market in US, ***primarily driven by the unprecedented action from the US Federal Reserve (US Central Bank)***. In India too, story in the form of company owners (on one side) and migrant labor (on the other side) is not different. With the new business opportunity many a company and their promoters have become rich. Contrast this with situation of general public in India. The lockdown has destroyed the livelihood and economic security of millions of people and resulting in ***the mass movement of nearly 10 million migrant workers***. Further economic compulsions make it impossible for people to sustain physical-distancing measures that might otherwise have been manageable (if there economic security and no need to venture out of home). ***This not only points to an economic and humanitarian crisis, it has direct epidemiological implications in growth of infection.***

What are the implications of these trends? The rising divide between haves and have-nots is already listed as a contributor to the unrest being fuelled across the world. Wealth inequality is likely to get even worse because of this crisis, experts say. “The surge in billionaire wealth during a global pandemic underscores the grotesque nature of ***unequal sacrifice***”. ***All this must change***. Above situation brings into sharp focus the urgent need to shift to a new paradigm of economic development and urbanization in which migration under economic distress or due to the lack of amenities is brought down. This can be done if we can convert the Covid-19 crisis into an opportunity to rethink and reimagining our development model. For Gandhi, the model of self-reliant villages was the basis of a free democracy. His was not a model of a closed

economy and a village economy perpetuating itself at the lower levels of income, but one in which local populations could be employed locally but with rising incomes and higher productivity. In order to make 650,000-plus villages and 800 million citizens self-reliant, technology will have to play a critical role. We need to create a rural knowledge platform through active collaboration between the public and private sector. This will provide the expertise to take cutting edge technology deeper into villages and generate employment.

Resulting strong social security could create a society that enables the country to withstand economic shocks. Presently the pandemic has sharpened discrimination, intensified exclusion, and amplified the bad in us. Insufficient though, it has also magnified selflessness and generated heroism in

the face of our *systemic ineptitude and structural moral failings*. But if we care to look, it has clarified that the morally worthy choices on the organizing principles of our society are also the most economically wise. Sound social security, strong labor laws, and universal access to good-quality public healthcare and education will create an economy that could absorb almost any shock, because it will build resilience at the level of the individual and the collective around her. People won't have to flee to imagined sanctuaries. Wherever they are, will be their sanctuary. It will also be a just, humane, and good society.

WE HAVE TO CHANGE PARADIGM: *PRIVATE HAS TO GAIN FROM PROFIT AND ABSORB LOSSES TOO.*



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*Who cares what am I or I do, as long as I am not either useful or dreadful.
Can I take first step to befriend other by complementing my usefulness,
for the larger good.*

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*Modern cynics and skeptics... see no harm in paying those
to whom they entrust the minds of their children
a smaller wage than is paid to those to whom
they entrust the care of their plumbing.*

- John F. Kennedy

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Some People Are Worth Melting For

विशाल सरीन

भावनाएं, प्यार, इश्क़ इत्यादि कुछ ऐसे शब्द हैं जो किसी भी फीकी बात को मीठा बना दें, अथवा मीठी ज़िन्दगी को विनाशकारी रूप भी दे देते हैं। सेना का एक जवान, जो कभी, अपनी ही सैन्य टुकड़ी के विरुद्ध होता है, वो टुकड़ी उस जवान को बचाने के लिए अपनी जान देने में नहीं हिचकिचाती। यह समय होता है जो उस जवान को अपनों का अपने होने का एहसास दिलाता है।

आप किसी व्यापार में हो या किसी भी तरह की नौकरी कर रहे हो, व्यवहार की बुनियाद परिवार से उत्पन्न होती है। जैसी सोच आप अपने परिवार के किसी सदस्य के लिए रखते हो, किसी परिस्थिति के होने पर अधिकांशतः वैसी ही सोच आप अपने साथ काम करने वालों के लिए रखते हैं।

अक्सर लगता है कि अगर मेरी टीम के किसी सदस्य ने कुछ गलत किया है तो मैं उसको डाँटूँ, उसको सजा दूँ या उसका काम और भी बढ़ा दूँ। लेकिन मेरे संस्कार मुझे ऐसा करने से रोक देते हैं कि नहीं इसको सीखने का और मौका देना चाहिए। कभी कभी इंसान ज़िन्दगी में इतनी मुश्किलों का सामना कर लेता है कि उसको लगता है कि सबको यह सबक मिलना चाहिए, जिससे हर कोई ज़िन्दगी का सलीका सीखे। वही ऐसे इंसान भी होते हैं जो सोचते हैं कि अगर मुझे कभी भूख ने सताया है तो किसी और को रोटी कि कमी महसूस न हो।

माँ बाप अपने बच्चों के प्यार में कभी फर्क नहीं करते लेकिन कई बार बच्चे ऐसे सोच बैठते हैं कि माता पिता उसके भाई अथवा बहन को ज्यादा प्यार करते हैं जो उनमें द्वारियों का कारण

बनते हैं। जब संस्कार ऐसे हो जाए तो व्यावहारिक सोच का ऐसा होना स्वाभाविक है जोकि अच्छा नहीं। सवाल यह है कि इसे कैसे रोका जाए या ऐसी सोच को कैसे ठीक किया जाए।



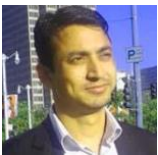
इसका हल है कोई गॉड फादर होना जो ऐसे माहौल में सही रास्ता दिखाए, सकारात्मक सोच या कोई करीबी जो सही दिशा का विचार कराये या प्रतीक्षा करो सही समय की जिससे बढ़कर कोई नहीं। Time is a great healer जोकि बड़े - बड़े जख्मों को भर देता है। अक्सर समय आपके सामने ऐसी परिस्थिति रखता है जो आपको अहसास कराए कि आपके साथ कुछ गलत नहीं हुआ।

अंत में बात कर्मों की होती है कि अगर कुछ गलत हुआ तो जाने अनजाने हमने किसी के साथ नाइंसाफी की होगी जिसके परिणाम स्वरूप ऐसा हो रहा है। इसको दकियानूसी सोच बोला जाये या अनुभव, लेकिन होता ऐसे ही है। स्वर्ग नर्क कहीं और नहीं इसी जन्म में है।



अगर ज़िन्दगी में कभी आपका सामना एक सच्ची भावना, इश्क़ या प्यार से हुआ है अथवा आपको किसी ने इसका अहसास दिलाया है तो आप किसी के साथ कुछ अनुचित करने से पहले सोचेंगे जरूर। चाहे वो आपका मित्र हो, पारिवारिक सदस्य या टीम का सदस्य। क्योंकि यह लोग अलग हो सकते हैं पर आपकी सोच का आधार एक ही है।

तो आईये प्रयत्न करें की कभी किसी के साथ गलत न करें और इस व्यवसायिक ज़िन्दगी की दौड़ में दिमाग के साथ कभी कभी दिल की बात को भी सुना जाये।



लेखक भारतीय मूल के मिनेसोटा, अमेरिका स्थित आई. टी. व्यवसायिक हैं। लेखन उनका शौक है।

ई - मेल : VishalSareen2003@gmail.com

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Problems are meant to be solved; every solution opens doorway to new problems.

This is an endless journey to discovery of nature.

We are, what we are, because of rigorous effort of countless persons.

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I don't think anybody anywhere can talk about the future...

without talking about education.

Whoever controls the education of our children controls our future.

- Wilma Mankiller

EVOLUTION OF IOMS

- Philosophy of IOMS had its inception in Sarthak Prayash an NGO, in May'2012 in Chalk-N-Talk Mode with stray students.
- Its manifestation in the form of e-Bulletin started in 2016, on 2nd October with its First Issue **Subodh पत्रिका**
- In May' 2017 the initiative was upgraded to IOMS, in its primitive form, with the efforts of its Shri Shailendra Parolkar
- This initiative was reorganized as Gyan Vigyan Sarita in 2017 with its e-Bulletin in the name of **Gyan Vigyan Sarita – शिक्षा**
- With this e-Bulletin as Fourth Annual issue, we are stepping in Fifth year of broadening communication to invoke participation of those who can make a difference, for the larger good.
 - Presently it is a satisfactory working model on 'Minimum Need' basis.
- Currently about 75 students of three rural schools, one is RKM High School in A.P. and other two at remote area, are being ng mentored. At Dinjan it is our first step to mentor children of our brave soldiers securing our frontiers
 - We continue to look forward.....

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It has been observed that normally a person responds to a problem or a situation either extempore or thoughtfully. Extempore response is intuitive and instant, while thoughtful response is delayed. This delay depends upon one's ability, patience to analyze the situation and the time available to respond. Accuracy of instant response is regulated by intuitive skills of the person. Growth of this intuition in turn is regulated by expertise attained by a person to analyze and act upon a situation. Multidimensionality in versatility, depth and spread of the intuition leads to wisdom.

This expertise or wisdom cannot be achieved in one leap. It is a result perseverance in the pursuit of striving against cyclic failure-success and grows like a spiral.

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Educations in teue sense add pupose to the life.

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हम सब भारतीय हैं

डॉ. अर्चना पांडेय 'अर्चि'

हम सब भारतीय हैं, भारत हमारा प्रिय देश है। यह ऋषि-मुनियों की कर्मभूमि है। भारत अपने दया, क्षमा और अद्भुत प्रेम की वजह से पूरे संसार में अपना विशिष्ट स्थान बनाए हुए है। भारत की प्रकृतिक छटा बहुत निराली है। प्रकृतिक की गोद में इसके अनेक शहर बसे हुए हैं। गंगा जैसी पावन नदी भारत की शान है। उत्तर में गिरिराज हिमालय सीना ताने खड़ा है जो भारत के गौरव को बढ़ाता है। यहाँ हर तरह की फसलें होती हैं। भारतवर्ष बहुत ही समृद्धशाली देश है। इसकी समृद्धि संसार भर के लोगों को आकर्षित करती है। इसी वजह से विश्व के कई देशों ने छल-कपट से भोले-भाले भारतीय लोगों को अपने जाल में फँसाकर इस पुण्य भूमि को, साजिश रचकर अपना गुलाम बना लिया। बहुत कड़ी मसक्कत के बाद भारत को 1947 में अंग्रेजी हुकूमत से आज़ादी मिली। वर्तमान समय में भारत विश्व के अग्रणी देशों में शामिल है। भारत के स्त्री और पुरुष कंधे से कंधा मिलाकर चल रहे हैं। हर वह काम जो पहले सिर्फ पुरुष करते थे आज महिलाएं बड़ी आसानी से करते देखी जाती हैं। अंतरजातीय विवाहों के प्रचलन से समाज में एकता स्थापित हो रही है। अगर हमारे देश से आरक्षण के बवाल को खत्म कर दिया जाए तो भारत के सभी वर्ग समान होकर एकता के सूत्र में बंध जाएंगे।

भारतीय शिक्षा व्यवस्था में भी बदलाव की आवश्यकता है। भारत एक है लेकिन यहाँ विभिन्न तरह की शिक्षा व्यवस्था, समझ पाना बड़ा मुश्किल है। तरह-तरह के विद्यालय, तरह-तरह की पुस्तकें विद्यार्थियों के साथ-साथ माता पिता को भी बहुत परेशान करती हैं। बच्चों को बचपन से ही प्रतियोगिता के जाल में फँसा दिया जाता है जिससे उनके अंदर का मौलिक हुनर खत्म हो जाता है। और वे बहुत अच्छे से पढ़-लिखकर फिर से अपने माता-पिता तथा सरकार पर बोझ बन जाते हैं। इसका वास्तविक वजह यह है कि उन्हें जो पसंद है वो करने नहीं दिया जाता और पैसा जो मनुष्य के कदम-

कदम पर लगता है उसको अर्जित करने के लिए कोई जानकारी विद्यालयों में दी ही नहीं जाती है। अगर भारत की शिक्षा व्यवस्था में परिवर्तन हो जाता तो निश्चित रूप से भारत सोने की चिड़िया और विश्व-गुरु है जो हर भारतीय के लिए बड़े सम्मान की बात है।

विश्व का सिरमौर है

हमारा प्यार हिंदुस्तान
हम हिन्दुस्तानी है इसकी शान
भरा है जिसमें वेदों का ज्ञान
बरबस ही खींचता पूरे विश्व का ध्यान
धन- धान्य से आच्छादित है भारत महान
विश्व.....

बागों और बगीचों से सुसज्जित है
षष्ठ-ऋतुओं का आनंद समाहित है
गंगा-यमुना का जल प्रवाहित है
गिरिराज हिमालय खड़ा है सीना तान
विश्व.....

आओ हम मिल करें प्रण
इसकी खुशहाली के लिए
तत्पर रहेगा प्रत्येक जन
इसकी सुरक्षा हेतु तैयार रहेगा तन और मन
गौरवशाली भारत को विश्व करता प्रणाम
विश्व.....



लेखिका, उदलगुरी चाय बागान, डिब्रूगढ़ असम M. A, B.Ed., P.hd हैं। इनका व्यवसाय शिक्षण/संपादक/अध्यक्ष हिंददेश है। इन्हें साहित्य ज्योति, सहित्य सरोवर, हिंददेश, कुंज प्रसून श्रेष्ठ रचनाकार इत्यादि सम्मान प्राप्त हैं। वे उदलगुरी चाय बागान, डिब्रूगढ़ असम निवासी हैं।

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Education is not filling of a pail, but lighting of a fire.

- William Buttlar Yates

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श्रीकृष्णार्जुन भावधारा

(श्रीमद्भगवद्गीता के द्वितीय अध्याय 'सांख्य योग' का हिन्दी काव्यात्मक भावानुवाद)

सुनील चौरसिया 'सावन'

हे अर्जुन !

क्यों बैठे हो डरकर ?

मोह-माया में फँसकर

कौन है तेरा अपना , कौन है पराया ?

सबको एक दिन जाना है, जो भी यहाँ आया।

तेरे उत्सुक नयनों पर, अज्ञान का पर्दा छाया।

तोड़ दो मोहमय बन्धन।

क्षण भर का है जीवन।।

स्वर्ग का दरवाजा खोलने तू आजा।

या सांसारिक सुख को तौलने तू आजा।।

बैठे-बैठे क्या करोगे ?

जग-जीवन में जहर भरोगे।

काम करोगे, नाम करोगे।

विश्व में महान बनोगे।।

जो 'सोच्य' नहीं है उसे सोचते हो क्यों ?

ज्ञानी हो, अज्ञानता को सींचते हो क्यों ?

जहाँ 'मैं' है वहाँ मैं नहीं।

इस भाव को समझो तो सही।

मैं था, मैं हूँ और रहूँगा मैं।

'सर्वजन हिताय' सदा चाहूँगा मैं।।

बचपन, जवानी, बुढ़ापा , मौत झेलती है देह।

ओह! फिर भी इसमें फँसकर करती है नेह।।

वर्षा से गल जाती है।

धूप से जल जाती है।।

ठण्ड से ठिठुरते हुए,

बसन्ती गीत गाती है।।

भूल जाओ जाति-पाँति, धर्म, भेद, वर्ग।

समान रहोगे सुख-दुःख में तभी मिलेगा स्वर्ग।।

तूफ़ाँ आएगा, ढह जाएगी झूठ की झोपड़ी।

'सावन'-सत्य इमारत रहेगी युगों तक खड़ी।।

दिखादो निज शक्ति, दिशाओं को कर दो भस्म।

सामने श्रद्धेय द्रोणा हों या पूजनीय भीष्म।।

पूजनीय पर कैसे चला दूँ अधम बाण ?

भीख भले माँगूँगा, न लूँगा पुण्य-प्राण।।

अरे ! क्या वे डर जाएंगे ?

मारोगे ? मर जाएंगे ?

है जो अविनाशी उसका तुम करोगे नाश ?

क्या मिट पाएंगे पावक, पानी, पवन, आकाश ?

युद्ध करो युद्ध, उठाओ धनुष, छोड़ो तीर।

निखर जाएगी आत्मा, बिखर जाएगा शरीर।।

कोई कहता मर गया,

कोई कहता है मारा।।

सुनो गुमसुम अर्जुन !

अज्ञानी है जग सारा।।

अजर-अमर व निराकार

आत्मा की है शाश्वत सत्ता।

आत्मा निकले शरीर से

ज्यों शरीर से कपडा-लत्ता।।

न कटारी से कटे, न जले आग से।

न जल से भींगे, न सुखे त्याग से।।

नाश होगा, नाश होगा, होने दो।

सारी दुनिया रो रही है, रोने दो।।

जगने वाला जगती में जगता है,

जो सोया उसे सपनों में खोने दो।।

भूत में न भविष्य में, नश्वर शरीर है आज।

मध्य में 'मैं-मैं' कहे क्यों अहंकारी समाज ?

अचरज में पडा है देखो इन्द्रिय-लोक।

कभी झूमे खुशियों में, कभी करे शोक।।

विनाशी में अविनाशी बसे,

मोह माया रावण-सा हँसे।

दिग्भ्रमित दुनिया को देखो,

दिनों-दिन दुनिया में फँसे।।

हे अर्जुन !

कर्म करो कर्म।

है कर्म तुम्हारा धर्म।।

कहाँ जाओगे भागकर ?

कर्मों को त्यागकर।।

कर्मों को त्यागकर, करो न घोर पाप।

हे ज्ञानी प्राणी जरा सोचो अपने आप-

बिनु प्रयत्न खुल चुका है, स्वर्ग का दरवाजा।

दुःख-दरिया को त्यागकर, सुख-सागर में समाजा।।

बाद में पछताओगे सारा समय गँवाकर।

'पश्चाताप' ही पाओगे, स्व सद्कर्म भूलाकर।।

इन्सानियत तेरा कर्म है, मानवता तेरा धर्म है।

दया, क्षमा, ममता इस जिन्दगी का मर्म है।।

बदनामी से अच्छी मौत, त्याग दो यह लोक।

लोक-परलोक में कहलाओगे-कायर, डरपोक।।

मरकर स्वर्ग पाओगे, जीतकर धरती-धाम।

उठो-उठो हे वीर सपूत, कर दो काम तमाम।।

सुख मिले या दुःख, जीत हो या हार।

पश्चाताप त्यागो, करो अरिदल का संहार।।

'अपना-अपना' मत करो, हिम्मत से करो युद्ध।

'रण-क्षेत्र' छोड़ भागोगे, बरसेंगे शब्द अशुद्ध।।

हे वीर अर्जुन !

ज्ञान-लोक में करके सैर।

कर्म-सागर में खुशी से तैर।।

कर्म करो कर्म लेकिन कर्म हो निष्काम।

धर्म, शील, सद्कर्म से मिलेगा मुक्ति-धाम।।

मनसा, वाचा, कर्मणा कर्म का हो ध्यान।

'सावन' सच्चा कर्मयोगी जग में पूज्य महान।।

सदा करो सद्कर्म, मत करो कर्म का त्याग।

ज्यों करोगे फल की इच्छा, लग जाएंगे दाग।।

भूल जाओ हे योगी, सिद्धि व असिद्धि।

सद्कर्म करो फल सोचे बिन, पाओगे प्रसिद्धि।।

कर्म-बन्धन में बँधो भले, पर मन में हो समता।

त्याग से नाता जोड़ो, तोड़ो मोह-माया से ममता।।

दुर्गुणों के रज से, दूर रखो मन-दर्पण।

तभी स्थितप्रज्ञ संग सत्य के होंगे दर्शन।।

हे केशव ! स्थितप्रज्ञ प्राणी बोलता है किस तरह ?

उठता, बैठता, चलता, खिलता है किस तरह ?

"हे अर्जुन! स्थितप्रज्ञ प्राणी, सुख देता है त्याग।

स्थिर मन प्रकाशित होता, ज्यों दीपक अनुराग।।

सुख मिले या दुःख, करता नहीं परवाह।

आँख मूँदकर आगे बढ़ता, धूप हो या छाँह।।

साधु सदा साधना करे, वैरागी करे न क्रोध।

मुनि मनावे मन को, तपस्वी सहे प्रतिशोध।।

है वही स्थितप्रज्ञ, जिसका मन नहीं चंचल।

सुख में शान्ति से रहे, दुःख में रहे निर्मल।।

जिस तरह कच्छप, समेट लेता है अंगों को।

उसी तरह सत्पुरुष, समेट लेता है इन्द्रियों को।।

विषयों के विष से, बच जाने वाला प्राणी।

मोक्ष का अधिकारी है और है प्रज्ञा-ज्ञानी।।

विषय से आसक्ति बढे, बढे कामना-क्रोध।

क्रोध से कुबुद्धि बढे, राग, द्वेष, प्रतिशोध।।

पूर्णिमा की चाँदनी से स्वच्छ होवै प्रासाद।

चमचम-चमचम चित्त चमके, ज्यों निशा में चाँद।।

बुद्धि नहीं तो भाव नहीं, भाव नहीं तो दुःख।

दुःख में शान्ति क्रान्ति करे, मिले न मुक्ति-सुख।।

संसार-सागर, विषय-जल में, तैरे बुद्धि-नौका।

मन-पवन में फँसी कुबुद्धि, डुबी तो 'सावन' चौका।।

हे विवेकी विभत्सु ! विषय में क्यों तू खोता।

जग में जग जगता, तड़पता और संयमी सोता।।

करो भोग का भोग लेकिन बनो कभी ना भोगी।

घटो, न चढो चोटी, ज्यों सागर, मुनि, योगी।।

जिसका तन-मन-वचन, रहेगा सुन्दर-स्वच्छ।

उसको इसी जीवन में, मिलेगा परम मोक्ष।।

सुख मिले, न मिले, पर मन सुमन-सा खिले।

ममता रहित, समता सहित, तिनका सा न हिले।।

हे पार्थ ! स्वार्थ, मोह, माया मिटाकर।

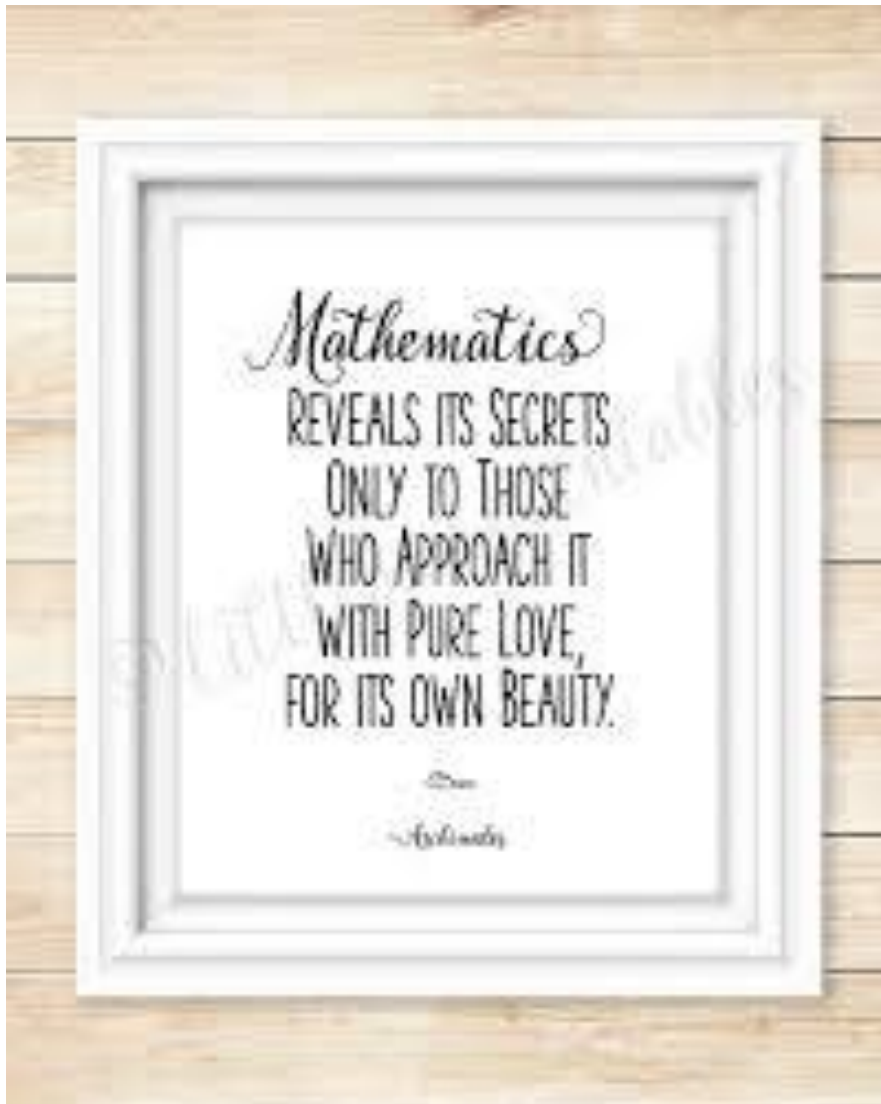
जीव परम सुख पाता, विधाता में समाकर।।



अनुवादक, प्रवक्ता, स्नातकोत्तर शिक्षक (हिंदी) एवं एनसीसी अधिकारी के पद पर केंद्रीय विद्यालय, टेंगा वैली, अरुणाचल प्रदेश, सेवा प्रदान कर रहे में हैं। आपका कार्यक्षेत्र-अध्यापन, लेखन, गायन एवं मंचीय काव्यपाठ है तो सामाजिक क्षेत्र में नर सेवा नारायण सेवा की दृष्टि से यथा सामर्थ्य समाजसेवा में सक्रिय हैं। विधा-कविता, कहानी, उपन्यास, लघुकथा, गीत, संस्मरण, डायरी, निबन्ध आदि है। आपने 'राष्ट्रीय भोजपुरी सम्मेलन' एवं 'विश्व भोजपुरी सम्मेलन' में सोलह देशों के साहित्यकारों एवं सम्माननीय विद्वेषियों-विद्वानों के साथ काव्यपाठ एवं विचार विमर्श भी किया है। आपकी रचनाएँ देश-विदेश के प्रतिष्ठित समाचार-पत्र एवं पत्रिकाओं में प्रकाशित हैं। आपको अनेक पुरस्कारों से सम्मानित किया गया है।

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शांति बांटता, वही महान

उर्मिला द्विवेदी

(हम भारतवासी शांति प्रिय हैं। हमें शक्ति से अधिक अपने सामर्थ्य पर विश्वास होता है। शठे शाठ्यं समाचरेत में हम विश्वास करते हैं। देशहित हमारा सबसे बड़ा हित होता है। इन्हीं बातों को कहती कुछ पंक्तियां)

ना अमरीका ना जापान
सबसे बड़ा है हिंदुस्तान
ताकत बड़ी नहीं लो जान
हिम्मत होती बड़ी महान
भारत बना बड़ा बलवान
धोखा देना ना आसान
चीन मेरी अब बातें मान
सुधरो वरना मिटेगी शान
हांगकांग तेरा करे बखान
कितना अच्छा तू इंसान
अर्थशास्त्र का फंडा जान
भारी झोली ही वरदान
हिन्द का जागा हर इंसान
छोड़ रहा तेरा सामान
देश में सबसे बड़ा किसान
सेना खातिर दे संतान

चीन भूल जा तू गलवान
शौर्य हमारी ले पहचान
कोरोना को जीते हर दिन
तुझको भी जीतेंगे एक दिन
कहता भारत भागो चीन
अबकी लेंगे अक्साई चीन
कुछ मति मूढ़ नेता नादान
राष्ट्र के गौरव से अनजान
बोलें दिल से हो तल्लीन
जैसे उनका सब कुछ चीन
देश का करते ये नुकसान
बुद्धि इन्हें दो हे भगवान
आपदा में हम डालें जान
मानें उसको भी वरदान
जल-थल-नभ गाये गान
शांति बांटता वही महान



कवयित्री, एम0ए0 (समाजशास्त्र), सीनियर सिटीजंस के कल्याण के कार्यों की देखभाल, खाली समय में पढ़ना, लिखना, और पति के सामाजिक हित के कामों में हाथ बंटाना.

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*I don't think anybody anywhere can talk about the future...
without talking about education.*

Whoever controls the education of our children controls our future.

- Wilma Mankiller

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RAPPORT

Adv. Jyoti Rani

CBSE results for class 10th and 12th are out now. Very brilliant results. But definitely some children scored low ranks. But, we should not bother about this. Knowledge, Ranking and future career are different things we need to understand and make our children to understand as well. In our busy schedule we hardly talk to our children. We have been missing a rapport between we and children. We should take out some quality time from our busy schedule and talk to our children. How to talk to these teenagers is definitely a skill. By establishing a rapport with our children would give proper result.

WHAT IS RAPPORT: Rapport is a bonding at an unconscious level. Being an NLP practitioner. I do it with my children and believe me it's a magical result.

HOW TO BUILD RAPPORT: It can be broadly classified in three steps -

1. By taking genuine interest in your child.
2. By being curious about how they think.
3. By being willing to see the world from their point of view.

PACING AND LEADING: By pacing we enter our

children's model of the world on their terms. It is like walking beside them at the same pace.

Once we have paced build rapport and shown that we understand them, then we get the chance to lead them.

MATCHING AND MIRRORING: We pace and build rapport through 'matching'. Matching is when we mirror and complement an aspect of another person.

It is not copying. It is more like a dance. Matching can be done at every neurological level, like environment, behavior (verbal, non-verbal), capabilities, beliefs/values, identity.

It can be done by Body movement and is classified in –

- Leg position, head position, arm position, rhythmic tapping of fingers, hands.
- Breathing pattern: speed, depth, location
- Eye contact
- Speed of speech, volume of speech, tonality of speech, pauses, key words, phrases and predicates



Author is certified Neuro Linguistic Trainer. Training programmes on Stress Management are very simple to practice. Being a Law graduate she is free-lance human-rights volunteer. She has been honoured Twice for contributions. She is extending her services in deep interior village in Bihar. Where from she was elected as District Councillor. She is actively engaged in creating awareness rural ladies about family planning and hygiene. She visited Singapore to study human rights and hygiene. She takes classes for needy children.

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*Modern cynics and skeptics... see no harm in paying those
to whom they entrust the minds of their children
a smaller wage than is paid to those to whom
they entrust the care of their plumbing.*

- John F. Kennedy

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Digital Sum and Digital Sum Check

H.D. Motiramani

This method is very useful for answering the multi choice questions. It is also useful while checking whether our answer is right. In competitive tests, a candidate can save a lot of his/her time.

Digit sum of any number is the successive sum of all the digits of that number resulting into a single digit. When we add the digits of a number, the addition often results in more than one digit, the digits of the arrived sum are again added and this process continues till we get a single digit.

For example: Let us take a number 895205

$8+9+5+2+0+5=29$. We have to reduce this number 29 to a single digit.

So we add $2+9=11$ again 11 is a two digit number. Again we add $1+1$.

$1+1=2$. So this single digit number 2 is called the digital sum of 895205

Let us take another example:

763586949

$7+6+3+5+8+6+9+4+9=57$, Now $5+7=12$ again $1+2=3$ so 3 is the digital sum of the big number 763586949

A small tip to quickly arrive at the digit sum:

While we add each digit of a number let us keep ignoring 9. For example $7+6=13$ so we can either reduce 9 from 13 or add $1+3$ to arrive at 4. Subsequently we keep this number in our mind and use this number 4 rather than 13. Also, whenever we see a number 9 in a big number, we can safely ignore it and not add. Like this the calculation of digital sum will be much fast. To make this point clear the digit sum of number 631 will be 1 because we can safely ignore $6+3=9$, likewise digit sum of 452 will be 2 and digit sum of 277 will be 7 (We ignored $2+7=9$). The digit sum of 3459632791 will be 4. Let us see how? When we start from 3459632791 we begin with 3 then we come across 45 which can be ignored then 63 which again can be ignored and likewise 9 after the numbers 2 and 7 can be ignored. Then comes 1 in the number 3459632791. So 3 (in our mind) $+1=4$. Like this we can be very quick in arriving at a digit sum number.

Now let us see how this digit sum method is useful for checking our answers. Let us take one example each of addition, subtraction and Multiplication.

1.Example of Addition

Let us add following two numbers:

359456789 -----> digit sum of this number is 2

+954231789 -----> digit sum of this number is 3

Addition of these two digit sums is
 $2+3=5$

1313688578 -----> digit sum of the answer is having
digit sum =5 hence the answer is correct

2.Example of subtraction

Let us take two numbers, One of them to be subtracted from other. Let us take the same numbers

797564 -----> digit sum of this number is 2

-321754 -----> digit sum of this number is 4

Subtraction $2-4=-2$ (whenever we get a negative number we need to add it to 9. In other words $9-2=7$ So 7 will be the digit sum number for -2)

475810 -----> digit sum of the answer is having
digit sum = 7 hence the answer is correct

3.Example of Multiplication

Let us take two numbers to be multiplied with each other

797564 -----> digit sum of this number is 2

×321754 -----> digit sum of this number is 4

Multiplication of these two digit
sums is $2 \times 4=8$

256619407256 -----> digit sum of the answer is having
digit sum = 8 hence the answer is correct



Author is ME (Elect. Engg.) , PGDBA with more than four decades of years experience in power sector from engineering, R&D, administration. Despite being engineer he did make his career in Finance and retired as Director (Finance). Post superannuation he has settled at Bhopal.

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COVID – 19: A Boon for Educational Technology?

Iman Fatima Gulam Mohamad

Not since World War II have so many countries seen educational institutions closed due to a lockdown — around the same time and for the same reasons. According to a UNESCO COVID Monitoring website, approximately 1.72 billion learners have been affected due to closure of educational institutions. In a matter of weeks, the Covid-19 pandemic has changed as to how students are being educated around the world.

Covid-19 has forced universities across India, and the world to suspend physical classrooms and shift to online classes. In India, while this transition has been smooth for most private schools and universities, the public ones are still adapting. There have also been debates on the nature of classes, and the future of examination and evaluation — whether they could be conducted online or not.

The inaccessibility to physical classrooms is accelerating new educational pedagogy, being digital at its heart. Although the use of technology for education is on vogue since decades, thanks to this pandemic the centuries-old, chalk-n-talk teaching model is being transformed into one that is driven by technology and focuses on skill development. This is resulting in new trends coming up in a post-Covid-19 world that will positively impact the education system across the globe.

But, before I move further and list down all the great opportunities online education provides to both educators and more importantly the learners, let me tell share that teaching online is no piece of cake!

Online sessions, if not planned properly, can be challenging for educators and can have a negative impact on learners too. Some of the challenges that can be faced when practicing online learning for both educators as well as students are as follows:

- **Interrupted learning:** Schooling provides essential learning and when schools close, children and youth are deprived of opportunities for growth and development. The lack of free-flowing conversations, debates, and discussions with their mentors as well as with their peers is also a big factor that impacts learning.
- **Confusion and stress for educators:** When schools close, especially unexpectedly and for unknown durations, educators are often unsure of how to maintain connections with students to support learning. Transitions to distance learning platforms tend to be messy and frustrating, even in the best circumstances. They also face the inability to have a face-to-face connect with students and facilitate free conversations, discussions, and mentoring.

- **Unprepared parents:** When schools close, parents are often asked to facilitate the learning of children at home and can struggle to perform this task. This is especially true for working parents or parents with limited education and resources.
- **Social isolation:** Schools are hubs of social activity and human interaction. When schools close, many children and youth miss out on social contact that is essential to their learning and development.
- **Technical load on portals:** Demand for distance learning increases when schools close and often overwhelms existing portals to remote education. Moving learning from classrooms to homes at scale and in a hurry presents enormous challenges, both human and technical.
- **Examination Challenges:** Calendared assessments, notably high-stakes examinations that determine admission or advancement to new education levels and institutions, are thrown into disarray when schools close. Strategies to postpone, skip or administer examinations at a distance raise serious concerns about fairness, especially when access to learning becomes variable. Disruptions to assessments results in stress for students and their families and can trigger disengagement.
- **Technology related issues:** In India, all students do not have access to a good internet connection or high-end devices like laptops or computers. This is one of the major infrastructure related challenges faced by students.

With a global health crisis going on, it is only natural to be focused on the challenges. But as the world begins to feel the beneficial effects of the emergency measures against COVID-19, it is time to look to the future.

What have we learnt from the pandemic when all is said and done? Will schools ever be the same again? Especially when this prolonged period of forced closure has pushed educators all around the world towards a more extensive use of technology to grant their students continuity in the face of adverse circumstances.

We don't have control over this pandemic, as to when it will be over. Nor do we have control over the changes that will occur in the schooling system once this pandemic diminishes. What we can control is how to make education for the yearning students who are beneficiary and interested in using all the tools available online.

With mobile devices that can quite literally let you carry your classroom in your pocket and the vastness of the Internet as an alternative to textbooks, the world can be a learners' classroom. But its easier said than done.

Having said that, here are a few suggestions that educators can take to make online learning to be effective:

- **Know about Online Learning:** It is important for you to know about Online Learning to be able to use it effectively. Online education is conducted in two ways. The first is through the use of recorded classes, which, when opened out to public, are referred to as Massive Open Online Course (MOOCs). The second one is via live online classes conducted as webinars, or zoom sessions. Educators require high-speed internet and education delivery platforms or learning management systems, besides stable IT infrastructure and faculty members who are comfortable teaching online. Students also need high-speed internet and computers/mobiles to attend these sessions or watch pre-recorded classes.

- **Professional Development of Educators:** Just as students are expected to adopt new learning methods and subjects as a result of the rise of technology, similarly, educators will have to step up their game by embracing new roles and responsibilities.

Thanks to the pandemic, we can see this change right now as well. Going from typical classrooms to conducting lectures in Zoom/ Microsoft Teams and many more, educators in India have to brace themselves for online learning and teaching. An article published on Deccan Herald states that teachers who are unwilling to learn and accommodate these new challenges will be rendered redundant.

- **Personalized Learning:** Personalised learning enables students to learn at their pace. This is primarily because every individual has their unique strengths and weaknesses, and grasps concepts at their own pace.

In a traditional classroom setting, going at each student's pace is impossible. Hence, with the help of technology, students will get access to study material online, including documents and videos, allowing them to learn about concepts at their speed, anytime, anywhere.

To achieve this, educators can divide students into groups and take sessions separately so that each learner gets the attention that they need to get the concepts clear. This also allows the educator to have control over the learner engagement.

- **Sharing Learning Materials:** Through the e-Learning System, educators can share the learning material prior to the virtual classes. They can also upload various types of documents, e-books, videos, or others and they can set the

time when those documents can be accessed. Once the students and educators are on the same platform, they can immediately work on the materials and instructions. This feature minimizes miscommunication, because the documents shared can always be accessed at any time.

- **Project-Based Learning:** This type of learning expects students to collaborate, think critically, and work in a group to develop innovative projects and come up with answers to complex questions.

This enables the students to research, analyse, evaluate and construct the concepts and have an impactful learning experience.

- **Online Evaluations:** Evaluations don't only involve appearing for an examination in the form of multiple-choice questions or vivas. They can be presented in various forms like individual assignments, student presentation of materials, discussion activities using discussion boards.

Now the next question that crops up in one's mind is what is the best tool that can be used to teach students online. UNESCO has added a list of solutions that one can use for this purpose. Most of the solutions curated are free and many cater to multiple languages. While these solutions do not carry UNESCO's explicit endorsement, they tend to have a wide reach, a strong user-base and evidence of impact. They are categorized based on distance learning needs, but most of them offer functionalities across multiple categories. You can access these solutions on: <https://en.unesco.org/covid19/educationresponse/solutions>

As the mainstream institutions are moving online to ensure learning continuity in the lockdown scenario, this trend is likely and should continue post-Covid-19 too. Going forward, there may be a mix of face-to-face and online learning once the institutions resume with social distancing norms.

It is clear that this pandemic has utterly disrupted an education system that, many assert, was already losing its relevance. However, schools in India continue to focus on the traditional academic skills and rote learning, rather than on skills such as critical thinking and adaptability, which will be more important for success in the future.

Could the move to online learning be the catalyst to create a new and more effective method of educating students? While some worry that the hasty nature of the transition online may have hindered this goal, I for sure hope that e-learning becomes a part of our 'new normal' after experiencing the benefits, first-hand.



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जीवन एक उत्सव है

श्रीमती माधवी संतोष अडपावार

हम जहां भी देखते हैं वहां हमें तनाव, विचारों में भेदभाव और नकारात्मकता की सोच दिखती हैं। इसकी वजह से मनुष्य संघर्षमय जीवन में हार जाता है। हर तरह उदासीनता का वातावरण फैल जाता है। इसकी वजह से मनुष्य जीवन में कुछ भी नहीं कर पाता है। लेकिन हम सोचें तो सृष्टि कितनी सुन्दर है हर तरफ आनंदमय वातावरण है। हर रूप में भगवान विराजमान हैं जैसे पेड़, पौधे, पशु, पक्षी, जीव, जन्तु यह सभी भगवान के अंश ही हैं। यह भी हमारे जैसे संघर्ष करके अपने अन्न तयार करते हैं। कुछ हासिल करने के लिए दीये के बाती की तरह जलना पड़ेगा फिर हम दूसरों को उजाला दे सकते हैं।

भगवान ने मनुष्य ऐसे महान प्राणी को जीवन में जन्म एक ही बार दिया है और बुद्धि, भावना, उपहार के स्वरूप दिये हैं। ताकि वे जीवन में आगे जाकर अपने परिवार को सुखी रख सकें और समाज

में सब के साथ मिल जुलकर सामाजिक, नैतिक कार्य कर सकें। धर्म अनुसार देश का हितकारक काम कर सके और नई सोच बुद्धि में जागृत कर सकें। खुशियां हमारे आसपास है वे देखने के लिए हमें कोशिश करनी पड़ती है। जीवन में खुशियां और शांति लाना है तो हमें हमेशा आनंदी रहना होगा। आनंद की कोई सीमा नहीं होती है। आनंद अपने विचारों और सकारात्मक भाव से आता है। हर प्राणी अपने मन में सकारात्मक भाव लाएं तो हर समय, हर एक दिन दीवाली और दशहरा लगेगा। नये विचारों के साथ मनुष्य की तरक्की बढ़ती है और विचारों के परिवर्तन से घर में खुशहाली आकर शारीरिक प्रकृति अच्छी रहती है। इन सब अच्छी बातों का मूलमंत्र एक ही है खुद खुश रहो और दूसरों को खुशियां बांटते रहो खुशियां बांटने से बढ़ती है और दूर गये अपने पास आते हैं। धर्म और नीति के रास्ते पर चलने वालों की कभी हार नहीं होती और संपूर्ण जीवन एक उत्सव लगता है।



रचयिता, बी.ए., बी-एड., तह- पांढरकवडा, जिला यवतमाल महाराष्ट्र निवासी, एक हैं। पठन- पाठन एवं लेखन उनकी अभिरुचि है।

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Communication (Computer with Communication capability i.e. internet) has forged the world, which is otherwise fragmented into narrow boundaries, into a global village. All that we need to do is to connect the most deprived persons through strings of education. Communication provides the much needed solution in the form of Virtual Class Rooms.

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*Nothing is more important than education,
because nowhere are our stakes higher;
our future depends on the quality of education of our children today.
- Arnold Schwarzenegger*

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Some Challenges of Future Distance Education: A New Learning Environment Globally

Prof. Gurdeep S Hura

Background of Distance Learning: It is evident from the literature survey that the concept of distance education was introduced in the late 1900s when the US Postal Service was developed. The services offered by US postal services like sending back and forth the correspondences reliably at remote locations led to the development and implementation of distance education where instructional material and other required assignments are distributed between instructor and students via postal services (concept of correspondence college). The distance education today has become more sophisticated and easily accessible using web and digital technology. A number of universities around the world offer online courses, online degrees at all levels (B.S., M.S. and Ph.D), online certifications and is becoming a legitimate and popular trend for distance education from a computer, mobile devices, etc.

The first official correspondence program, “Society to encourage home studies) was established in Boston, Massachusetts in 1873. The University of Queensland in Australia introduced correspondence studies program based on its Postal system in 1911. In 1946, the University of champion and innovator of distance learning.

After the First World War, Radio transmission was used to provide distance learning and training at remote locations. In 1950s, the University of Houston began offering the first televised college classes on KUHT (today called HoustonPBS) as a part of distance learning and became the first public television station in the United States. This station was offering teaching material for about 13 hours per week. The educational teaching material transmission accounted for approximately 38% of channels’ total bandwidth time. Many of the courses were shown during the evenings so that people working during the day time can view the material in the evening.

Online Learning: The invention of Personal computers and personal web sites, the University of Phoenix became the first institution to offer both undergraduate and graduate degrees online in 1989.

In 1996, Jones International University became the first accredited and fully web-based university. The distance learning and education system grew in different directions with different options and inbuilt services. The Blackboard Learning system Inc., published the results of its survey in 2003 stating that about 40,000 instructors are involved in teaching over 150,000 online courses to nearly 6 million students across 55 countries.

According to a number of surveys done in 2019, over 21 million students in US are taking online classes and it looks that this trend is likely to continue into future as evident from the survey results that over 83% of all US institutions that offer online courses are expecting an increase in online enrollment during 2019-2030.

The growth of distance learning programs has created another level of opportunities in higher education. The average age of students enrolled at the University of Phoenix is about 33, more than 50% of students taking online classes are female, nearly 93% of traditional colleges are offering online courses. Another level of advances in distance learning has emerged as Open courseware concept that offers video lectures, quizzes, examinations, homework and available to the students from class discussion. This concept has been successfully implemented by pioneer institutions like UC Berkeley, MIT, Harvard and few others.

If you study the Computer Science, Information Science disciplines, it will give a strong foundation in both theoretical and technical aspects of computing that will be very useful in growing field of distance education for the design and development of innovative tools in distance learners. If you study the business administration that will be useful in learning the aspects of business including marketing, management, finance and accounting and will help in running a successful organization, college or a company.

Features and Benefits of Distance Learning: Some of the features of distance education include technology involved for the coursework, flexibility,

social interaction but poses a number of issues and challenges of distance education globally

The real benefits of distance education can be achieved by following steps: read instructor's handout carefully and consider this as a roadmap of the course, turn in all the assignments, examinations, quizzes, homework and other assigned reading work, look for online resources and search for new ideas in the roadmap of your courses, regular interaction with instructor and peers, stay organized and self-disciplined, contribute to discussion groups, learn new ideas to overcome the challenges of distance learning, etc.

Issues and Problems Associated With Distance Learning:

The distance education is associated with formats of teaching material but lacks of multi-media instruction, insecurities about learning, lack of interaction with instructor and classmates, lack of support and services, lack of social interaction among learners, lack of student training, etc. It is based on complicated technology and basic learning may be a major drawback as malfunctioning of software or hardware may not provide appropriate connection and can bring opportunities to learn via any connected devices, without relocation or attending in-person classes but at the same time may cause a disaster for distance education.

Some of the disadvantage it offers include: lack of face-to-face interaction with instructors and peers, more work, high level of responsibilities for self-orientation and direction, lack of accreditation, employment opportunities, requires more work, technical skills to deal with distance education environment, choice of courses, degrees, colleges and many associated issues and concerns.

Some of the problems the students will face in online or e-learning include: adoption to new learning system, technical issues, time management, self-motivation and discipline, technical skills of aspects of computer, networks and associated tools, campus life, partying, social problems, homesickness, online courses in freshman level and many others.

In-Demand Online Degrees: According to US Bureau of Statistics (2018), the following online degrees will be in-big demand in the next decade

- Health care and related industries (both undergraduate and graduate degrees)
- Nurse practitioners and physician assistants
- Computer and mathematical occupations (relevant to Engg or IT degrees)
- Demand for mobile and digital devices, application software developers is expected to rise to 25.6% between 2018 and 2028
- Concerns: online security, employment in cybersecurity professionals is expected to grow by 31.6% through 2028
- Fastest growing fields with median annual salary: Information Technology (\$53,470),
- Health care (\$66,440) and Cybersecurity (\$98,350)

Tools for Distance learning: Some of the tools that have been used for distance learning include: Google classroom, Pear Dock, Blackboard, Coursera, Canvas, Edpuzzle, Khan Academy, Edmodo and many others. Some of the videoconferencing tools that have also been used in distance learning include: Google hangouts, ClickMeeting, CitrixGoToMeeting, Adobe Connect, Skype Premium, cVoice, Cisco WebEx, Join.Me, StartMeeting, Yogma and many others.

Future Challenges in Distance Learning

New set of requirements for Global Software Development for Distance education including intensive collaborative activities across culture, language and time zone boundaries, adequate communication (otherwise it will impact the geographical distance between stakeholders), management and time differences. We may have to explore the possibility of integrating technologies like: Virtual reality, Artificial Intelligence (AI), Augmented Reality (AR), quality assurance, massive open online course development others to support distance learning efficiently.

Future Problems with Distance Education:

- Reinforce teaching and learning approaches
- Educators will be overwhelmed and unsupported to do their jobs
- Protection and safety of children will be harder to safeguard
- School closures will widen the equity gaps
- Poor experience with ed-tech during will make it harder to get buy-in later

Opportunities leverages for future:

- Blended learning approaches will be tested and used heavily
- Distance education professional development research
- Teachers and schools will receive more respect and support for their important role in society

- Quality teaching and learning materials will be better curated and more widely used
- Teacher collaboration will grow and help improve learning
- This crisis will help us come together across boundaries globally



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प्रतिदिन आगे बढ़ना होगा

मनोरमा प्रसाद

यह माह जुलाई फिर-फिर
लेआती कॉलेज की यादें,
नव उमंग नव उत्साह भरे
होती थी पढ़ने की बातें।

वह नए किताबों की खुशबू
जो मुझको बहुत सुहाती थी,
श्रेष्ठ गुरुवरों को प्राप्त कर
पढ़ने की ललक बढ़ जाती थी।

नए-नए मित्रों का साथ
लेकर के हाथों में हाथ,
कॉलेज परिसर में जब घुसती
होता एक सुखद एहसास।

वह बसों की धक्का-मुक्की
जो मन को पीड़ा देती थी,
कुछ करने को है जीवन में
नित नई प्रेरणा मिलती थी।

जब न पाती, पूरी पुस्तकें
नातेदारी से ले आती थी,
न्यूज़पेपर का कवर चढ़ा कर
मन ही मन सुख पाती थी।

जलाकर लालटेन खोल किताबें
बुनने भविष्य लग जाती थी,
उस लव के मध्यम प्रकाश से
एक नई शक्ति मिल जाती थी।

जब चढ़ती थी नींद निर्दयी
उठकर के मुंह को धो आती,
सपनों को सच करने के लिए
उसको अपने से दूर भगाती थी।

करना है जो अब जीवन में
खुद को ही करना होगा,
इसी सोच को शिरोधार्य कर
प्रतिदिन आगे बढ़ना होगा।



कवयित्री, एम.ए. संस्कृत साहित्य एवं हिंदी साहित्य, बी.एड. यूजीसी नेट (हिंदी), साथ ही एन.एस.एस और संस्कृत संभाषण का प्रशिक्षण प्राप्त हैं। वे बाराबंकी उत्तर प्रदेश में शिक्षिका हैं। उन्हें साहित्यिक एवं सांस्कृतिक सेवाओं के लिए सम्मानित किया जा चुका है। उनकी कविताओं का राष्ट्रीय पत्रिकाओं में प्रकाशन के साथ शैक्षिक गतिविधियों में महत्वपूर्ण योगदान के साथ ही, समाज की बेटियों को शिक्षा के प्रति जागरूक करने की दिशा में अनवरत कार्य में संलग्न हैं। लोकगीत गायन में विशेष अभिरुची है। ई-मेल : manormachaurasia1974@gmail.com

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Education in India

Visheshar Singh Jaspal

Education is a constitutional right in India. However, it is well known that country is in sorry state of affairs as far as education in country is concerned and offers ample of opportunities and scope so that education is available to all in a manner which will transform social-economic profile of deprived children; it's citizens

This is the status even when RIGHT TO EDUCATION ACT OF 2009 has been promulgated. As per act 21-A of constitution of INDIA, section 3 of the act states that every child between ages 6 to 14 years , should be provided with elementary education. As a result, statistics of enrolment are building, budgetary expenses, private participation is being invited but its impact in read, write and basic arithmetic competence is yet to become visible. this is not happening. Education is a socio-economic reform of a country. In our country full of linguistic, socio, cultural, economic and geographic diversities, affecting any change requires a much longer gestation period. In fact, children in poor families are forced to work and earn their livelihood. For them going to school for education is for mid-day meals, otherwise it is an unaffordable luxury. Even in deep rural areas boys and girls have to travel few kilometers to reach school. This is an important and distressing factor, yet true.

On the other side, we have schools for education of children coming from affluent families having fabulous infrastructure, and brand of both national and

international schools. This too has a grey areas and need improvements. Immense commercialization in education, is making education a means of getting degrees, no matter

whatever means are adopted in securing the objectives. This has prompted mushrooming of coaching centers, which are flourishing in country and doing good business. Teachers who should be responsible for providing good education, also fall victim to monetary temptations and greed for money. Teachers are considered to be second parents of children, on whose shoulder rests the responsibility of

grooming children into good citizens of country. But in the prevalent scenario they have become more involved in making money rather than improving educational competence and moral values through high standard of their teaching.

Schools and colleges are presently more concerned with increasing number of students enrolled rather than monitoring the staff members, teaching standards and the ways they go about doing their job.

It can only be hoped that good wisdom will prevail among all those involved in teaching, and government will also not lag behind in fulfilling it's responsibilities of carving roadmap of country for our future generation to move along with a sense of high esteem and prosperity.



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पोस्ट कोविड-19 में हमारी शिक्षा प्रणाली की चुनौतिया अवसर और विकल्प

डॉ. चित्रांगद उपाध्याय

चीन की धरती पर पनपे कोरोना विषाणु से पूरा विश्व संकट में है। पचास लाख से अधिक लोग उसकी चपेट में हैं। भारत में प्रभावित लोगों का आंकड़ा सवा लाख को पार कर गया है। कोरोना वायरस से उपजी महामारी कोविड-19 से आर्थिक एवं शिक्षा के क्षेत्र सबसे अधिक प्रभावित हुए हैं। देश के लोगों की भौतिक आवश्यकताओं की पूर्ति हेतु अर्थ के बिना काम नहीं चल सकता। इस अर्थ का देश में अभाव एवं अति प्रभाव भी न हो, यह कार्य बिना शिक्षा के संभव नहीं। पिछले दो-ढाई माह से अधिक समय से देश के सभी शैक्षणिक संस्थान ठप हैं। लॉकडाउन के कारण सारे शैक्षणिक संस्थानों को बंद करना पड़ा, जिससे शिक्षण-प्रक्रिया बाधित हुई है। ज्ञान के निर्बाध प्रसार को सुनिश्चित करने के उद्देश्य से विद्यालय से लेकर विवि तक समस्त शैक्षणिक संस्थानों को वैकल्पिक शैक्षणिक ऑनलाइन अधिगम अपनाना पड़ा है, जिसे डिजिटल लर्निंग, ई-लर्निंग, वेबवेस्ट लर्निंग, वर्चुअल स्पेस लर्निंग, रिमोट लर्निंग, दूरस्थ शिक्षा या गृह शिक्षा इत्यादि नामों से भी जाना जाता है। अकादमिक विमर्श भी ऑनलाइन हो रहे हैं और प्रशासनिक व अकादमिक निर्णय लेने हेतु बैठकें भी ऑनलाइन हो रही हैं।

ऑनलाइन परीक्षा मात्र औपचारिकता हो पाई। 10 एवं 12 वीं बोर्ड की अधिकतर परीक्षाएं संपन्न होने के उपरांत बाकी परीक्षाएं नहीं हो पाईं। अभी ऑनलाइन परीक्षा लेने की बात कही गई है। कुछ राज्यों ने अंतिम वर्ष या बोर्ड की परीक्षा को छोड़कर बाकी परीक्षाएं लिए बिना ही आगे के वर्ष में प्रमोशन करने की घोषणा कर दी है। वैसे ऑनलाइन परीक्षा भी मात्र परीक्षा की औपचारिकता ही होगी।

कोविड-19 ने शिक्षा के समक्ष व्यापक चुनौतियां पेश कर दी हैं। वर्तमान शिक्षा में आधारभूत बदलाव करके ही हम चुनौतियों को आसानी से अवसर में बदल सकते हैं।

महामारी के प्रकोप के चलते विश्वविद्यालयों में शोध-अनुसंधान कार्य बंद हैं। महामारी के प्रकोप के चलते विश्वविद्यालयों में शोध-अनुसंधान कार्य बंद हैं। छात्रों के व्यक्तित्व के समग्र विकास हेतु चलने वाली खेल, सांस्कृतिक गतिविधियां, कला संबंधी कार्यक्रम आदि भी रुके हुए हैं। कोरोना का यह संकट जल्दी समाप्त होने वाला नहीं है। विश्व में यह मत बन रहा है कि कोरोना भी चलेगा और जिंदगी भी। जहां चुनौती होती है वहां अवसर भी होते हैं, जहां समस्या होती है वहां उसके समाधान भी निहित होते हैं। स्वामी रामकृष्ण परमहंस ने कहा था कि जीवन में आए अवसरों को व्यक्ति साहस एवं ज्ञान की कमी के कारण समझ नहीं पाता। हमें साहस एवं ज्ञान, दोनों का परिचय देना होगा।

महामारी के कारण बड़े पैमाने पर ऑनलाइन शिक्षा प्रारंभ हुई। हमारे देश में शिक्षा क्षेत्र में लंबे समय से ऑनलाइन शिक्षा की बात चर्चा में थी। कुछ छुट-पुट प्रयास भी हुए थे, परंतु इस महामारी के कारण आज बड़े पैमाने पर ऑनलाइन शिक्षा प्रारंभ हो गई है। ऑनलाइन शिक्षा मात्र तकनीक नहीं सामाजीकरण की नई प्रक्रिया है जिसके जरिये सरकार और नीति निर्धारकों की नीति को समझा जा सकता है और उसे उसी रूप में देखने की भी जरूरत है। कोरोना संकट में शारीरिक दूरी बनाए रखकर शिक्षा के लिए तकनीकी का प्रयोग एक बात है। वैसे भी तकनीकी के विकास के साथ ही शिक्षा में भी उसका उपयोग होता रहा है। यह होना जरूरी भी है। ब्लैकबोर्ड से लेकर स्मार्टबोर्ड तक बदलती तकनीकी का उपयोग क्लासरूम टीचिंग को मजबूत और रुचिकर बनाने के लिए किया जाता था लाइब्रेरी का डिजिटल होना उसी प्रक्रिया का एक रूप है। प्रो फेसर्स के व्याख्यान को रिकॉर्ड करना और उन्हें ऑनलाइन उपलब्ध कराना भी तकनीकी का उपयोग करना ही है। इन तकनीकों का उपयोग कर सामाजीकरण की प्रक्रिया को शिक्षा के द्वारा बढ़ाया जाता रहा था।

यूजीसी के अनुसार अगस्त के पहले कॉलेज प्रारंभ नहीं होंगे। यूजीसी को यह सुझाव दिया गया है कि जब भी शैक्षिक कार्य प्रारंभ हो तब दो दिन ऑनलाइन, दो दिन प्रत्यक्ष संस्थान में आकर पढ़ाई, एक दिन प्रोजेक्ट वर्क अर्थात व्यावहारिक अनुभव हेतु शिक्षा दी जाए। इससे हम वर्षों से रटन प्रक्रिया वाली पढ़ाई में परिवर्तन कर सकते हैं। दो दिन ऑनलाइन में व्याख्यान हो। उसमें से उठे प्रश्न एवं छात्रों को जो बातें समझ में नहीं आएं उसके लिए दो दिन प्रत्यक्ष क्लास हो और चार दिन की पढ़ाई का व्यावहारिक अनुभव एक दिन के प्रोजेक्ट वर्क से हो। इस प्रकार पढ़ाने की विधियों में हम आधारभूत बदलाव कर सकते हैं।

सभी महाविद्यालय और विवि दो पारी में चलाने चाहिए, हर रोज 20 फीसद छात्र संस्थान में आएँ। सभी महाविद्यालय और विश्वविद्यालय दो पारी में चलाने चाहिए जिससे हर दिन 20 फीसद छात्र ही संस्थान में आएँ। इससे शारीरिक दूरी की जरूरत भी पूरी हो जाएगी और ट्रैफिक भी कम होगा। वाहन कम चलने से प्रदूषण भी कम होगा। ऑनलाइन शिक्षा की जो समस्याएं हैं उनका समाधान दो माह में ढूंढना होगा। इस हेतु शिक्षकों का शिक्षण करना आवश्यक होगा। गांवों, जनजातीय क्षेत्रों में कनेक्टिविटी की समस्या होगी, गरीब छात्रों को मोबाइल डाटा खर्च की भी समस्या हो सकती है। इन सबके समाधान की तैयारी के साथ यह सुनिश्चित करना होगा कि ऑनलाइन शिक्षा मातृभाषा में ही दी जाए।



लेखक एम.एससी। (भौतिकी) एम.एड. (गोल्ड मेडलिस्ट), शिक्षा के क्षेत्र में पीएच.डी. राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद में भारतीय शिक्षा प्रणाली पर कई पुस्तकें विकसित करने में महत्वपूर्ण भूमिका निभाई। इन्हें NCERT से प्रतिष्ठित नेशनल इनोवेशन अवार्ड प्रदान किया गया। बिहार राज्य के प्रमुख साधन व्यक्ति के रूप में उनका प्रतिनिधित्व करने के लिए उन्हें NCERT द्वारा भी चुना गया था। डॉ. उपाध्याय ने "आकाशवाणी" के साथ स्कूल ब्रॉडकास्टिंग प्रोग्राम के सलाहकार के रूप में भी काम किया। इन्हें अखिल भारतीय कॉलेजों की मान्यता के लिए NAAC टीम के सदस्य के रूप में भी चुना गया। इन्हें सर्वश्रेष्ठ शिक्षक पुरस्कार "ग्लोबल टीचर रोल मॉडल अवार्ड" के लिए अंतर्राष्ट्रीय पुरस्कार मुंबई में प्रदान किया गया। वर्तमान में डॉ. उपाध्याय उज्जैन में महाराजा एजुकेशनल ग्रुप के कार्यकारी निदेशक के रूप में कार्यरत हैं। ई-मेल : chitrangad@yahoo.com

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Everyone Can Reach There, But, Cannot Stay There

संतोष राजाराम अडपावार

आत्मसंयम एक ऐसी कला है, ऐसी स्थिति है, जो हमें कभी गिरने नहीं देती है। इसे ही जीवन कला भी कहे तो कोई अतिशयोक्ति ना होगी। क्योंकि मन बहुत चंचल है, पल में तोला, पल में माशा करता रहता है। मन में उठती भावनाएँ सागर में उठती लहरों समान हैं। तभी उठती हैं तभी शांत हो जाती हैं। परंतु इन लहरों के साथ साथ हम बहते रहे तो मन भी हमें सिर्फ बहकाते रहेगा। कभी किनारे तक पहुँचने नहीं देगा, ना ही शांतमय जीवन जीने देगा। तब इसे संयमित रखना परम आवश्यक हो जाता है। इसे अन्य जगह से हटाकर अपने लक्ष्य पर सदा टिका कर रखना होता है। इसे काबू में रखना और अपने लक्ष्य या ध्येय पर टिके रहने के लिए आत्मसंयम बहुत जरूरी है। बड़ी बड़ी सफलता पाकर भी कई बार विफल हो जाते हैं वह सिर्फ बिना आत्मसंयम के। खुद पर नियंत्रण ना रखते हुए अहंकारी बन जाते हैं। तो कभी खुद को हीन समझने लगाते हैं। खुद का पतन खुद ही कर बैठते हैं। मन हमेशा नई नई बातों में उलझा देता है, नई नई इच्छाओं को जन्म देता है। हमें कई

बातों की तरफ आकर्षित करता रहता है। इसे बस आत्मसंयम से ही काबू में रखा जा सकता है। मन बेवजह डर, उतावलापन, भ्रम, शंका, कुशंका, निराशा, उद्वेग, अति उत्सुकता, चिंता, तर्क वितर्क, असूया, अमर्ष ऐसे कई संचारी भावों से हमें भ्रमित करता रहता है। हमें जहाँ पहुँचना है, शांतिपूर्ण जीना है वहाँ से भटका देता है।

इन सब के लिए आत्मसंयम ही बहुत जरूरी है। खुद पर नियंत्रण और संतुलन बनाए रखना ही जीवन कला है; यही आत्मसंयम है।

जो खुद पर काबू है रखता
जीवन को वह सही है रखता
सारे समस्याओं का हल तब
सहज पास वह है रखता।



लेखक, तहसील-पांढरकवडा, यवतमाल, महाराष्ट्र निवासी, बी.ए. शिक्षा प्राप्त कर व्यापार में लग गये, पठान एवं लेखन उनकी रूचि है। उनका एक काव्य संग्रह प्रकाशित हो चुका है और उन्हें साहित्य कढ़ेतीरा में कई पुरस्कार से सम्मानित किया गया है।

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Inetellectualism is not about criticizing or advising without any responsibility of implementation; it is about taking upon responsibility of actions for the larger good.

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COVID-19: LESSONS OF NATURE NURTURE

Dr. Bandita Bagchi

On March 11, 2020 WHO (World Health Organisation) had officially declared COVID-19 outbreak a *pandemic* due to the global spread and severity of the disease. The news about it had started pouring in from the month of December 2019 and ever since then we have been constantly knowing about this viral disease bit by bit. Every day there is a revelation and new facets are unfolding. March 24th 2020 has been a memorable day because ever since then we Indians are mostly indoors and COVID-19/Coronavirus pandemic has been the compelling force.

Epidemics have ravaged humanity throughout its existence, often changing the course of history and, at times, signalling the end of entire civilization(s). A *pandemic* disease is an *epidemic* that spreads over a large area, meaning it is “prevalent throughout an entire country, continent, or the whole world.” Widespread nature of this particular viral disease has to be attributed to the rapid modes of travel and transport, global connectivity between people and nations at large. The reasons for such activity can be varied but, there should be no doubt that this is an effect of globalization wherein, entire world is described as a unit and people, businesses, institutions, organizations work very closely. This social phenomenon has led to shrinking of geographical distances as a result of man-made developments. Even though their community level implications are obvious, I would like to present some relevance to a few basic scientific principles.

For instance, according to Newton’s third law of motion, “for every action (force) in nature there is an equal and opposite reaction.” Let us think about it in terms of coronavirus pandemic. Didn’t we deliberately allow shrinking of physical distance? Today we can reach other parts of globe in matter of hours or days, whereas in earlier times, it would take several months and was unscalable in times even earlier to it. Since it was a difficult feat very few would travel so far and wide in those days. Today it is a common affair to travel across the world. We have worked against the nature to bridge the gaps of natural origin like, ocean, mountain, deserts and forests. So, this is a human directed action. Now after several years of build-up we are here facing nature’s reaction to it. Pandemic is an opposite force against human beings, compelling us to be at the receiving end. It is a state of conflict between human activities and nature. We are trying to go back, reverse our actions, i.e., maintain physical distance which is being termed as

social distancing. People are finding it tough to do so, why? Simple, we have become used to our ways and have forgotten the original version.

Pandemics have ravaged human civilisations from time to time. A few famous ones are as bellow:

a) Prehistoric epidemic (Circa 3000 B.C), b) Plague of Athens (430 B.C), Antonine Plague (A.D. 165-180), Plague of Cyprian (A.D 250-271), Plague of Justinian (A.D. 541-542), The Black Death (1346-1353), Cocoliztli epidemic (1545-1548), American Plagues (16th Century), Great Plague of London (1665-1666), Great Plague of Marseille: (1720-1723), Russian plague (1770-1772), Philadelphia yellow fever epidemic (1793), Flu pandemic (1889-1890), American polio epidemic (1916), Spanish Flu (1918-1920), Asian Flu (1957-1958), AIDS (1981-present day), H1N1 Swine Flu pandemic (2009-2010), West African Ebola epidemic (2014-2016), Zika Virus epidemic (2015-present day), Coronavirus pandemic (2019-present day).

Let us elaborate it a bit for instance

- a) Cocoliztli epidemic was a form of viral haemorrhagic fever caused by a subspecies of *Salmonella* known as *S. paratyphi C*. It killed 15 million inhabitants of Mexico and Central America.
- b) The American Plagues are a cluster of Eurasian diseases brought to the Americas by European explorers. These illnesses, including smallpox, contributed to the collapse of the Inca and Aztec civilizations and has been estimated to have killed 90% of the indigenous population of Western Hemisphere.
- c) The Great London plague which was transmitted by fleas from plague-infected rodents ended 15% of population and caused mass exodus from the city. Similarly, the 30% of the population perished in Great Plague of Marseille. Russian plague is known to have led to riots amongst the desperate people of Moscow and the empress Catherine struggled to restore order.
- d) When yellow fever seized Philadelphia, the United States' capital at the time, officials wrongly believed that slaves were immune. As a result, abolitionists called for people of African origin to be recruited to nurse the sick. However, the disease was carried and transmitted by mosquitoes, hence the epidemic finally stopped by the change of weather.

e) In the modern industrial age, the Flu epidemic (1889-1890) grew up to the proportion of pandemic, because the, new transport links made it easier for influenza viruses to wreak havoc. In just a few months, the disease spanned the globe, killing 1 million people. It took just five weeks for the epidemic to reach peak mortality. The earliest cases were reported in Russia. The virus spread rapidly throughout St. Petersburg before it quickly made its way throughout Europe and the rest of the world, despite the fact that air travel didn't exist yet.

Twentieth Century and Later Outbreaks:

A **Polio epidemic** that started in New York City (1916) caused 27,000 cases and 6,000 deaths in the United States. The disease mainly affected children and sometimes left survivors with permanent disabilities. Polio epidemics occurred sporadically in the United States until Salk vaccine was developed in 1954. As the vaccine became widely available, cases in the United States declined. Worldwide vaccination efforts have greatly reduced the disease, although it is not yet completely eradicated.

The current COVID-19 pandemic has found comparisons to a century old **Spanish Flu** (1918-1920), because of the extent of spread and lethality. An estimated 500 million people from the South Seas to the North Pole fell victim to Spanish Flu, one-fifth of those died. Some indigenous communities were pushed to the brink of extinction. The flu's contagion was widespread and proved fatal due to the cramped conditions of soldiers and poor wartime nutrition that many people were experiencing during World War I. Despite the name Spanish Flu, the disease likely did not start in there. Spain was a neutral nation during the war and did not enforce strict censorship of its press, which could therefore freely publish early accounts of the illness. As a result, people falsely believed the illness was specific to Spain, and hence, the name Spanish Flu.

The **Asian Flu pandemic** (1957-1958) was another global show for influenza. With its roots in China, the disease claimed more than one million lives. The virus that caused the pandemic was a blend of avian flu viruses. The CDC (Centres for Disease Control and Prevention) USA, noted that the disease spread rapidly and was reported in Singapore in February 1957, Hong Kong in April 1957, and the coastal cities of the United States in the summer of 1957. The total death toll was more than 1.1 million worldwide.

Another recent (1981- present day) outbreak of **Acquired Immuno-Deficiency Syndrome (AIDS)** has claimed an

estimated 35 million lives since it was first identified. Human Immunodeficiency Virus (HIV), which is the virus that causes AIDS, likely developed from a chimpanzee virus that transferred to humans in West Africa in the 1920s. The virus made its way around the world, and AIDS was a pandemic by the late 20th century. Now, about 64% of the estimated 40 million living with HIV live in sub-Saharan Africa. For decades, the disease had no known cure, but medication developed in the 1990s now allows people with the disease to experience a normal life span with regular treatment.

Swine flu pandemic (2009-2010) originated in Mexico in the spring of 2009 before spreading to the rest of the world. In one year, the virus infected as many as 1.4 billion people across the globe. This flu pandemic primarily affected children and young adults, and 80% of the deaths were in people younger than 65 according to CDC.

Ebola virus disease or Haemorrhagic fever (2014-2016) ravaged West Africa between and 28,600 cases were reported with 11,325 deaths. The first case to be reported was in Guinea in December 2013, then the disease quickly spread to Liberia and Sierra Leone. The bulk of the cases and deaths occurred in those three countries. There is no cure for Ebola, although efforts at finding a vaccine are ongoing. The first known cases of Ebola occurred in Sudan and the Democratic Republic of Congo in 1976, and the virus may have originated in bats. The virus is transmitted to people from wild animals (such as fruit bats, porcupines and non-human primates) and then spreads in the human population through direct contact with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids.

Zika Virus (2015-present day) The impact of the recent Zika epidemic in South America and Central America won't be known for several years. In the meantime, scientists face a race against time to bring the virus under control. The Zika virus is usually spread through mosquitoes of the *Aedes* genus, although it can also be sexually transmitted in humans. While Zika is usually not harmful to adults or children, it can attack infants who are still in the womb and cause birth defects. The type of mosquitoes that carry Zika flourish best in warm, humid climates of South America and Central America.

Coronavirus pandemic (December 2019- Present) In March 2020, SARS-CoV-2 was the first coronavirus to reach a pandemic level, by causing COVID-19. Previously, health agencies and government bodies managed to prevent coronavirus infections from

becoming more than localized epidemics. For instance, MERS (Middle East Respiratory Syndrome) is still active, but outbreaks occur on a much smaller scale and less frequently. SARS (Severe Acute Respiratory Syndrome) is another such disease. However, COVID - 19, on the other hand, has reached every continent of the globe.

The above historical account has few obvious facts in common a) they have been transmitted from animal source to human beings b) has led to loss of human lives and distressed social conditions c) loss of societal peace. Mostly these infections are micro-organismic in nature be it Plague, Cholera, Tuberculosis, Flu, Meningitis, Malaria, Diphtheria, Small pox etc. The jump from animal source to human beings happen upon finding suitable conditions to flourish.

Why does that happen? This happens when we **bridge the gap**, and are in close proximity to the infective agents or we disturb their normal habitat. In their quest for better opportunities to thrive, these micro-organisms get on to a globalisation spree like us to find a good host to survive and avert extinction. There is an initial tug-of war between the infecting agent and host. Whoever proves to be the mightier, wins the race. For instance, if the micro-organism has its way, we become sick and if we have our way owing to our immunity/defence mechanisms we recover from the disease or maybe we can even ward off infection without getting into a diseased state. This situation is another reminder of the basic evolutionary theory of Darwin. **Struggle for survival**; the fight goes on while the infection is spreading during the onset of disease, and **Survival of the fittest**; results in disease (micro-organism) or recovery from infection (human).

In this context COVID-19 has been taking a toll on us because it has developed more resilience and is highly infective. It can spread through miniscule droplets without being visible to us. It actually creates an aura of infective droplets/ air around an affected person. It even acts smart because the infected person does not show the basic symptoms of sickness in the first 14 days. While an internal war between the Coronavirus and human immunity is ensuing, our defence fails to co-ordinate and we do not feel sick. This war is multi-pronged and the virus also invests in its future by disseminating itself to other avenues (human beings) stealthily, meaning infecting other people around the asymptomatic infected person. **Lesson:**

What makes them highly infective? a) Each droplet (nanometre size) has plenty infective particles in it. b) These virus particles are non-living and hence can thrive

suspended in the surrounding air unhindered c) Once they find a host, they hijack the machinery of human cells and multiple very fast infecting the person. They are apt in unlocking human machinery.

How does this non-living particle take over our bodily defence? Imagine COVID-19 as a key for the locks that we have in our body, ACE-2 (angiotensin converting enzyme) receptors to be precise. These receptors are omni-present in our body and are bound to the cell membrane, mostly on the soft moist linings of our body. Let us say that ACE-2 rich nasal tract and buccal cavity are the soft targets for them. Coronavirus suspended in air easily finds its way to ACE-2 and latches on to it using lock-key mechanism. Interestingly, the virus particle carries a piggy bank of proteins, so once it has found a receptor, it uses its own miniscule resource to downplay them. Very soon they establish prominence further down into most of the body systems (possible asymptomatic state). Our ACE-2 angels are soon commissioned as devil and bodily systems hijacked. The virus gets up to its arms causing havoc (symptomatic). **Lesson:**

So, what can we do? a) Wear mask: This will not allow the virus particle reach the vulnerable parts (ACE-2 receptors of buccal cavity and nasal cavity) of our body and will stop the process of cross contamination. b) Maintaining physical distance will further be helpful in keeping away air-borne virus. c) Washing our exposed parts frequently with soap (sodium dodecyl sulphate) will degrade any virus particle that may have come in our contact and prevent them from having an opportunity to infect. d) Good nutrition will ensure strong army for our immune system, a vital defence of our body. e) In case one gets infected, then seeking medical help at the earliest is best way. This will prevent spread of infection to various systems of the body.

Dilemma of the Medical fraternity: Medics are usually life saviours because they bail us out from a diseased state back to normal health. Unfortunately, COVID-19 pandemic has been highlighting few limitations. Firstly, the medics do not have quick, reliable diagnostic tool to match the rapid and widespread infection. Secondly, they don't have the correct tool/weapon (medicine) against these viruses to kill them. Hence, they have to work with lots of constraints in order to save their patients. They have to adopt alternative measures to contain the disease. Thirdly, the symptoms of the infected person have been changing ever since the outbreak of this pandemic, which indicates the survival strategies adopted by the virus is of varying nature. It out-smarts the human defence in several ways. But, if humanity has to survive, they have to prove that they are the fittest as per Darwin's theory.

Treating COVID-19 Virus: Even though there are multiple drugs available to cure bacterial, parasitic and fungal infections. An overuse of such drugs has shown resistance from the infective agents known as **Antibiotic Resistance**, meaning these micro-organisms outsmart our ways of killing them. So far there is no established drug/compound which can cure a virus infection. Hydroxychloroquine (HCQ) is a drug established to **cure the infection** caused due to malarial parasite. Initial report of COVID-19 case forced medics to adopt any kind of measure to save life in lack of any knowledge about the virus or their course of action or treatment. Hence, it had been used which showed some prophylactic benefits and hence just to contain the infection in between the medical warriors a limited use has been permitted. Finding a curative drug is a very time-consuming process, wherein several compounds have to be screened through developed assays.

So, the better way is to **bolster human defence** against this virus. This is what **vaccination** entails. However, this also requires a certain amount of time spanning 18-24 months. So, till then one has to remain safe and contained. Developing vaccination is further challenging for COVID-19 because reports have been pouring in wherein this virus is changing its traits, meaning it is evolving rapidly and now there are several versions of infective COVID-19 around the globe. Getting a grip over this situation will require global co-ordination and WHO as a central body should be able to co-ordinate between countries to bring everyone on the same table. Following which multiple definitions for the virus can be charted and various versions of vaccine can be made to make a concoction and fully contain the disease, as is being done in the case of AIDS vaccine. Alternatively, this definition has to be updated from time to time and an upgraded version of vaccine has to come-up in the market periodically, as in case of Influenza vaccine. Having thought about ways to mitigate this pandemic, let us delve a bit in our growth.

Future course for humanity: Let us introspect. Environmentalists have been warning for several decades that if we do not **stop exploiting nature**, epidemics of

unknown nature will be a frequent phenomenon for this world. Medical experts cite **climate change as an important factor in the outbreak**, pointing to the abnormally warm weather that had caused the permafrost (ice cover of the north and south pole) to thaw. This is supported by studies that suggest rising temperatures could lead to similar incidents in the future. However, we human beings are carried by our own interest and have continued with our activity, till the time this COVID-19 pandemic struck us and has stopped the world as never before. World is slipping into recession for the first time after the World War-I.

In 2016, a 12-year-old boy died and dozens more were hospitalized in Salekhard, northeast Russia, with anthrax—dubbed the "Siberian plague." The outbreak is believed to have originated from the diseased remains of humans and animals buried in permafrost 75 years earlier, later exposed after a heat wave caused the ice to thaw, an effect of global warming. It is thought that reindeers came into contact with the remains, spreading the disease to humans. The boy was one of a number of nomadic herders affected at the time.

There are numerous such incidents, but it doesn't bother us most of the time, however, **COVID-19 has stopped us**, because it has affected entire world simultaneously. If this is the situation that can arise from pre-existing life on earth (coronavirus), is it worth exploring and bringing samples living/non-living from Moon or other planets like Mars. Manned expedition to Mars? Will it keep the human race safe or will endanger it further? Can we call it development? How would we like to define progress? These are major questions posed by this pandemic and we should take compelling decisions to save humankind. Longer these lock-up conditions last, we will be pushed decades back into the development in terms of finance and economic growth. Interestingly, when we stop, nature has started reclaiming by healing the ozone hole, growth of flora and fauna, cleaner water bodies etc. Is it a time when nature is rejecting human growth? Shouldn't we respect natural forces as it is and strike a balance between our growth and natural limits?



Author is an academican, neuroscience-researcher and mentor with sole interest in nurturing curiosity, identifying talent and channelizing the pupil into right direction. Professionally, have represented my country at several occasions in India and abroad. On a personal level have known life from a rural to urban set-up and hence believe in compassion, and try to remain humane under all conditions.

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GROWING WITH CONCEPTS

Concepts of an expert are not like a static foundation of a huge structure; rather it is like blood flowing in a vibrant mind.

Growing into an expert, is a process during which each one must have used best of the books available on subject and received guidance of best of the teachers. Authors might have had limitations to take every concept thread bare from first principle and so also must be the constraint of teacher while mentoring a class with a diversity of inquisitiveness and focus. As a result, there are instances when on a certain concept a discomfort remains. The only remedy is to live with the conceptual problem and continue to visualize it thread bare till it goes to bottom of heart and that is an ingenious illustration.

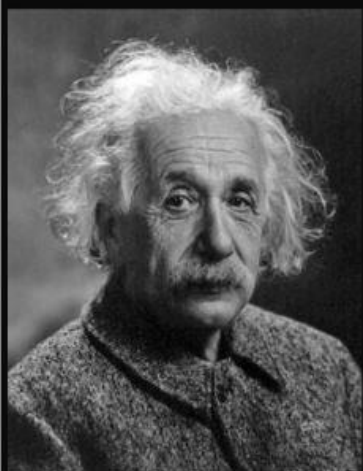
In this column an effort is being made to take one topic on Mathematics, Physics and Chemistry in each e-Bulletin and provide its illustration from First Principle. We invite all experts in these subjects to please mail us their ingenious illustrations and it would be our pleasure to include it in the column.

We hope this repository of ingenious illustrations, built over a period of time, would be helpful to ignite minds of children, particularly to aspiring unprivileged students, that we target in this initiative, and in general to all, as a free educational web resource.

This e-Bulletin covers – a) [Mathematics](#), b) [Physics](#), and c) [Chemistry](#). This is just a beginning in this direction. These articles are not replacement of text books and reference books. These books provide a large number of solved examples, problems and objective questions, necessary to make the concepts intuitive, a journey of educational enlightenment.

Looking forward, these articles are being integrated into [Mentors' Manual](#). After completion of series of such articles on Physics it is contemplated to come up representative problems from contemporary text books and Question papers from various competitive examinations and a guide to their solutions in a structured manner, as a dynamic exercise to catalyse the conceptual thought process.

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Never regard study as a duty, but as the enviable opportunity to learn to know the liberating influence of beauty in the realm of the spirit for your own personal joy and to the profit of the community to which your later work belongs.

(Albert Einstein)

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Lockdown : Exploring Opportunity



Mrs Kanchan Chinmaya Karve, an IT Engineer, at Pune, has nurtured gardening as a hobby, utilizing kitchen wastes. ***She has converted balcony of her flat into an orchard.*** This gives her a relaxation during Lockdown while work-from-home. She is a lady in a joint family. Drawing, reading, cooking and Bharatanatyam are her hobbies.

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रिश्तों की अनुभूति

नीलिमा कपूर

हमारा समाज आदिकाल से ही रिश्तों को महत्व देता रहा है। मानव जीवन है तो रिश्ते हैं, और रिश्ते ही वे धागे हैं जो परिवार और समाज को कस कर बान्दा रहते हैं। जहां ये ढीले, समाज भी ढीला पड़ने लगता है।

समाज में रिश्तों के अनेकानेक सूत्र हैं-- माता-पिता व सन्तान, पति-पत्नी, भाई- बहन, एवं मित्र। रिश्तों में दृढ़ता एवं पारदर्शिता ही इनको बनाए रखती है। माता पिता अपनी सन्तान के लिए अपनी सन्तान के लिए अपनी सामर्थ्य से अधिक करते हैं और उनको भविष्य में एक उचित स्थान पर स्थापित देखना चाहते हैं। फिर चक्र घूमता है और सन्तान का कर्तव्य आता है। वृद्धावस्था में सन्तान को अपने माता-पिता के स्वास्थ्य व इच्छाओं का ध्यान रखना होता है व उनको परिवार में पूर्ण सम्मानित स्थान भी प्रदान करना होता है। पति-पत्नी एक दूसरे के पूरक हैं और अपने परिवार का सर्जन व पोषण करते हैं। एक दूसरे के प्रति भी उत्तरदायित्व होता है। घरौदा बहुत अधिक प्रेम से ही सोचा जा सकता है। आपसी प्रेम एक दूसरे के प्रति विश्वास का प्रतीक होता है। बन्धुवों व बहनों का प्रेम परस्पर एक दूसरे के लिए सम्बल होता है जो

निरन्तर बहने वाली सरिता के बहाव सा होता है। मित्रों का स्नेह तो प्रायः निस्वार्थता में परिवार से भी ऊँचा हो जाता है। जीवन चलता रहता है, रिश्ते बढ़ते रहते हैं। रिश्तों को जीना भी एक कला है।

आज के जीवन में रिश्तों का महत्व कम होता जा रहा है। वैयक्तिक विचारधारा जन्म ले रही है और रिश्तों का भी महत्व खो रहे हैं। आज के युवा का यह दायित्व है कि रिश्तों की कम होती हुई प्राचीन गरिमा को बनाये रखें। उनके महत्व एवं आवश्यकता को समझें। भौतिकतावाद अंधेरी गली के समान है जिसमें जीवित रिश्ते प्रकाश की किरण है। कोरोना काल ने सिद्ध कर दिया है कि ये सभी रिश्ते हमारी मूलभूत आवश्यकता है जो हमें किसी भी परिस्थिति का सामना करने की शक्ति देते हैं। रिश्तों की दीवार में हमें सेगन्ध नहीं लगने देनी है। इनकी गरिमा को बनाये रखना है। मजबूत परिवार ही मजबूत राष्ट्र एवं समाज का जनक है।



लेखिका ने अंग्रेजी एवं शिक्षा में स्नातकोत्तर अध्ययन किया है। वे विवेकनन्दा स्कूल, दिल्ली में तीन दशक तक वरिष्ठ पद पर कार्यरत रही हैं। सेवानिवृत्ति के पश्चात् उनकी रूचि अपने अनुभव को जान हित में कार्यरूप देने में है। अंग्रेजी एवं हिंदी में लेख एवं कविता लेखन उनकी अभिरुचि है। वे निरन्तर नयी विधाओं को सीखने में प्रयासरत हैं।

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The value of a college education is not the learning of many facts but the training of mind to think.

- Albert Einstein

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*True wisdom comes to each of us
when we realize how little we understand about life,
ourselves, and the world around us.*

- Socrates

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बेटी का दर्द

प्रतिभा नागेश

ना होगी शिकायत तुझे जमाने, एक दिन खो जाऊंगी मैं,
थक हर कर फिर ना उठने वाली नींद में सो जाऊंगी मैं,
एक दिन जब खो जाऊंगी मैं.....

फिर इस दुनिया से एक अनजान चेहरा विदा होगा,
तेरे दिए ज़ख्मों को लेकर फिर वो अलविदा होगा,
अपनी नादानियों के लिए किसी को याद आऊंगी मैं,
एक दिन जब खो जाऊंगी मैं.....

फिर ना किसी से कोई उम्मीद होगी ना किसी से आस,
ना किसी की खोज होगी और ना किसी की तलाश,
अपनी इन बंद आंखों में अपने आंसू छिपाऊंगी मैं,
एक दिन जब खो जाऊंगी मैं.....

ना सता इतना भी कि मुझे दुनिया से नफ़रत हो जाय,
तेरी दुनिया में ना लौट आने की हमारी फितरत हो जाए
फिर तेरे आसमान का एक तारा कह लाऊंगी मैं,
एक दिन जब खो जाऊंगी मैं.....

तेरे सांचे में ढलने की तो बहुत कोशिश की मैंने,
ठंड, बारिश और गर्मी की भी तपिश सही मैंने,
झुलस कर रह गया मेरा वजूद अब ना सह पाऊंगी मैं ,
एक दिन जब खो जाऊंगी मैं.....,



कवयित्री, एम. ए. (हिंदी साहित्य), बी. एड., शासकीय माध्यमिक शाला, रोहना खुर्द, जिला- छिंदवाड़ा, मध्य प्रदेश में शिक्षिका हैं। उन्हें उनकी साहित्यिक रचनाओं के लिए कई पुरस्कारों से सम्मानित किया गया है। उनके कई काव्य संग्रह प्रकाशित हैं। उन्हें कई कार्यक्रमों में अपनी काव्य प्रस्तुति का सम्मान मिला है। लेखन विधा - मुक्तक काव्य, कविताएं, गज़ल।

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पर्यावरण रक्षा

ज्योति भाष्कर "ज्योतिर्गमय"

सुनों, भाईयों-बहनों,
देवियों और सज्जनों,
एक काम महान कर लो!
सुनों -----

शेष जंगलों को बचाओ
वृक्ष असंख्य लगाओ,
प्रदूषण दूर भगाओ,
महत्व दो पूज्य धरा को,
सर - आँखों पे बिठाओ,
रोको व्यर्थ रसायन प्रयोग,
व, अति वाहन दुरुपयोग,
त्याग दो प्लास्टिक उपयोग,
पर्यावरण को शुद्ध बनाओ,
फिर फिजाओं में महकती,
खुशबूओं से जहान कर लो!
सुनों -----

कीचड़ न खुद पे उछालो,
धरा बंजर होने से बचालो,
परिवार नियोजन अपना लो,
करो खूब जल - संचय,
भूमिगत जल को बढ़ा लो,
जीव - जंतुओं को पालो,
पंछियों को भी संभालो,
नदियों को शुद्ध करा लो,
आत्मघाती हैं ये सारे,
प्रक्षेपास्त्र, परमाणु - बम,
अधिकता पे रोक लगा लो,
पारिस्थितिकी-तंत्र को,
संतुलित करवा लो,
फिर विकास पथ पर,
अग्रसर कमान कर लो!
सुनों -----



रचयिता एम.ए. (लोक प्रशासन), एल.एल.बी. हैं। आप भारतीय सैन्य सेवा में कार्यरत हैं। आपकी कई रचनाएँ विभिन्न राष्ट्रीय समाचार-पत्रों, पत्रिकाओं, सैनिक समाचार, वार्षिकी में प्रकाशित हैं। आपके अनेक काव्य साझा-संग्रह - काव्यांगन, दिल कहता है, नवसृजन, कोरोना से दो-दो हाथ एवं ई० बुक प्रकाशाधीन हैं। आपको सृजनात्मक लेखन के लिए अनेक सम्मान प्राप्त हैं जिसमें विश्व पुस्तक मेला एवं द ब्रिटिश वर्ल्ड रिकार्ड हेतु रचना चयन शामिल हैं।

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**साहित्य समाज का दर्पण है;
साहित्यकार की कलम में विवेक की स्याही,
और धैर्य की पकड़ होनी चाहिये।**

—00—

Sushant: A Case Study

Charu Yeotikar

This article is written in context of popular actor Sushant Singh Rajput's suicide which opened a Pandora box before the country. Such attempts reveal the darkness behind the glittering screen. There are few fields like politics, sports, spirituality and show biz which has mass appeal. Political leaders, sports personalities, spiritual gurus and film stars easily fascinate and mesmerize their viewers and get large number of fans and devotees, gather huge crowd around them, copied by their followers, deeply impact the minds of their admirers, who wait for hours for their glimpse and ready to 'do or die' for their ideal models. This trend is observed all over the world but especially in a country like India, where idol worshiping is a very common custom.

The phrase 'Victory has a hundred fathers and defeat is an orphan' was first coined by an Italian diplomat and son-in-law of Mussolini, count Galeazzo Ciano in 1942 but was popularized by US president J. F Kennedy. Normally victory and defeat are more over associated with war so this idiom is generally called as "Success has many fathers, failure is an orphan. Success and victory, failure and defeat are faced by everyone in life as an individual, a team, a community and even a country. Gone are the days of old civilizations when survival was easy and people lived simple lives. New civilizations are very complex, life has become very mechanical and man has become a mere tool.

However, fast a man runs in a rat race of world around and try to compete with the changing trends of world, to achieve success at any cost, to touch the summit, to fulfil one's dreams, to get name, fame and prosperity, what is a final attainment and realization. Is there bliss after acquiring a goal or a new race starts to achieve a higher goal? Somewhere deep inside a hollowness is there. To escape from this dissolution man try to find happiness in the outer world which is no more than a mirage.

That does not mean students should not try to achieve success in life. Remember there is not anything like perfection in this world so instead of getting perfection we should always try to achieve excellence in whatever we are doing. Perfection is a goal which can never be attained but efforts for excellence always give meaning to the life, to improve our capabilities to do better. Life is not a bed of roses but a path of thorns where one has to walk barefooted. Tender age is very dreamy, enthusiastic, wants quick success and is very eager to climb the peak fast but when faces realities of life gets disheartened. So how one can prepare oneself to face the calamities and failures in life. This one lesson is neither included in the syllabus of school and college nor parents train their off-springs on How to face the adversities in life. Our education system

evaluates a student on the basis of marks scored in an exam. For that stress is given on improving Intelligence.

Let us see how psychology explains the different types of intelligence. According to psychology intelligence is categorised in four ways.

1. Intelligence Quotient
2. Emotional Quotient
3. Social Quotient
4. Adversity Quotient.

Intelligence Quotient (IQ): IQ is a score of a person's comprehension ability, analytical skills and logical reasoning. It is ability to memorize things, recall subject matter and to adjust with one's environment.

Emotional Quotient (EQ): EQ is a score of a person's emotional intelligence. It is the ability to control emotions healthily and positively in order to manage stress, overcome the challenges and achieve goals. It makes us aware of ours as well as that of others' feelings, emotional awareness, self-assessment, self-control, self-confidence, adaptability and commitment. Emotional awareness maintains peace with others, be honest, respect boundaries, be humble and genuine considerate.

Social Quotient (SQ): SQ is a score of our ability to manage people and to know what to say and how to present oneself in different social situations. It deals with communication skills and importance of valuing others' opinion. It develops social awareness and relationship management, ability to build a network of friends and maintain it over a long time.

Adversity Quotient (AQ): It is a score of a person's ability to face the adversities and capacity to overcome challenges by taking rational decisions. Normally parents and teachers protect the children from negativity but it is also essential to make them ready to face real life challenges, ability to go through a rough patch in life and come out without losing one's mind. It determines who will give up in face of troubles, who will abandon his family or who will consider suicide as an ultimate option.

These four abilities differ from person to person. One may lack in one quality but may be enriched in others. Remember IQ decides the intelligence but EQ decides the type of a person. EQ represents character where as SQ represents charisma and absence of AQ brings down to zero level.

Developing EQ, SQ and AQ develop overall personality of children, make them multifaceted human beings who are capable to do things independently and develop skills to deal with various situations. Schooling is the foundation of

life which is normally dealt with tenderness While higher education is busy with dreams and preparation for future career. Real challenges start with maturity and employment. Whatever field one is working for lobbies are there. In a large set up, likeminded people with common interests forms their own groups and lobbies. They start ridiculing and harassing others who are out of their group. If a person is smart enough and knows the rules to ignore the leg pulling, confidant and stand the challenges. he can survive but a sentimental, weak person who lacks courage to fight either surrenders or runs away.

In an oceanic world from a tiny zoo plankton to largest blue whale everyone has space to survive but in human world there are powerful sharks who kill others coming in their path. Life is never like a straight line and not even like a sinusoidal wave where crests and troughs are of same amplitude appear after equal intervals. In real life crests are short and troughs are deep and long. Surfing on such a wave is the real test of one's material.

In spiritual world salvation is the highest goal when a person attains salvation high qualities like compassion, humanity, empathy, mercy and unconditional love for others blooms, while in materialistic world when a person achieves a higher place strive to retain his position by hook or crook and try hard for others not to occupy his position. The selfish attitude gives rise to low qualities like mercilessness, cruelty, animosity and heartlessness. People forget one simple rule that summits are very sharp one can climb there but can't retain there for long because someone more capable will come and replace his predecessor. This is the rule of nature and a lesson for pride goes before a fall. One should remember that everyone's Everest is different so we should try to achieve it without comparing it with others.

So the best policy to survive is to be careful, always measure the depth before jumping in, then know your limits that how deep can you manage. Keep a healthy professional attitude and clear mind. Those who are associated with profession like politics, sports, films, art, music, literature, marketing etc. where direct contact to the public is there, a performer in any of these professions should be well aware of the changing moods of the public.

Success and failure entirely depends upon performance and sheer luck. A hit can raise a person to super hero and a flop can bring down to dust. A journey from sky to nether world is possible only if in public related professions because no other profession is so much open to the scrutiny of masses. Professional insecurity is highly related to such industries. That's why to feel secure birds of same flock fly together form their own lobbies which make them feel secure. Mostly these lobbies became so powerful that they capture the whole industry and start making rules as their own convenience which became suffocative for out of the group.

Today's world has become highly competitive and demanding also, survival is not easy. One has to struggle all the time. Every performer in lime light industries is either struggling to establish or retaining one's position. This struggle mostly kills performing capability and the best doesn't come out. For the best act to come out the mind should be at peace and full focus should be on the action. However strong one is mentally he can't remain unaffected by leg pulling, cut throating, mudslinging, digging pits and ensnaring.

We should always remember there is no utopia on the earth. Injustice, cruelty, exploitation, prejudice, favouritism, intolerance, competition, tyranny, discrimination always existed and will remain forever. It is always one's own choice that we look at these things or focus on humanity, forgiveness, compassion, generosity and mercy. Your action and reaction depends upon which side of the coin you are looking for. Look for the best and the best will come out of you.

Time doesn't remain the same so never lose hope and heart for the future and never take a drastic step to end the life. Because everyone's life is very important for one's near and dear one. The family and friends are the sources on whom one can always rely in adverse situations. Seek help of them and come out of a trauma. Turbulence never exists for ever. I will summarize it by a psychologist's advice to the parents "The parents should not prepare the road for the children but rather prepare the children for the road.



Author is a resident of Sanawad, M.P.. She is M.Sc.(Physics), M.Sc.(Environ. Sc.). She has taught in various schools of M.P., Gujarat , Rajasthan and in Engineering college. She is fond of reading and travelling to discover various dimension of society.

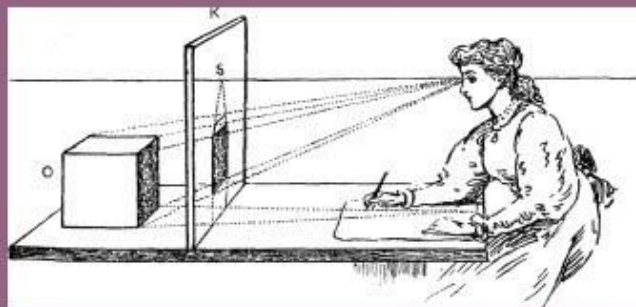
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*Fear Is The Main Source Of Superstition,
And One Of The Main Sources Of Cruelty. To
Conquer Fear Is The Beginning Of Wisdom.*

– Bertrand Russell



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**The ultimate authority must always rest
with the individual's own reason
and critical analysis.**

- Tenzin Gyatso, the 14th Dalai Lama

रूप तुम्हारा

श्रीमती त्रिवेणी मिश्रा

रूप तुम्हारा रानी बेटी लगता है प्यारा-प्यारा,
घर की रौनक हो तुम सबकी आँखों का तारा।

तितली जैसी आँख है प्यारी लगा काजल काला,
माथे में शोभित डिठोना जैसे नजर उतारे।

लगे श्वेत लाल रंगों की फ्रॉक जैसे लटके बलून,
छोटे-छोटे पैर तुम्हारे लगे मुलायम प्रसून।

सुन्दर सुडौल सरस मनमोहक तनुजा मुँख तुम्हारा,
गोल-कपोल, रंग है श्वेत, सफेद गुलाब सा गोरा।

उस पर सौहे रंग-बिरंगी सीटी बजाती चप्पल,
माँ के कानों को मिलता है रस घोलता सिग्नल।

रूप तुम्हारा रानी बेटी लगता है प्यारा-प्यारा,
घर की रौनक हो तुम सबकी आँखों का तारा।

ठुमक ठुमक कर तुम जब चलती रुनझुन-रुनझुन,
बजती पैजनियाँ सुन माँ उमड़ता वात्सल्य सारा।

तीखी नुकीली तोते जैसी बिटियाँ नाक तुम्हारी,
छोटे-छोटे कानों में पहन रखी हो बाली।

रूप तुम्हारा रानी बेटी लगता प्यारा-प्यारा,
घर की रौनक हो तुम सबकी आँखों का तारा।

तितली जैसी पलके हिरणी से नेत्र तुम्हारा,
काले-काले लोचन में लगा है काजल कारा

काले-काले और घुँघराले रानी बाल तुम्हारे,
उस पर बनी दो सुन्दर चोटी फीता में रंग सारे।

कंठ में दमके मौक्तिक माला, और नाजुक हाथ प्यारे,
नये पर्ण से हस्तों में रजत का कंगन न्यारे।

रूप तुम्हारा रानी बेटी लगता है प्यारा-प्यारा,
घर की रौनक हो तुम सबकी आँखों का तारा।



कवयित्री, एम.ए. हिन्दी साहित्य, राजनीति शास्त्र और एजुकेशन, बी. एड., शासकीय उत्कृष्ट विद्यालय, जिला-डिंडौरी, म.प्र. में उच्च. माध्यमिक शिक्षक पद पर कार्यरत हैं। आपकी कई रचनाएँ प्रकाशित हैं। आपको शिक्षा के क्षेत्र में उत्कृष्ट कार्य हेतु राज्य एवं जिला पुरस्कार से सम्मानित किया गया। साथ ही आपके साहित्यिक रचनाओं के लोए अनेक सम्मान प्राप्त हुए। आपकी लेखन विधाएँ -- कहानी, संस्मरण, लेख, निबंध, एकांकी नाटक, कविता, हाइकु, छन्द में कुंडलियाँ, दोहा, घनाक्षरी, चौपाई आदि हैं।

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वक्त की पाबंद है आती जाती रौनकें

डॉ. संगीता पाहुजा

हर दिन हर सुबह, होता एक नया सवेरा
करता पुलकित जनजीवन को।
सुबह से सांझ तक, होता परिवर्तित मिजाज वक्त का।

वक्त चाहे तो राहों में फूल खिला दे, चाहे तो कांटों पे सुला दे।
चाहे तो रंगीन या रंगहीन बना दे।
चाहे तो राजा, या रंक बना दे।

कब मिलन, कब वियोग करा दे।
चाहे तो मरूस्थल में फूल खिला दे।
चाहे तो बगिया को मैदान बना दे।
चाहे तो बंजर धरती को उपजाऊ बना दे।

वक्त की पाबंद है, आती जाती रौनकें
बारम्बार वक्त को नमस्कार नमस्कार।।



कवयित्री आयुर्वेदिक चिकित्सक हैं। आपने B.A.M.S. की उपाधि M.D. University, रोहतक से प्राप्त की। आपके दिल्ली एवं नॉएडा में परामर्श केंद्र हैं। धार्मिक, नारी एवं समाज उत्थान कार्यों में आपकी विशेष रुचि है। संपर्क: मो. क्र. - 9953967901,

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मृणालिनी घुले जी हमारी पत्रिका पिछले दो वर्षों से अधिक समय से निरंतर अपनी प्रेरणात्मक काव्य रचनाओं से योगदान कर रही हैं। परन्तु वे स्वास्थ्य कारणों से आने वाले कुछ समय तक अपनी काव्य रचनाओं का योगदान नहीं दे सकेंगी।

हम सभी **मृणालिनी जी** के शीघ्र स्वस्थ लाभ की कामना करते हैं।

कवयित्री एक सामाजिक चिंतक एवं विचारक हैं। आपकी कविताएँ वर्तमान पर्यवेक्ष्य में बुद्धि-जीवियों को उनके सामाजिक उत्तरदायित्व के प्रति उन्हें चिंतन के लिए प्रेरित करती हैं। आपकी लेखनी प्रादेशिक एवं राष्ट्रीय स्तर पर प्रकाशित है।

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**The only thing that will
redeem mankind is
cooperation.**

- Bertrand Russell

www.DreamThisDay.com

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Answers: Science Quiz- JulyB2020

Kumud Bala

1 (B)	2 (A)	3 (D)	4 (D)	5 (B)	6 (D)	7 (A)	8 (D)	9 (D)	10 (B)
11 (A)	12 (D)	13 (C)	14 (A)	15 (D)	16 (D)	17 (C)	18 (B)	19 (A)	20 (C)
21 (D)	22 (A)	23 (A)	24 (A)	25 (A)	26 (A)	27 (B)	28 (C)	29 (A)	30 (C)
31 (B)	32 (A)	33 (A)	34 (A)	35 (B)	36 (B)	37 (D)	38 (A)	39 (C)	40 (C)-
41 (A)	42 (D)	43 (C)	44 (B)	45 (B)	46 (B)	-	-	-	-

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ANSWER: CROSSWORD PUZZLE, July'2020
(Economy)

Prof. S.B. Dhar

[illegible]



Nupur Khare is a post graduate in Food Science and Technology as well as Business Administration. She is ex-market researcher who gave up the high profile career to pursue her interests

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Mrs. Savita Gupta is M.A., B. Ed. She was Center Manager, S. D Polytechnic, Ghaziabad, and Head Mistress New Era school Ghaziabad. She is proactive social reformer and participant in social, cultural and Yoga activities. She is Founder of Loiness Ekta Club, NOIDA.

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STUDENTS' SECTION

Gyan Vigyan Sarita -- शिक्षा is a monthly e-Bulletin. It was started, nearly five years ago, with a small effort to create an awareness among elite persons about their **Personal Social Responsibility (PSR)**. Elite persons possess potential to make a difference in society by virtue of their wisdom, position, powers and sphere of influence. Their leaning to complement such efforts would radiate message of walk-the- talk, which is perceived to be scarce among accomplished persons.

We shall be coming with Fifth annual issue on October 02,2020.

It gained momentum as we moved forward with inclusive participation of teachers, persons of accomplishment in different walks of life, eminent writers, poets through their creative writings for our e-Bulletin. These contributions contain their thoughts, experiences and vision.

Since beginning we are welcoming contributions with a firm belief that creativity is intrinsic to learning, an integral part of education be it formal or informal. It is unnatural to disjoint creativity with thought process which is an integral part of education. Moreover, every child is unique in capabilities and so also it is true to creativity. Therefore, it is extremely important to create opportunities for students to come out with their creativity be in form of writing story, poem or critical thought on any subject matter of their concern or creative art viz. drawing, sketches, caricature, paintings etc. In no ways, it excludes performing arts in its various forms. But, in view of our limitations to include audio-visual performances of many of our students, who are best at it, we are not able to include them in the e-Bulletin. Thus, this e-Bulletin in its present form is confined to content in textual and image forms only.

We are observing that it has created a phenomenal enthusiasm among our students participating in our selfless initiative Interactive Online Mentoring Sessions (IOMS) driven with PSR. Most of these students come from that section of society which is deprived on one or the other account. It has also catalyzed families of persons associated with this Gyan Vigyan Sarita initiative directly or indirectly. This makes our e-Bulletin centric to creative contributions of children and students together with wisdom of elders.

Our objective in this bulletin is *not the least to exhibit world-class talent among children*, but definitely we recognize that - *(a) creativity is an integral part of learning, (b) one is never late to come out with one's creativity, be it in any form, (c) given an opportunity these students would emerge as great creator, artists, laureates and scientist, (d) all great creators Leonardo da Vinci, Shakespeare, Tagore, Ala Uddin Khan also made a humble beginning, (e) scarcity catalyzes creative potential of every child who receive care, concern, guidance and hand-holding, in case of necessity. Otherwise, looking upon them sympathetically as subject of philanthropy, like a slow poison, is enough to quench fire in them and convert these potential creators into everlasting dependents like parasites.*

Pursuit of human race in science and mathematics, as a mother of all sciences, has its beginning in observations and inquisitiveness of human race to discover nature, happenings and their causes. Thus science and mathematics as it grew has become more specialized and misconstrued as disjoint to creative art and pursued by educationists in **STEM** model emphasizing upon learning of *Science, Technology, Engineering and Mathematics*. This has led human civilization in loosing human perspective in education, excellence into objectivity and enter into a rat race among students, and more so among parents, to raise their Intelligence Quotient (IQ). In recent past, educational psychologists, all across, have come up with various ways and models for integrating creative art into education and emphasizing upon its attributes in different forms and names.

While building IOMS, our premise and realization of need of integration of creativity into this model has started taking shape. We take mathematics and physics not disjunctive to creativity but as a medium to sharpen creativity among students in a more logical and scientific manner and correlating them with nature around for coexistence. Therefore, we accept creative contributions of students in their own form, and advise its moderation to the possible extent only. *We are sure that these students would rise above with the natural buoyancy to be at the best of their potential with pleasure of their own ingenuity deployed for the larger good; it would be without imitating any celebrity, an icon, or waiting for the world to recognize them*

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*Opportunities seldom knock the door,
But, desperate efforts with perseverance unfold opportunities, in waiting.*

Understanding Potential Energy and Potential in Gravitation, Spring and Electric Field

Dikashma Shree Selvakumaran

In an effort to groom concepts among students through **Interactive Online Mentoring Sessions (IOMS)**, a new proposition was started in June 2020. In this proposition every month One topic, out of the portion covered in IOMS, will be specified to students to develop their understanding on the topic in the form of a report. Best, of the submission would be discussed with the student, making the submission, to bridge conceptual gaps, if any, for moderation. Such conceptual-gaps in a student, at stage of class 10th, are very much obvious, especially when students are groomed and required to elaborate concepts at level above their academic curriculum.

In first month of the initiative 12 students, out of about 40 students, made submissions on their understanding of **Flemings Left Hand and Right Hand Rules**. The best submission of the month was brought, in its final form, in 58th issue of monthly e-Bulletin dt. July 01, 2020.

This month's topic was "**Potential Energy and Potential in Gravitation, Spring and Electric Field**". This month only one submission was made. Yet, we as mentors have patience and are optimistic on students realizing importance of understanding concepts, and more so of elaborating their understandings, rather than just rote learning to secure high marks, rank, etc.

Experience of student(s), who developed the elaboration of concepts, is worth knowing, for we as elite persons, and for students to emulate active participation in such selfless initiatives, where emphasis is on grooming of concepts and their application in problem solving. We believe that perseverance in such initiative to grooms competence among students, who are otherwise disconnected with us, will ignite a spark in them to avail the best of the opportunity.

Editorial Board

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CONSERVATION OF ENERGY

The laws of conservation of energy applies to energy conversions. Energy is not used up when it changes forms, although some energy may be used to overcome friction, and this energy is usually given off as heat.

FIG-1 Work energy Theorem

Mechanical energy

Potential energy
(U)

Kinetic energy
(K)

↓
No external work is done

Total energy is represented as 'E'; $E = U + K$

Fig-2

$\left\{ \begin{array}{l} KE_A = \frac{1}{2}mv_A^2 \\ PE_A = 0 \end{array} \right\}$
 $\left\{ \begin{array}{l} KE_C = \frac{1}{2}mv_C^2 \\ PE_C = 0 \end{array} \right\}$

Earth's surface is by convention zero potential. As per principle of least potential, position of a body in free state.

Here at A, an object of mass ' m ' is at rest. Then, $KE_A = 0$ & $PE_A = 0$

$\left\{ \begin{array}{l} PE_B = mgh \\ KE_B = 0 \end{array} \right\}$
 $\left\{ \begin{array}{l} PE_B' = mgh \\ KE_B' = 0 \end{array} \right\}$

...2

-2-

Now, when mass ' m ' at 'A' is imparted, $KE_A = E$. It will rise to a height ' h ' at 'B'. As per laws of conservation of energy $KE_A = KE_B \Rightarrow \frac{1}{2}mv_A^2 = \frac{1}{2}mv_B^2$.
 $\therefore V_A = V_C$

When $KE_B = 0$
 $KE_A = PE_B$

Here, the transformation of Kinetic Energy \rightarrow Potential energy.

CONSERVATIVE FORCES:

1. Gravitational forces are conservative in nature.
2. Electrostatic forces are conservative in nature.
3. Spring forces are assumed to be conservative force.

NON-CONSERVATIVE FORCES:

Fig-3

N - rough inclined surface
 h - maximum height attained by ball.

Fig-4

Δx ↓ F_B W = Positive work done by gravity
 A ball is projected upwards with velocity $V_A = V_B = V_0 \hat{i}$ on a rough inclined surface. Ball reaches a maximum height ' h ' on the inclined surface.

...3

-3-

- Then ball rolls down & returns to initial position with velocity $V_B = V_A$ (∞). Initial kinetic energy of the ball $KE_i = \frac{1}{2}mv_A^2$. When it returns to initial position its final kinetic energy is $KE_f = \frac{1}{2}mv_B^2$.
- It is experimentally observed that $V_A > V_B$ & here $\Delta E = KE_f - KE_i$ is negative i.e. energy is lost.

Q. Why is gravitational potential negative?

- A. Consider a small object at a particular distance from Earth. Positive work is done by gravity on the object to move it towards the Earth, $W = F_g \cdot \Delta x = [F_g(\hat{r})] \cdot [\Delta x(-\hat{r})] = F_g \Delta x$.
- Hence, it must have lost potential energy when closer to Earth than infinity. Thus mathematically, gravitational force on an object of maximum force caused by earth at infinite distance or zero, $F_{\infty} = \frac{GMm}{r^2}(\hat{r}) = 0$. As object move closer to earth it has negative potential.

...4

-4-

Example of Energy conversions:

On a trampoline, gravity (gives the jumper) converts potential energy when he drops from a height on the trampoline into kinetic energy to rebound. & thus produces elasticity of trampoline comes into play. And when the jumper touch the actual surface (the mean point) of the trampoline, the jumper has kinetic energy.

Fig-5



{ Energy continuously changes back & forth between Potential energy & Kinetic energy on a trampoline. }

- Kinetic energy is the energy of moving matter. Things with kinetic energy can do work. Kinetic energy depends on an object's mass & velocity.
- Potential energy is the energy stored in an object because of its position or shape.
- Here a shape is applicable to objects under going deformation, viz. spring and trampoline as shown in Fig-5.

...5

-5-

CHARACTERISTICS OF CONSERVATIVE FORCE:

The work done by the force depends only on initial & final conditions & not on path taken between the initial & final positions of the mass as shown in Fig-3 & Fig-5. Thus, $\Delta E = E_f - E_i = 0$

Q. Can potential energy be defined for conservative forces?

- A. Yes, Potential energy can be defined for conservative forces.

CHARACTERISTICS OF NON-CONSERVATIVE FORCES:

The work done by the force depends on the path taken between the initial & final positions of the mass. With change of path to us of energy above changes. Hence,

$$\Delta E = E_f - E_i > 0 \text{ (or) } E_i > E_f$$

Q. Can potential energy be defined for non-conservative forces?

- A. No, Potential energy cannot be defined for non-conservative forces.

The most common example of a non-conservative force is **FRICTION** as explained with Fig-4, with ball projected upward on an inclined rough surface.

...6

-6-

Conservative forces: no external force

$$E = U + K \text{ (Suppose this is constant or if internal force are conservative constant).}$$

$$E_i = U_i + K_i \quad \left\{ \begin{array}{l} \text{where } U_i - \text{initial Potential energy,} \\ U_f - \text{final PE, } K_i - \text{initial KE \& } \\ K_f = \text{final KE} \end{array} \right.$$

$$U_i + K_i = U_f + K_f$$

$$U_f + U_i = -K_f - K_i$$

$$\Delta U = -\Delta K$$

$$\rightarrow \text{gain of PE (or) } U = \text{loss of KE}$$

$$\rightarrow \text{loss of PE (or) } U = \text{gain of KE}$$

* If forces are non-conservative & there is external force is done.

$$K_i > K_f \text{ (or) } K_i - K_f = 0 \text{ (loss of energy)}$$

Q. Now, what happens if forces are non-conservative?

- A. Loss of energy will be turned into heat energy.

Q. What happens when external work is done against internal forces without imparting object kinetic energy?

$$A. E_i = U_i + K_i$$

$$E_f = W_e + E_i = W_e + U_i + K_i$$

$$\Rightarrow E = U_f + K_f; \text{ thus } \Delta E = E_f - E_i$$

$$\because K_i = K_f, \text{ as per assumptions}$$

$$\Delta E = U_f - (U_i + K_i) \Rightarrow \Delta E = (U_f - U_i) - W_e$$

...7

-7-

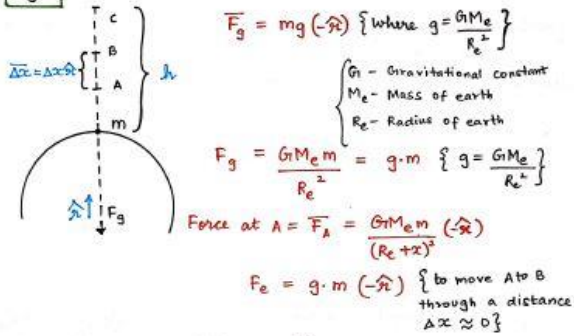
$$E = W = U_i + (0) \quad \{K_i = 0\}$$

$$\text{Thus for } \Delta E = W_e + U_i \Rightarrow U_f - U_i = W_e$$

- Whenever object or mass is moved against internal forces it attains Potential Energy.

GRAVITATIONAL POTENTIAL ENERGY

Fig-6

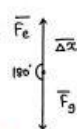


For displacement of object along \hat{x}

$$\Delta W = \Delta \vec{F} \cdot \Delta \vec{x} = (\vec{F}_e - \vec{F}_g) \cdot \Delta \vec{x}, \text{ thus } \vec{F}_e > -\vec{F}_g$$

$$\Delta W = F \Delta x \cdot \cos 180^\circ = -F \Delta x = -F dx$$

Fig-7



Q. Now, what will happen if $\vec{F}_e = -\vec{F}_g$?

- A. State of equilibrium as per Newton's first law of motion: Mass will remain at rest.

... 8

-8-

$$\vec{F}_e + \vec{F}_g = 0$$

Thus, for displacement along \hat{x}

In the direction of motion, forces of

$$\vec{F}_e \quad \vec{F}_g$$

$$\epsilon = (F_e - F_g) = ma \quad (\text{During displacement causing gain of potential energy / Kinetic energy remains zero})$$

$$\therefore a = \frac{\epsilon}{m} = \frac{F_e - F_g}{m} \quad \{ \text{If } F_e \text{ is sufficiently greater than } F_g \text{ mass gets accelerated?} \}$$

[Here F_e is external forces & F_g is internal force]

$$F_e - F_g = \epsilon \quad \{ \epsilon > 0, \text{ but } \epsilon \text{ is extremely small; such that } \epsilon \rightarrow 0 \}$$

$$\begin{aligned} \text{Work done by external force} &= \vec{F}_e \cdot d\vec{x} \\ &= -\vec{F}_g \cdot d\vec{x} \\ &= (-F_g \cdot dx) \end{aligned}$$

[Whenever, object or a mass is moved against internal force it attains potential energy]

{ External work done to move the object 'm' through a distance Δx against internal force as brought out in Fig. 6 }

$$\Delta W = -\vec{F}_g \cdot d\vec{x} = -(F_g(-\hat{r}) \cdot (\Delta x \hat{x}))$$

$$\Delta U = F_g \Delta x$$

{ It is to be noted that F_g is better defined as per the law of Gravitation & therefore this is used here }

... 9

-9-

$$\Delta U = F_g dx = \frac{GM_em}{(R_e+x)^2} \cdot \Delta x$$

$$= \frac{GM_em}{(R_e+x)^2} \cdot dx \quad \left\{ \because F_g = \frac{GM_em}{(R_e+x)^2} \right\}$$

When mass is moved above Earth surface through a height 'h'.

$$U = \int_{R_e}^{R_e+h} du \cdot \int_{R_e}^{R_e+h} \frac{GM_em}{(R_e+x)^2} \cdot dx$$

$$= GM_em \left[\frac{-1}{R_e+x} \right]_{R_e}^{R_e+h}$$

$$= -GM_em \left[\frac{1}{R_e+h} - \frac{1}{R_e} \right]$$

$$= GM_em \left[\frac{1}{R_e} - \frac{1}{R_e+h} \right]$$

$$= GM_em \left(\frac{R_e+h - R_e}{R_e(R_e+h)} \right)$$

$$= \frac{GM_em \cdot h}{R_e \cdot R_e} \quad \{ \because R_e \gg h \}$$

$$= \frac{GM_em \cdot h}{R^2} \quad \left\{ \because \frac{GM_e}{R^2} = g \quad (g \text{ is acceleration due to gravity}) \right\}$$

$$= g \cdot m \cdot h$$

$$U = mgh \quad \{ \text{Thus, using vector convention change in Potential energy in more generic form is} \}$$

$$\Delta U = -\vec{F}_{int} \cdot \Delta \vec{x}$$

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→ When $\Delta \vec{x}$ is in the direction of \vec{F}_{int} , it utilised PE into KE.

→ $\Delta \vec{x}$ is the direction opposite to \vec{F}_{int} the external work as kinetic energy is getting converted into Potential Energy.

$$U_A = mgh \quad \{ \text{if object is of mass } 1 \text{ kg} \}$$

$$U_h = \frac{mgh}{m}$$

$$U_h = g \cdot h$$

GRAVITATIONAL POTENTIAL DIFFERENCE: $V_{ab} = V_a - V_b$

{ V_a - Potential at point A }

{ V_b - Potential at point B }

• Between any two points A & B as shown in Fig 6. from centre of the earth above the earth surface. Here potential inside the earth is not considered.

• When we move within the earth, effective mass changes.

$$U_g = GM_em \left[\frac{1}{R_e} - \frac{1}{R_e+h} \right]$$

$$= GM_em \left[\frac{1}{R_a} - \frac{1}{R_b} \right]$$

$$= \frac{GM_em}{R_a} - \frac{GM_em}{R_b} = V_a - V_b$$

A is some point in space having a distance R_a from the centre of the earth. Then, for V_b to be zero,

... 11

-11-

Since, $V_b = \frac{GM_e m}{R_b}$ {This is possible when $R_b = \infty$ }

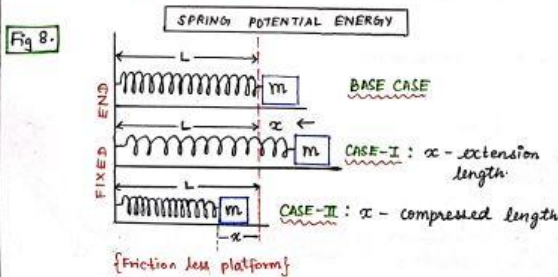
$U_a = \frac{GM_e m}{R_a}$ {Gravitational Potential energy at a point R_a from centre of earth}

Gravitational potential i.e. Potential energy per unit mass at a point 'A' (distance R_a from the centre of Earth).

$V_a = \frac{U_a}{m} = \frac{GM_e}{R_a}$ {This is called gravitational potential}

Q. Why do we say potential energy of earth surface is zero?

- A. ① It is easily accessible (as reference)
 ② Below the earth surface mass of earth changes.
 ③ Earth is largely considered as inertial frame of reference.
 ④ It is in accordance with the principle of position of least potential, which states that every body without external force occupies position of least potential.



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→ Internal forces of spring is called **Restraining force**. This can be explained with the Newton's third law of Motion: Every action, there is equal & opposite reaction.

→ In this analysis, Restraining force is considered to be conservative force (or) net deformation after removal of external force.

Fig-9.

$F_{int} \leftarrow \rightarrow x$

$F_{int} = kx$ { k is the spring constant }

{ x is deformation ① Elongation during stretching x

② Shortening during compressing }

$$\Delta U = -\overline{F_{int}} \cdot \Delta x$$

$$= -[-kx\hat{x}] \cdot (\Delta x\hat{x}) \quad \{F_{int} = -kx\hat{x} = kx(-\hat{x})$$

{ \hat{x} - unit vector along the direction of x axis }

$$\Delta U = kx\Delta x \quad \{ \Delta x = \Delta x\hat{x}$$

$\hat{x} \cdot \hat{x} = 1 \}$

$$U = \int_0^L kx \, dx \quad \text{(Spring is deformed from normal length by 'x')}$$

$$= k \int_0^L x \, dx \quad \left[\int x^n \, dx = \frac{x^{n+1}}{n+1} \right] \text{ (this is indefinite integral)}$$

$$= k \left[\frac{x^2}{2} \right]_0^L \quad \{ \text{In this case, it is definite integral} \}$$

$$= \frac{k}{2} (L^2 - 0^2)$$

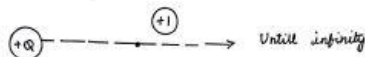
$= \frac{1}{2} kL^2$ {In case of spring, it is not defined as spring potential - Because in this, there is no scale of mass in PE of spring as defined above. Thus, it is about deformation & spring property}

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ELECTRIC POTENTIAL ENERGY & ELECTRIC POTENTIAL

Fig-10.



- ① In electrostatics, electric field is defined as $E = \frac{F_e}{q} = \frac{Q}{4\pi\epsilon_0 r^2}$

Thus, instead of electric field used to calculate change in potential energy of unit $+1$ charge potential energy is defined as electric potential. Electric Potential has wide application in analysis of current electricity.

- ② Electromagnetic forces are as per Coulomb's law of forces between two charge is $F = \frac{Q_1 Q_2}{4\pi\epsilon_0 r^2} \cdot \hat{r}$

∴ like charges shows forces of repulsion along \hat{r} and unlike charges with opposite signs produce force of attraction along \hat{r} .

Q. Why will it not go beyond infinity?

A. $F_e = \frac{(+Q)(+1)}{4\pi\epsilon_0 r^2} = 0 \quad \{r = \infty\}$

Because at infinity $F_e \rightarrow 0$ as $+Q$ has no influence on $+1$.

* Position of least Potential energy is at infinity as against gravitation in which it is at $r = R_e$ (radius of earth).

Spring, $L' = L$ {Normal length of spring} { $L' = L + L$ }

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$\Delta U = -\overline{F_{int}} \cdot \Delta x$ {this is in gravitation, but in case of electric potential it is modified}

$$\Delta U = \overline{F_{int}} \cdot \Delta x \Rightarrow \Delta U = \overline{E} \cdot \Delta x$$

Fig-11



This change in formulation is of the problem due to the fact that in gravitation & spring internal are natural forces & are towards the centre of the mean position, while in electric field it is towards infinity. This reverse limits in integration while calculating total external work done in change of Potential energy.

Accordingly,

$$\Delta U = \overline{E} \cdot \Delta x$$

$$= \frac{Q}{4\pi\epsilon_0 r^2} \cdot \hat{r}$$

$$x = \frac{-Q}{4\pi\epsilon_0 r^2} \cdot \Delta r$$

$$V = - \int_{\infty}^r \frac{Q}{4\pi\epsilon_0 r^2} \cdot dx$$

$$V = \text{Electric Potential} = \frac{U}{q} = - \int_{\infty}^r \frac{Q}{4\pi\epsilon_0} \cdot \frac{1}{r^2} \cdot dx$$

$$= \frac{-Q}{4\pi\epsilon_0} \int_{\infty}^r \frac{1}{r^2} \cdot dx = \frac{-Q}{4\pi\epsilon_0} \left[-\frac{1}{r} \right]_{\infty}^r$$

$$= \frac{Q}{4\pi\epsilon_0} \left[\frac{1}{r} - \frac{1}{\infty} \right]$$

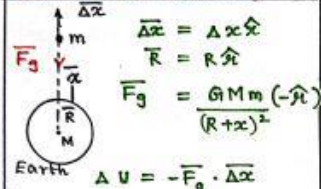
$$V = \frac{+Q}{4\pi\epsilon_0 r^2}$$

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COMPARISON OF GRAVITATIONAL POTENTIAL AND ELECTRICAL POTENTIAL

GRAVITATIONAL POTENTIAL:



{ gravitational force is always attractive (i.e. along $-\hat{r}$) }

$$\Delta U = -\frac{GMm}{(R+x)^2} \cdot (-\hat{r}) \cdot (\Delta x \hat{r})$$

$$= \frac{GMm}{(R+x)^2} \cdot \Delta x$$

{ therefore potential energy at a height 'h' above earth's surface }

$$U = \int dU = GMm \int_R^{R+h} \frac{1}{(R+x)^2} \cdot dx$$

$$\Rightarrow -GMm \left[\frac{1}{R+x} \right]_R^{R+h}$$

$$\Rightarrow -GMm \left[\frac{1}{R+h} - \frac{1}{R} \right]$$

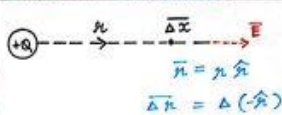
$$\Rightarrow GMm \left[\frac{1}{R} - \frac{1}{R+h} \right]$$

$$\Rightarrow \frac{GMm h}{R^2} \quad \{ \because h \ll R \therefore R+h \approx R \}$$

$$\Rightarrow mgh \quad \{ \text{where } g = \frac{GM}{R^2} \}$$

When we talk of gravitational potential (V_g) on the lines of electric potential, it is potential energy per unit mass

ELECTRIC POTENTIAL:



$$\Delta V = \vec{E} \cdot \Delta \vec{x}$$

- Electrostatic field between like charges is always repulsive (i.e. along \hat{r})

- Direction of electric field depends upon sign of charges. In case of like charges it is along \hat{r} , while in case of unlike charges it is along $-\hat{r}$

$$\text{Thus, } \Delta V = \left(\frac{Q}{4\pi\epsilon_0 x^2} \cdot \hat{r} \right) \cdot (-\Delta x \hat{r})$$

$$= -\frac{Q}{4\pi\epsilon_0 x^2} \cdot \Delta x$$

$$V = \int \Delta V = -\frac{Q}{4\pi\epsilon_0} \int \frac{1}{x^2} dx$$

$$\Rightarrow \frac{Q}{4\pi\epsilon_0} \left[\frac{1}{x} \right]_A = \frac{Q}{4\pi\epsilon_0 x}$$

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$\therefore V_g = \frac{U}{m} = \frac{GM}{R+a} - \frac{1}{R+b}$, where point A is at a distance 'a' from the surface of earth and point B is at a distance 'b' from the surface of the earth.

Now taking reference at B at infinity (i.e. $b \rightarrow \infty$), of zero gravitational potential, where gravitational field of earth becomes ineffective. Gravitational potential at A is

$$V_{ga} = \frac{GM}{R+a} - \frac{1}{\infty} = \frac{GM}{R+a}$$

CONCLUSION

- * Both gravitational & electric potential at any point are in inverse proportion to distance of the point from mass or charge, respectively. It is due to the fact that both gravitational force & electrostatic field follow Inverse-square law.
- * However potential energy is generally defined near the surface of earth is proportional to height (h) above the surface of the earth is an approximation based on the fact that $h \ll R$.
- * Computation of electric potential is based on repulsive forces between like charges and is according to convention of flow of charges from higher potential to lower potential.
- * Computation of Gravitational potential energy or gravitational potential is based on the forces of attraction between masses.



This student is of Class Xth, at Kendriya Vidyalaya, Dinjan, Assam. She is a regular student of IOMS being held since April'2020. Her hobbies are reading books, story writing, sketching, exploring science mysteries or problems.

e-Mail ID: msssd935@gmail.com



कसम लेंगे वतन

निधी

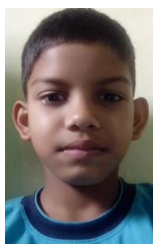
कसम ये कसम हम लेंगे ए वतन
तेरे साथ रहेंगे हरदम
न गैरो से पंगा न अपनो से दंगा
कसम लेंगे हम ये वतन
तुझे न लड़ाये, तुझे न रुलाए
तुझे सदा हसाए ए वतन
लेंगे ये कसम
तू हमेशा रहेगा कभी न मरेगा
तुझे अमर देंगे ए वतन

कसम ये कसम हम लेंगे ए वतन
तुझे न छोड़ेंगे ये कसम निभाएंगे हम
गंगा यमुना बहती तुझमे
इन्हे साफ़ रखेंगे ए वतन
तुझे देते हैं ये कसम
कितने कसबे कितने गांव
उनमे चलते कितने पाँव
करते रहते काम हरदम
कभी न रुकते कभी न थकते
कसम ये कसम हम लेंगे ए वतन
तेरे साथ रहेंगे हरदम
तुझे न छोड़ेंगे ये कसम निभाएंगे हम



कविता एवं कला की रचयिता कक्षा 9 वीं, आर्मी पब्लिक स्कूल डिन्जन, असम की छात्रा हैं। वे नियमित रूप से IOMS को कक्षाओं में भाग लेती हैं। लेखन,





Neeraj is a Student of Class Vth at Army Public School, Dinjan, Tinsukia District, Assam. Drawing and gardening are his hobbies.



Letter to Corona

Anupra Dubey

Dear Corona,

We are the students of Class V of De Indian Public School, Rohini, Delhi. We request you to leave our city. You came here as a visitor in March. It is July now. A good guest goes back in a week. Why are you not returning back to your home? Do your parents not like you? Have your parents expelled you from home?

Our teachers taught us, no one likes a bad kid. Are you a bad kid?

We appeal you to mend your habits. We appeal you to become good. We know when you are good; your parents will call you back. Try to be a good kid. Learn good habits. Learn not to harm anyone.

Please Corona, go from here.

We want to go to our school now. We love our school. We love our teachers. We love our friends. We have learnt to wear face masks. We have learnt to wash our hands with soap and water. We use sanitizer also.

Online classes are good. But school going is very very good. Every time at home is boring. We want to go to our school now.

So, go Corona, go please. Bye bye Corona...

We all



She is a student of Class 5th in Indian Public School, Rohini. Creative work is her hobby.

—00—



Anura Joshi is a student of Class IInd at The Khaitan School, Noida. Creative works is her hobby

—00—



Navya Nayan is a student of class 5 at Birla Vidya Niketan, Delhi. Drawing and music is her hobby



Mannan is a student of class 4th at Birla Niketan, Delhi. Drawing and music is his hobby.





Rashmirekha Shaw is a Student of Class XIIth (PCB). She is studying at Kendriya Vidyalaya, Dinjan, Assam. Drawing



Abhishek Shaw is a Student of Class 9th at KVD, Dinjan, Assam. He is participating in Online Sessions under IOMS. Drawing and writing is his hobby



Birabhadra Behra studies in Class 9th, Kendriya Vidyalaya, Dinjan, Assam. He is a participant of Online Mentoring through IOMS being conducted for students of the school.

—00—

जवाब...

देवांश

एक दिन सब को होना है काल की आग में राख
चाहे कोशिश करो तुम उससे बचने की लाख।

यह शरीर है भ्रम
आत्मा को प्राप्त होता नहीं कभी मरण।

मत करो इस शरीर पर घमंड
हो जाएगा क्षण भर में खंड - खंड।

मनुष्य को भोगना पड़ता है उसके कर्म
का फल यही पर।

इसलिए करो तुम सुकर्म
ना करो तुम अधर्म।

क्योंकि तुमको भी बनना है राख
चाहे कोशिश करो तुम उससे बचने की लाख
और देना पड़ेगा तुमको भी अपने पापो का जवाब।



रचनाकार, कक्षा 9 वीं, आर्मी पब्लिक स्कूल, डिन्जन, आसाम का छात्र है। वह IOMS कक्षाओं में नियमित हिस्सा लेता है। लेखन इसकी अभिरुचि है।

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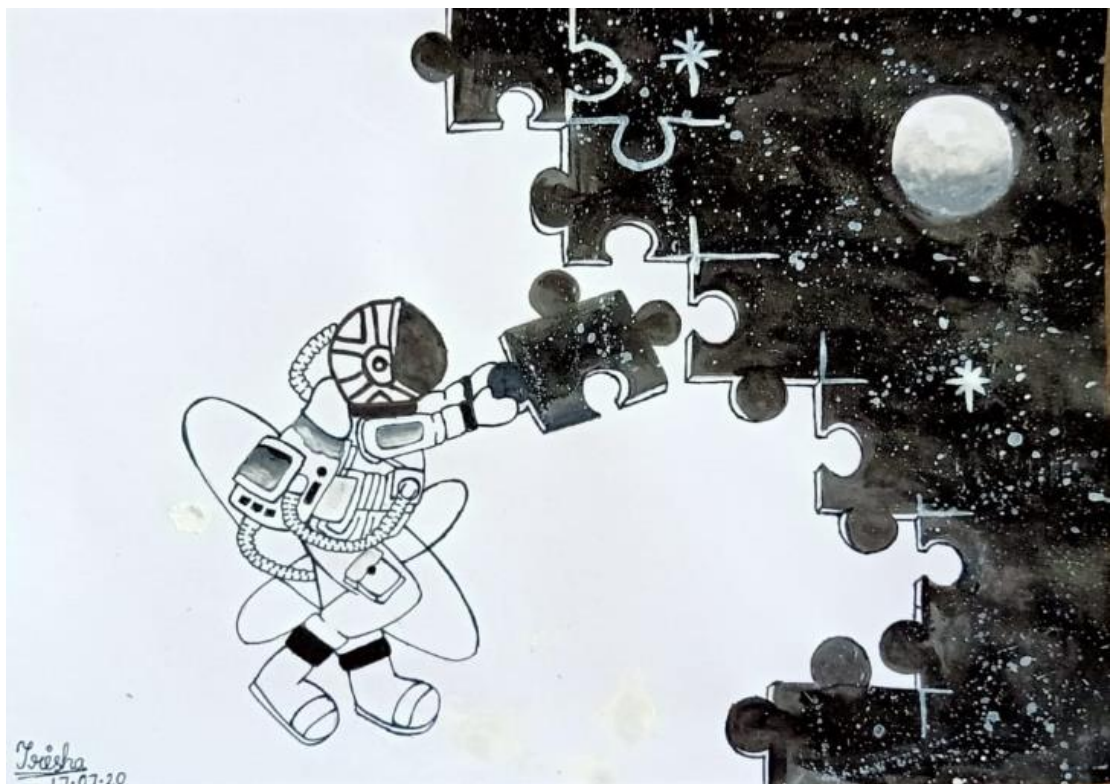


Priyanshu Upadhyay

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Trisha Samal is a Student of Class IXth at No 1, Air Force School, Gwalior, Madhya Pradesh. She is participating in Online Sessions under IOMS. Drawing, singing and writing are her hobbies



Dream World

Krittika Dwivedi

I wish, I could fly,
High in the sky.
I wish, it was raining,
The fastest train was racing,
Colourful butterflies were flying,
And the kids were smiling.
The rainbow was bright,
And the girl was right,

The girls are talking,
And they are walking,
The ants are fighting,
And the boy is writing.
A group of army shooting each other,
And the two owls are hooting together!
The boy is running in the school
And the girl is swimming in the swimming pool.



She is a student of Class 3, Brigade School, Mahadevpura Bangalore. Drawing and writing are her hobbies.



Bad Habits

Natchya Tiwari

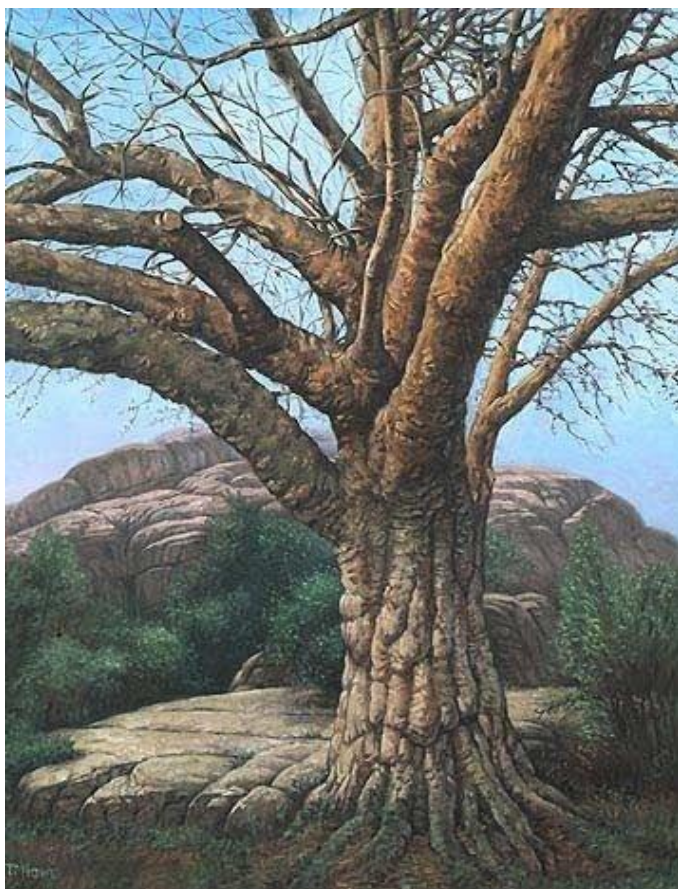
A father was worried about his son's bad habits. One day, the father took his son out for a stroll. They walked into the woods. The father showed his son a small sapling and asked him to pull it out. The boy did so with ease. They walked on.

The father showed his son a small plant and asked the boy to pull it out. The boy did that too, with a little effort. As they walked on, the father asked the boy to pull out the bush, which he did. The next was a small tree, which the child had to struggle a lot to pull it out. Finally, the father showed him a bigger tree and asked the child to pull it out.

The child tried and tried several times to pull it out. He used different ways to pull it out, but failed.

The father looked at his son, smiled and said, "So is the case with habits, good or bad".

Moral Of The Story: *Bad habits are hard to get rid of, once they have settled in our system. It is better to get rid of bad habits quickly before they do so*



Author is a student of CRM School in Chiangrai (Thailand). She studies in standard 9. Her hobbies are swimming, playing basketball, badminton & bicycling. She loves reading books. She is fond of writing short stories. She believes that one should always live by the rules because staying with the rules generates discipline. Discipline is very necessary for the students.

—00—



Ishaan Shrivastava is a student of class 3 at Birla Vidya Niketan, Delhi. Drawing is his hobby



A. Vardhan is a Student of Class Xth at RKM School Sithanagram, A.P. He attends IOMS at the school and is continuing since class IXth. Drawing is his hobby.



Presha Gupta, studies in Class IVth at Apeejay School, Noida. Drawing is her hobby.



Paarth Karve is a student of Class 5th, at Institute of Computer and Technology Model School, Pune. Sports, music and drawing are his hobbies.



A Sampath is a student of Class 9th at RKM School, Sitanagram, A.P. He is regularly participating in Interactive Online Sessions being conducted for students of the school



Ansh Aniket Vaidya is student of class 5th at Aclon International School, Vashi, Navi Mumbai



Saluting the Martyrs



Sai Kiran is a student of Class 10th at RKM School, Sitanagram, A.P. He is regularly participating in Interactive Online Sessions being conducted for students of the school

CLEANING AND REJUVENATING GANGA

Luji Hati Bourah

The Ganges or Ganga, is a transboundary river of Asia which flows through India and Bangladesh. It is not merely a river, but is the lifeline of India, millions of people depend on it for their daily needs and livelihood. But, unfortunately, the Ganga has become one of the most polluted rivers of the world in recent years. The pollution levels have been rising for many years. We have reached this page because of the towns and cities, through which the river flows, large quantities of garbage untreated sewage dead bodies and many other harmful things are directly disposed into the river.

An emission plan to save the river called the Ganga Action Plan was launched on 1985. It aims at to reduce the pollution levels in the river. However, the increasing population have industrialization have

already more than enough damage making the Mighty river beyond repair. Now, the Government of India has launched a new initiative known as NATIONAL MISSION FOR CLEAN GANGA (NMCG) in 2016.

So we should try to clean the Ganga Mata not by throwing garbage and other sequences into the river and save it from polluting it any more. It will be able to save the lifeline of India and the physical and spiritual nourisher of the people. To clean Ganga the support of NMCG is not only required rather it is our national responsibility to perpetuate it other rivers and sources of water.

JAI HIND !!



The above creations, article and painting, are by a student of class IXth at APS, Dinjan. She is participant of online mentoring under IOMS since Class IXth. Her hobbies are writing, drawing and dancing.

HOPE...

BY Riddhima Sharma

Clinging on hope,
 May be with a tiny rope,
 Gloomy atmosphere has entered in the life,
 But you can always hop on the other side.
 Time may be tight,
 But there is always space for good vibes,
 You may have lost everything,
 Don't lose string of hope.
 No matter how long these wounds cut,
 And how many times you have fallen down,
 Its hope that lifts us up again,
 And then again, we wear the positivity crown

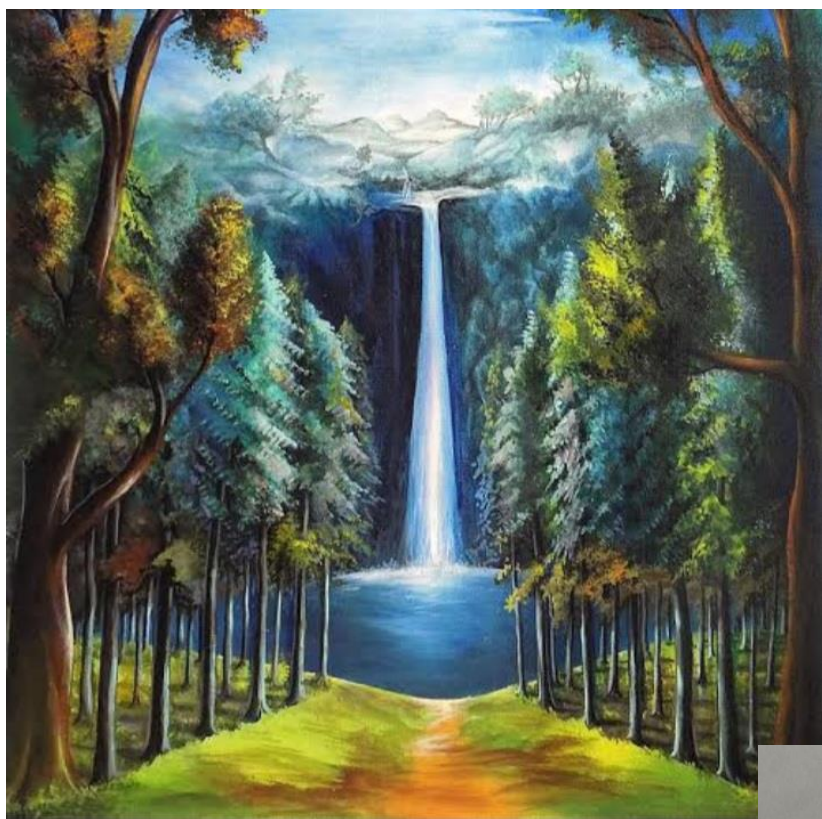


She is student of Class 5 in Amity International School, Vasundhara, Sector 6. She is an avid reader and has a keen interest in writing.

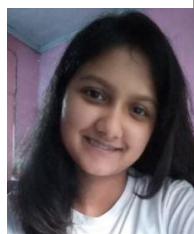
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R. Charitha, a students of Class 9th at Ramkrishna Mission School, Sitanagram. She participates in IOMS.



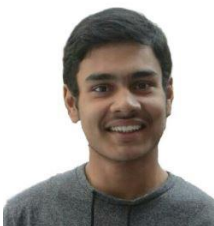
Simi Hati Boruah is a student of class Xth at APS, Dinjan. She is participant of online mentoring under IOMS since Class IXth. Her hobbies are drawing, reading and writing.



Tamanna Nath is a student of class 11th (PCM), at Army Public School Dinjan. Her hobbies are sketching, dancing, singing and maths. She looks for opportunities to do better so as to become a person of human worth,



Uha Chandrika, is a student of Class 9th at RKM School, Sitanagram, A.P. She is regularly participating in Interactive Online Sessions being conducted for students of the school



Ravi Nayan is a student of class 11th (PCM) at Army Public School, Dinjan. Sketching, mathematics, making videos and growing together with peers are his hobbies.



A Journey into the World of Art

Iti Tandon

For the world, art is an expression or application of skill and imagination, producing works like paintings or sculptures which are appreciated for their beauty and emotion. But for me, it is happiness, it is freedom, it is when I can step away from reality and enter my imagination.

My journey into the world of visual art started with art lessons when I was six years old. I wanted to transform the world around me and put it on a canvas. Since I was living in the colourful country of Singapore, packed with culture and personality, it helped me add life to my work.

I learned about different ways and methods to change what was around me onto a piece of paper. I was inspired by many artists like Pablo Picasso and René Magritte, which helped me make some of my best pieces. Each artist has their style of art and their own perspective. For example, Pablo Picasso would sometimes paint deformed cartoon faces, which no other artist has attempted. I wanted to develop my own style and make my mark in the world of art.

Making a piece of art is relaxing and enjoyable as I could make whatever I wanted. It always made me feel calm whenever the brush would touch the canvas, or when my hands moulded the clay. Everything from my mind would escape onto the paper, creating art.

Before I start, there were dozens of choices to be made, from what exactly I was going to make, to how I was

going to make it. Every method needs the proper equipment, like brushes, pencils, paint palettes, and charcoal, or if I was going to do it on paper, or canvas, or even sculpting clay. It's like putting in a password to unlock a safe, you need the right combination.

In art, there are many things one can make, some with deep meaning, the other without any meaning at all. Either way, I made art to express myself in different ways, like silhouettes, linear drawings, sculptures, or still life.

Over the years, an amazing opportunity came my way, which was to submit my work for an art exhibition, which was held at Art House in Singapore, a multidisciplinary art venue that plays host to art exhibitions and concerts. I felt honoured to be part of this great project and worked hard to create a structure made of clay, inspired by Pablo Picasso. It was a face with one-half green and the other yellow. The facial features were in the correct places, unlike Picasso's work, but mine was unusual colours, like pink and red eyes, and a blue mouth.

The artist not only has to give their time but also give their heart and soul to nurture and enrich their skill. Art may mean different things to everyone, but Artist incredibly important to me, and is a major part of my life. It has taught me many things like patience, perseverance, and hard work. So even though it may not be easy, it is important and relaxing.



Above article and drawing are creations by a student of author and artist studies in 7th Grade at Dubai International Academy, (DIA). Her hobbies are playing basketball, tennis, guitar and drawing

Learning Through the Chasm of Social Distancing

Siddhant Tandon

Social distancing is something that all of us, to some extent, have become used to amid Covid-19, albeit the fact that it comes at the heels of one of the most trying and unprecedented times in modern history. With social distancing came distance learning, an effort from educational institutes and authorities to continue learning through this unfortunate circumstance.

This effort is sincere, but it raises the question of the lack of enrichment from the facilities provided by the school and the disjunct learning environment. The fact still remains that we cannot access the top-of-the-line laboratories or the Olympic sized basketball court. Aside from academic enrichment, these are the things that majority students look for to complement their learning and the experiences that come with it. American philosopher Frank Jackson created a thought experiment in 1982 to prove this point called Mary's room.

In a nutshell, the experiment states that in a black and white enclosed room, with no access to anything with colour, a scientist called Mary, studies all about colour with regard to how it is perceived and identified. One day her screen malfunctions and as opposed to showing the usual black and white, it displays an apple in full colour. Jackson argued that the fact that Mary would still improve her understanding from the actual experience despite her extensive theoretical knowledge on the topic, proves experiences still hold immense value in the journey of human learning. Jackson concluded that *"There are non-physical properties and knowledge which can only be discovered through conscious experience."*

Another problem with distanced learning is the lack of the classroom environment that schools pride themselves on, with teachers attempting to create the feel of a classroom through group activities and research projects. Despite the efforts, the creative spirit that a classroom environment fosters is just not there in online learning. The reason that a vast majority of us prefer going to school as opposed to being homeschooled or taking

online courses is due to the learning conditions created by the school and the facilities.

Aristotle once said, *"Man is a social animal, He can't survive in isolation."* Being cramped up in our homes without socializing with others, eats away at our ability to communicate and collaborate with people when this situation ends. Although many may argue that the online lessons through teams or zoom fixes that problem, talking to our laptop or phone, which emits the voice of our friends and teachers, isn't really the best substitute for daily interactions that has been groomed in us through millennia of evolution. Yuval Noah Harari, the author of one of the best-selling books of all time, *Sapiens*, speaks about the fact that *the real reason that humans have emerged as a dominant species is our ability to collaborate and combine fictions and subjective realities, like the concept of education in itself.*

It is still important to stay persistent and hopefully come out of this period, better than we were when we went in because that is the real sign of dedication. It has been said that *"If one does not come out of this period better than they were when they came in, they do not lack the time or the resources. They lack discipline."* So we need to be disciplined. Learn a new skill, or brush up on an existing one. All that matters is that we find one sphere in life where we can use improvement, and take action upon it.

It is also imperative to understand that this state that we are in, in terms of distanced learning, is the best that humans can do, and aside from social interactions, humans have also evolved, more than any other species, to solve problems together. Despite our distance, our virtual solidarity is still much better than complete isolation, and if we stick together, and take this period as a challenge and an opportunity to learn new things and break bad habits, we will move forward, and emerge successful.



Author is a student of Grade 9th at Dubai International Academy. His interests are Model United Nations (MUN), debate and basketball. He has been a **Student of the Year** in my school during 2019-2020. He won first place overall in the World Scholars Cup Global Round in Durban, South Africa.

Go Ahead and Strive for It!

Abhijit Das

Go ahead and fight for your right
Go ahead and for you think is right
All the things you wanted to have
All your wishes so very bright
Be as you are and you will win
Be as you are and you will reach
Do not break the trust or breach
Life will give you a break each time

To make your destiny fair and fine
Just try hard, success will be yours,
But, remember to grow together
Do that what you want to do
Like trees grow in forest thick
Neither on desert nor barren hill
So do what you want to do..

I always love to achieve eternal success.



He is a student of class 10th at Kendriya Vidyalaya, Dinjan. He is regular participant in IOMS initiative.

—00—



P. Ganesh, is a student of Class10th at RKM School, Sitanagram, A.P. He is regularly participating in Interactive Online Sessions being conducted for students of the school





Nag Divya, is a student of Class 9th at RKM School, Sitanagram, A.P. She is regularly participating in Interactive Online Sessions being conducted for students of the school



P. Navytha, *has made clay craft*, is a student of Class 9th at RKM School, Sitanagram, A.P. She is regularly participating in Interactive Online Sessions being conducted for students of the school





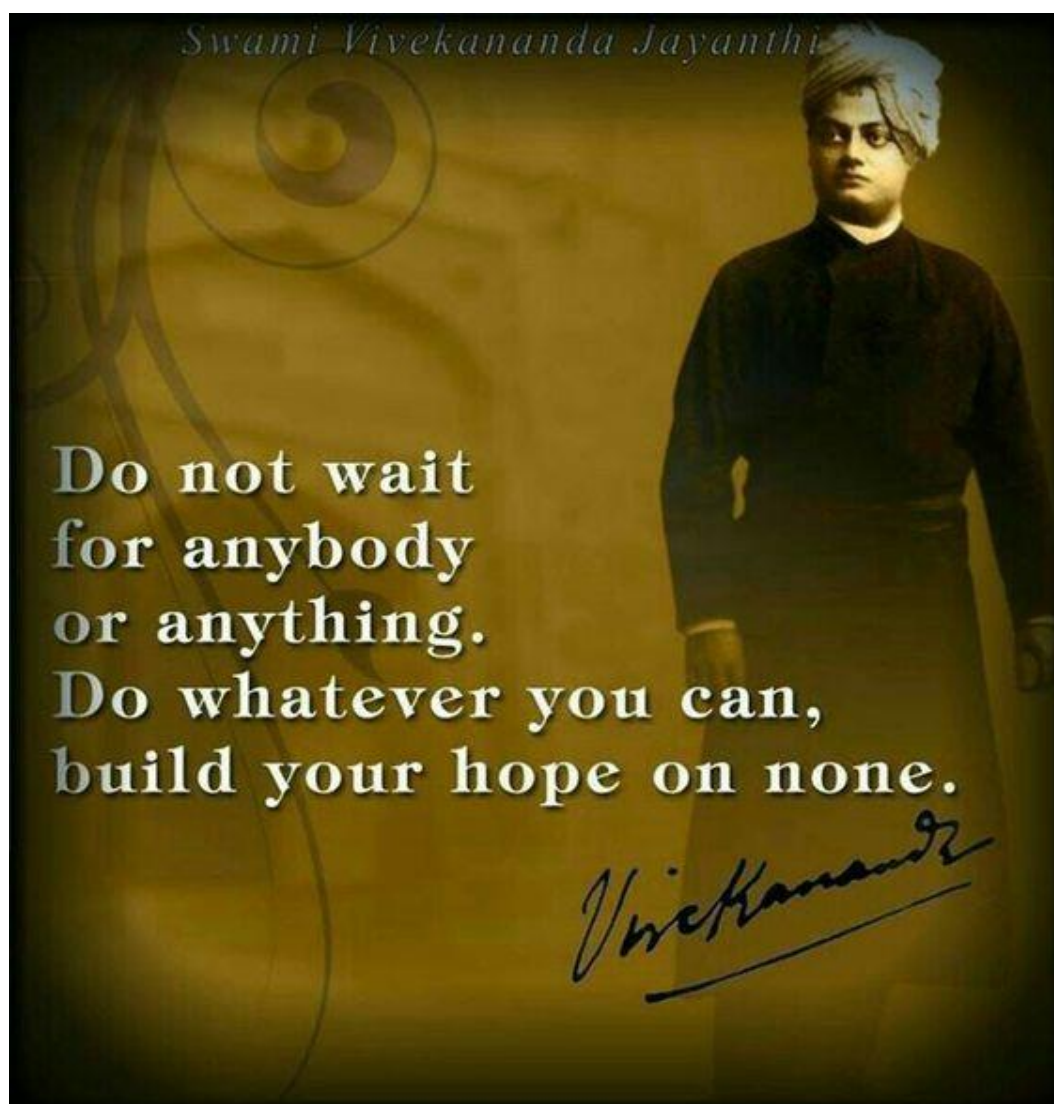
V. Madhuri, has made paper model, is a student of Class 9th at RKM School, Sitanagram, A.P. She is regularly participating in Interactive Online Sessions being conducted for students of the school



V. Vignya, has made craft work, is a student of Class 9th at RKM School, Sitanagram, A.P. She is regularly participating in Interactive Online Sessions being conducted for students of the school



P. Subhash, *has made paper model,* is a student of Class 9th at RKM School, Sitanagram, A.P. He is regularly participating in Interactive Online Sessions being conducted for students of the school



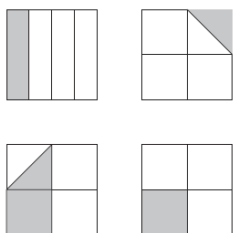
*Growing with Concepts - Mathematics***LET'S DO SOME PROBLEMS IN MATHEMATICS-XXII****Prof. SB Dhar**

The Putnam Competition is a Mathematics Competition. It is for the undergraduate college students. This competition takes place annually on the First Saturday of December. It consists of two 3-hours sessions, one in the morning and the other in the afternoon. There are 6 challenging mathematical problems in each session. Each problem has score of 0 to 10 points.

The Putnam competition started in 1938. Prizes are awarded to the participants with the highest scores and to the departments of mathematics of the five institutions the sum of whose top three scores is greatest.

QUESTIONS

- Q1.** Each of the following four large congruent squares is sub-divided into combinations of congruent triangles or rectangles and is partially shaded. What percent of the total area is partially shaded?



- (a) $12\frac{1}{2}$ (b) 20 (c) 25
(d) $33\frac{1}{3}$ (e) $37\frac{1}{2}$

Ans. (c)

- Q2.** What is $10 \cdot \left(\frac{1}{2} + \frac{1}{5} + \frac{1}{10}\right)^{-1}$?

- (a) 3 (b) 8 (c) $\frac{25}{2}$ (d) $\frac{170}{3}$
(e) 170

Ans. (c)

- Q3.** On an algebra quiz, 10% of the students scored 70 points, 35% scored 80 points, 30% scored 90 points, and the rest scored 100 points. What is the difference between the mean and the median of the students' scores on this quiz?

- (a) 1 (b) 2 (c) 3 (d) 4 (e) 5

Ans (c)

- Q4.** Which of the following numbers is a perfect square?

- (a) $\frac{14!15!}{2}$ (b) $\frac{15!16!}{2}$ (c) $\frac{16!17!}{2}$
(d) $\frac{17!18!}{2}$ (e) $\frac{18!19!}{2}$

Ans. (d)

- Q5.** The two legs of a right triangle, which are altitudes, have lengths $2\sqrt{3}$ and 6. How long is the third altitude of the triangle?

- (a) 1 (b) 2 (c) 3 (d) 4 (e) 5

Ans (c)

- Q6.** David drives from his home to the airport to catch a flight. He drives 35 miles in the first hour, but realizes that he will be 1 hour late if he continues at this speed. He increases his speed by 15 miles per hour for the rest of the way to the airport and arrives 30 minutes early. How many miles is the airport from his home?

- (a) 140 (b) 175 (c) 210
(d) 245 (e) 280

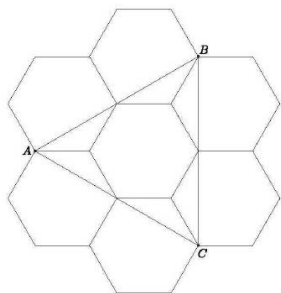
Ans (c)

- Q7.** Susie pays for 4 muffins and 3 bananas. Calvin spends twice as much paying for 2 muffins and 16 bananas. A muffin is how many times as expensive as a banana?

- (a) $\frac{3}{2}$ (b) $\frac{5}{3}$ (c) $\frac{7}{4}$ (d) 2 (e) $\frac{13}{4}$

Ans (b)

Q8. Six regular hexagons surround a regular hexagon of side length 1 as shown. What is the area of $\triangle ABC$?



- (a) $2\sqrt{3}$ (b) $3\sqrt{3}$ (c) $1 + 3\sqrt{2}$
(d) $2 + 2\sqrt{3}$ (e) $3 + 2\sqrt{3}$

Ans (b)

Q9. Determine all possible values of the expression $A^3 + B^3 + C^3 - 3ABC$, where A , B , and C are non-negative integers.

Ans. The possible values are the non-negative integers that are either divisible by 9 or not divisible by 3.

Q10. In the triangle ABC , let G be the centroid, and let I be the center of the inscribed circle. Let α and β be the angles at the vertices A and B , respectively. Suppose that the segment IG is parallel to AB and that $\beta = 2 \tan^{-1} \left(\frac{1}{3} \right)$. Find α .

Ans. $\alpha = \frac{\pi}{2}$

Q11. Given real numbers $b_0, b_1, \dots, b_{2019}$ with $b_{2019} \neq 0$, let $z_1, z_2, \dots, z_{2019}$ be the roots in the complex plane of the polynomial

$$P(z) = \sum_{k=0}^{2019} b_k z^k$$

Let $\mu = \frac{|z_1| + |z_2| + \dots + |z_{2019}|}{2019}$ be the average of the distances from $z_1, z_2, \dots, z_{2019}$ to the origin.

Determine the largest constant M such that $\mu \geq M$ for all choices of $b_0, b_1, \dots, b_{2019}$ that satisfy:
 $1 \leq b_0 < b_1 < b_2 < \dots < b_{2019} \leq 2019$.

Answer. $M = \left(\frac{1}{2019} \right)^{\frac{1}{2019}}$

Q12. Let g be a real-valued function that is continuous on the closed interval $[0, 1]$ and twice differentiable on the open interval $(0, 1)$. Suppose that for some real $r > 1$, $\lim_{x \rightarrow 0^+} \frac{g(x)}{x^r} = 0$.

Prove that either $\lim_{x \rightarrow 0^+} g'(x) = 0$

Or

$\lim_{x \rightarrow 0^+} \sup x^r |g''(x)| = \infty$

Q13. Denote by Z^2 the set of all points (x, y) in the plane with integer coordinates. For each integer $n \geq 0$, let P_n be the subset of Z^2 consisting of the point $(0, 0)$ together with all points (x, y) such that $x^2 + y^2 = 2^k$ for some integer $k \leq n$. Determine, as a function of n , the number of four-point subsets of P_n whose elements are the vertices of a square.

Ans: $5n + 1$.

Q14. For all $n \geq 1$, let $a_n = \sum_{k=1}^{n-1} \frac{\sin\left(\frac{(2k-1)\pi}{2n}\right)}{\cos^2\left(\frac{(k-1)\pi}{2n}\right) \cos^2\left(\frac{k\pi}{2n}\right)}$. Determine $\lim_{n \rightarrow \infty} \frac{a_n}{n^3}$.

Ans $\frac{8}{\pi^3}$

Q15. Let S be the smallest set of positive integers such that

- (a) 2 is in S ,
(b) n is in S whenever n^2 is in S , and
(c) $(n+5)^2$ is in S whenever n is in S .

Which positive integers are not in S ?

(The set S is "smallest" in the sense that S is contained in any other such set.)

Ans: The positive integers that are not in S are 1 and the multiples of 5.

Q16. Suppose that a positive integer N can be expressed as the sum of k consecutive positive integers $N = a + (a+1) + (a+2) + \dots + (a+k-1)$ for $k = 2017$ but for no other values of $k > 1$.

Considering all positive integers N with this property, what is the smallest positive integer a that occurs in any of these expressions?

Answer. $a = 16$

Q. 17. Evaluate the sum:

$$\sum_{k=0}^{\infty} \left(3 \cdot \frac{\ln(4k+2)}{4k+2} - \frac{\ln(4k+3)}{4k+3} - \frac{\ln(4k+4)}{4k+4} + \frac{\ln(4k+5)}{4k+5} \right)$$

(As usual, $\ln x$ denotes the natural logarithm of x .)

Answer. $\ln^2(2)$

Q18. Find the number of ordered 64-tuples $(x_0, x_1, \dots, x_{63})$ such that x_0, x_1, \dots, x_{63} are distinct elements of $\{1, 2, \dots, 2017\}$ and $x_0 + x_1 + 2x_2 + 3x_3 + \dots + 63x_{63}$ is divisible by 2017.

Ans: $\frac{2016!}{1953!} - 2016 \cdot 63!$

Q19. Find all ordered pairs (a, b) of positive integers for which $\frac{1}{a} + \frac{1}{b} = \frac{3}{2018}$

Ans: The six ordered pairs are $(1009, 2018)$, $(2018, 1009)$, $(1009, 337, 674) = (350143, 674)$, $(1009, 1346, 673) = (1358114, 673)$, $(674, 1009, 337) = (674, 350143)$, and $(673, 1009, 1346) = (673, 1358114)$.

Q20. Determine the greatest possible value of $\sum_{i=1}^{10} \cos(3x_i)$ for real numbers x_1, x_2, \dots, x_{10} satisfying $\sum_{i=1}^{10} \cos(x_i) = 0$.

Ans: The maximum value is $\frac{480}{49}$

Q21. Find all positive integers $n < 10^{100}$ for which simultaneously n divides 2^n , $n-1$ divides 2^{n-1} , and $n-2$ divides 2^{n-2} .

Ans: $n = 2^2, 2^4, 2^{16}, 2^{256}$

Q22. Let S be the set of sequences of length 2018 whose terms are in the set $\{1, 2, 3, 4, 5, 6, 10\}$ and sum to 3860. Prove that the cardinality of S is at most $2^{3860} \cdot \left(\frac{2018}{2048}\right)^{2018}$



The author, is **Editor of this Monthly e-Bulletin**. He is an eminent mentor, analyst and connoisseur of Mathematics from IIT for preparing aspirants of Competitive Examinations for Services & Admissions to different streams of study at Undergraduate and Graduate levels using formal methods of teaching shared with technological aids to keep learning at par with escalating standards of scholars and learners. He has authored numerous books of excellence.

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—00—

Nature is a beautiful integration of different entities. Mathematics and science only discover them.

Euler's Identity $0 = 1 + e^{i\pi}$ is an excellent example of integration. Each of the constituent was discovered independently, by different mathematicians, at different point of time.

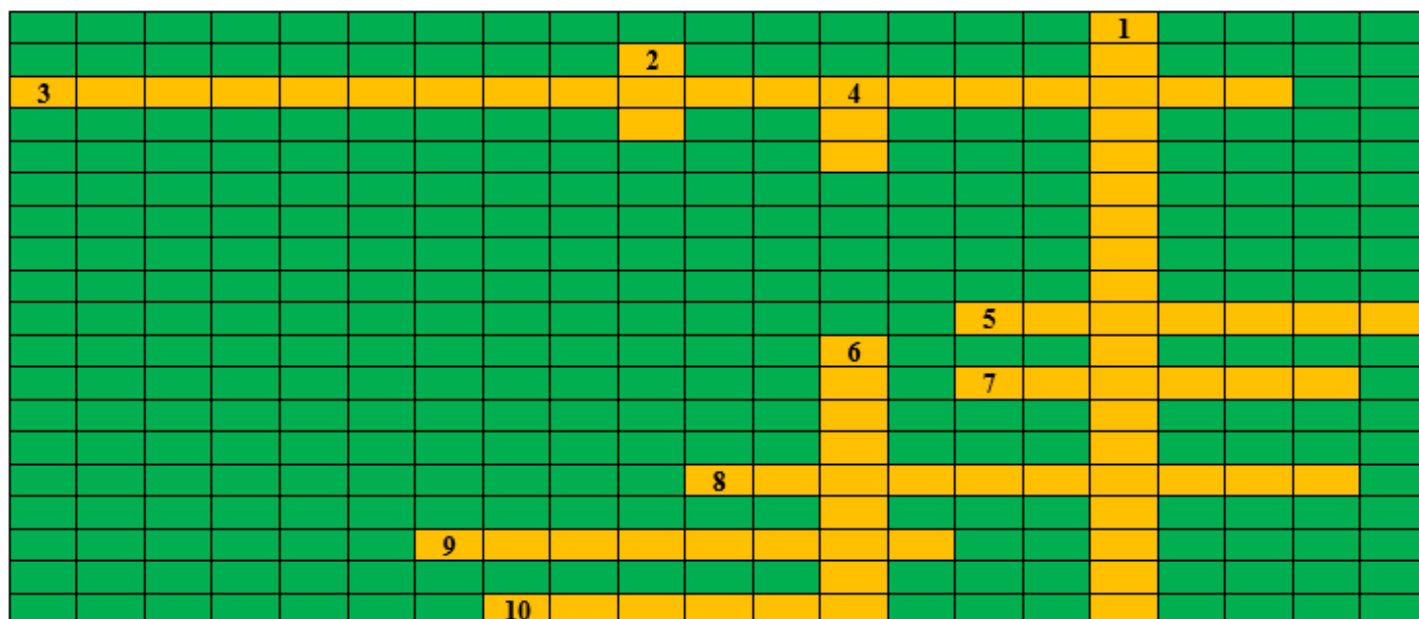
Yet, they all complement each other.

Changing either of the constituents will need whole nature to be rediscovered.

—00—

CROSSWORD PUZZLE: Line of Control Between Countries

Prof. SB Dhar

**ACROSS**

3. Border Line between India and Bangladesh
5. Border Line between India and China
7. Border Line between India and Afghanistan
8. Border Line between India and Sri Lanka
9. Border Line between India and Nepal
10. Border Line between France and Italy

DOWN

1. Border Line between India and Myanmar
2. Border Line between India and Pakistan
4. Border Line between India and China
6. Border Line between India and Pakistan

—00—

Answer to this Crossword Puzzle shall be provided in next issue of this e-Bulletin

—00—

Problems are meant to be solved; every solution opens a doorway to new problems. This is an endless journey to discovery of nature.

We are, what we are, because of rigorous efforts of countless persons.

—00—

Growing with Concepts: Physics

We regret our inability to maintain continuity of this column. However, we would resume it shortly

—00—

Excuses are available all around, in plenty;

Need is to be passionate and act selflessly, with a commitment for the larger good

—00—

Ask the right questions, and nature will open the doors of her secrets

-Sir C.V. Raman

—00—

Education breeds confidence; Confidence breeds hope; Hope breeds peace.

- Confucius

—00—

I learnt an invaluable lesson from Lamp; Worth of a person is as long as it helps others Stay Illuminated; What it can is an InsurancePolicy; Rest all is Liability.

—00—



I have been impressed with the urgency of doing.

Knowing is not enough; we must apply.

Being willing is not enough; we must do."

- Leonardo da Vinci

—00—

*Growing with Concepts: Chemistry***DINITROGEN****Kumud Bala**

Nitrogen was discovered by Daniel Rutherford in 1772. It is the first member of group 15 of the periodic table. It has the electronic configuration $1s^2 2s^2 2p^3$ and therefore has five electrons in its valence shell. In the molecular form, it exists as a diatomic molecule (N_2) having triple bond between nitrogen atoms ($N \equiv N$). Therefore, it is also referred to as dinitrogen. It is a typical non-metal with high electronegativity next to fluorine and oxygen.

Preparation of Dinitrogen: In the laboratory dinitrogen is prepared by heating an aqueous solution containing an equivalent amount of ammonium chloride and sodium nitrite.

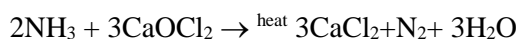
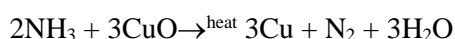


During the preparation small amounts of NO and HNO_3 are also formed in the reaction. These impurities can be removed by bubbling gas through the aqueous sulphuric acid containing a small amount of $K_2Cr_2O_7$. It can also be prepared by:

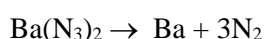
- (i) Thermal decomposition of ammonium dichromate.



- (ii) By the action of ammonia with cupric oxide or bleaching powder.



- (iii) Very pure nitrogen can be obtained by the thermal decomposition of sodium azide or barium azide.



- (iv) *Commercial isolation of dinitrogen from air:* commercially dinitrogen is prepared by the liquefaction and fractional distillation of air. Air contains nitrogen (b.p. 772K) and dioxygen (b.p. 90K). When the liquid air is allowed to boil, dinitrogen with lesser boiling point gets distilled first leaving behind dioxygen. The dinitrogen obtained from air contains traces of oxygen and some other gases as impurities.

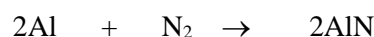
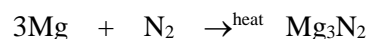
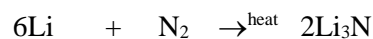
Physical Properties of Dinitrogen:

- Nitrogen is a colorless, odorless and tasteless gas.
- It has two stable isotopes ^{14}N and ^{15}N
- It is a non-toxic gas.
- It is slightly lighter than air and its vapour density is 14.

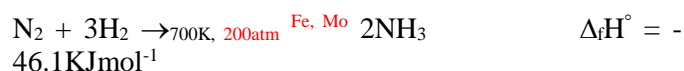
- It has very low solubility in water (about 23.2 cm^3 per litre of water at 1 atmosphere pressure and 273K)
- Its melting and boiling points are low; 63.2K and 77.2K respectively.

Chemical Properties of Dinitrogen: Dinitrogen is chemically nonreactive at room temperature. It is neither combustible nor it supports combustion. The N-N bond in nitrogen molecule is a triple bond ($N \equiv N$) with a bond distance of 109.8 pm and bond dissociation enthalpy of $941.4 \text{ kJ mol}^{-1}$. The low reactivity of nitrogen is due to very small size of the molecule and high bond dissociation enthalpy of the molecule. However, reactivity increases rapidly with the rise in temperature.

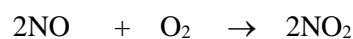
Action with metals: It combines with number of active metals on strong heating to form their respective ionic nitrides. For example,



Action with Non-metals: Dinitrogen combines with dihydrogen at about 700K under a pressure of 200 atm. in the presence of iron as catalyst. A small amount of molybdenum is also used as a promoter.



Dinitrogen reacts with dioxygen during lightning or at high temperature of about 2000K and form nitric oxide. Nitric oxide is a colorless gas but very unstable. It immediately reacts with more of oxygen to form nitrogen dioxide.



Action with Litmus: Dinitrogen is neutral towards litmus because it has no action on blue or red litmus.

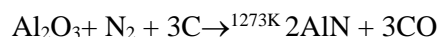
Combination with Compounds: Dinitrogen also combines with certain compounds on strong heating. For example:

- (i) Reaction with calcium carbide-

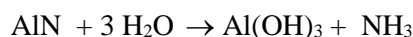
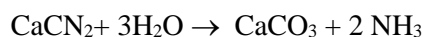


calcium cyanamide

(ii) Reaction with alumina in the presence of carbon-



Both these compounds calcium cyanamide (CaCN_2) and aluminium nitride (AlN) are hydrolyzed on boiling with water to give ammonia.



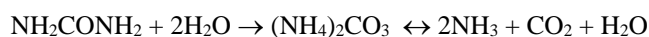
Therefore, calcium cyanamide is used as a fertilizer under the name nitrolim ($\text{CaCN}_2 + \text{C}$).

Uses of Dinitrogen:

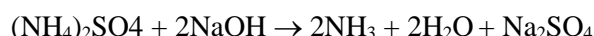
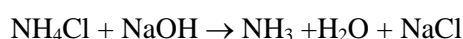
- Dinitrogen is used in the manufacture of compounds like ammonia, nitric acid, calcium cyanamide etc.
- It is used in providing inert atmosphere in iron and steel industries.
- Liquid nitrogen is used as refrigerant to preserve biological specimens, in freezing food stuffs and also in cryosurgery.
- It is used in gas-filled thermometers used for measuring high temperatures.

Ammonia:

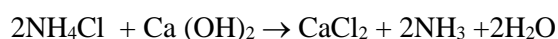
Ammonia is the most important compound of nitrogen. It is present in small quantities in air and soil where it is formed by the decay of nitrogenous organic matter e.g. urea



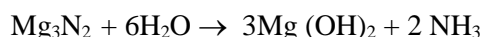
Laboratory Preparation:- ammonia is prepared in the laboratory by heating ammonium salt; NH_4Cl or $(\text{NH}_4)_2\text{SO}_4$ with a strong alkali NaOH



It can also be prepared by heating ammonium chloride with slaked lime.

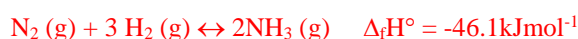


It can also be prepared by the hydrolysis of magnesium nitride.



Ammonia can be dried with dehydrating agents such as conc. H_2SO_4 , P_2O_5 and anhydrous CaCl_2 because ammonia reacts with these compounds.

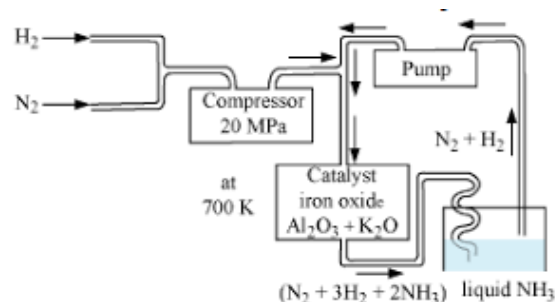
Manufacturing of Ammonia: Ammonia can be manufactured by Haber's Process which involves the reaction:



This is a reversible exothermic reaction. The favorable conditions for high yield of ammonia can be understood by applying Le Chatelier's principle.

- Low temperature: Since the forward reaction is exothermic, therefore, low temperature will favour the formation of ammonia. However an optimum temperature of about 700K is necessary.
- High pressure: High pressure of the order of 200 atm. or $200 \times 10^5 \text{ Pa}$ is required to favour the forward reaction.
- Presence of catalyst: The use of catalyst such as iron oxide containing a small amount of molybdenum or potassium oxide (K_2O) and aluminum oxide (Al_2O_3) as promoter increases the rate of attainment of equilibrium of ammonia.

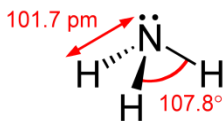
Detail of the process: The plant required for the manufacture of ammonia is shown in the figure.



In this method a mixture of N_2 and H_2 in the molar ratio of 1:3 is compressed to about 200 atm. pressure. The compressed gases are then cooled and passed through soda lime tower to free them from moisture and CO_2 . Then these are fed into catalyst chamber packed with iron oxide with small amount of K_2O and Al_2O_3 or molybdenum. The chamber is heated electrically to a temperature of 700K when the two gases combine to form ammonia. The reaction being exothermic, the heat evolved maintains the desired temperature and further electrical heating is not required. The gases which escape from the chamber contain about 15-20% ammonia and the remaining are the unreacted N_2 and H_2 . These are passed through condensing pipes where ammonia gets liquefied and is collected in the receiver. The unreacted gases are pumped back to the compression pump where they are mixed with fresh gaseous mixture.

Structure of ammonia: Ammonia is expected to have a tetrahedral geometry because the central nitrogen atom involves sp^3 hybridization. It has one position occupied by a lone pair. The lone pair distorts its geometry and the molecule has pyramidal geometry with nitrogen atom at

the apex. The N-H bond length is 101.7 pm and HNH bond angle is 107.8°



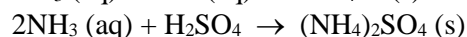
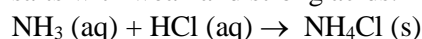
Physical Properties of Ammonia:

- (i) Ammonia is a colorless gas with a characteristic pungent smell called ammoniacal smell.
- (ii) It is lighter than air.
- (iii) It is highly soluble in water and its solution is basic in nature due to the formation of OH⁻ ions.

$$\text{NH}_3(\text{g}) + \text{H}_2\text{O}(\text{l}) \leftrightarrow \text{NH}_4^+(\text{aq}) + \text{OH}^-(\text{aq})$$
- (iv) Ammonia can be easily liquefied under pressure. Liquid ammonia has b.p 239.7K and f.p. 198.4K

Chemical properties:

- (i) **Basic nature-** Ammonia gas is highly soluble in water. Its aqueous solution turns red litmus blue, indicating its weak basic character. The basic character of ammonia is due to the formation of OH⁻ ions in aqueous solution. Being basic ammonia forms salts with weak and strong acids.

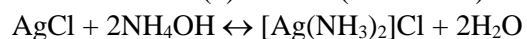


- (ii) **Tendency to form complexes:** Ammonia acts as a Lewis base due to the presence of lone pair of electrons on the nitrogen atom. Therefore, it can form coordinate bond with a number of transition metal cations forming complex compounds. For example-

$$\text{Ag}^+(\text{aq}) + 2\text{NH}_3(\text{aq}) \rightarrow [\text{Ag}(\text{NH}_3)_2]^{+2}(\text{aq})$$

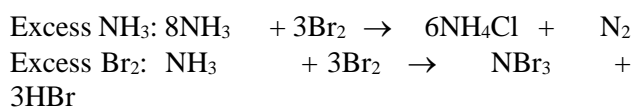
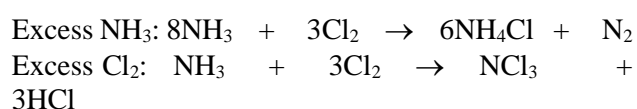
$$\text{Cu}^{+2}(\text{aq}) + 4\text{NH}_3(\text{aq}) \rightarrow [\text{Cu}(\text{NH}_3)_4]^{+2}(\text{aq})$$

$$\text{Cd}^{+2}(\text{aq}) + 4\text{NH}_3(\text{aq}) \rightarrow [\text{Cd}(\text{NH}_3)_4]^{+2}(\text{aq})$$
 Since ammonia forms complexes, the white precipitate of silver chloride dissolves in excess of ammonium hydroxide to form a soluble complex diammine silver(1) chloride (colourless).

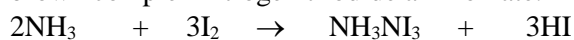


Similarly, copper sulphate dissolves in excess of ammonium hydroxide to form deep blue complex tetraammine copper(2) sulphate. The formation such complex compounds finds applications in detection of metal ions (Ag⁺, Cu⁺² etc.)

- (iii) **Action with halogens:** chlorine reacts with ammonia in two ways depending upon whether ammonia is in excess or chlorine is in excess.



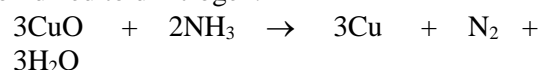
Iodine reacts with liquid ammonia to form a dark brown complex nitrogen triiodide ammoniate.



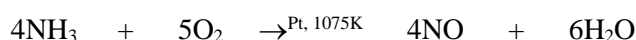
The complex is very explosive when dry. It explodes violently when rubbed against a hard surface as follows:



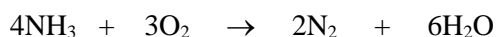
- (iii) **Oxidation:** Ammonia is oxidized to dinitrogen with oxidizing agents like CuO, NaClO and CaOCl₂ etc. When ammonia is passed over heated copper oxide, it gets oxidized to dinitrogen.



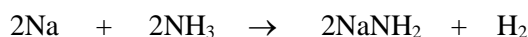
When vapours of NH₃ and O₂ are passed over red hot platinum gauze at 1075K, it is oxidized to nitric oxide.



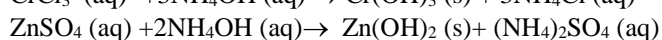
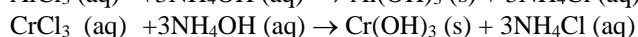
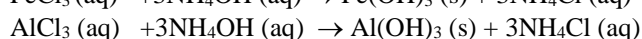
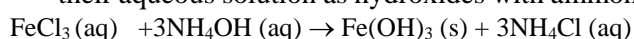
- (v) **Combustion:** Ammonia is neither combustible nor supporter of combustion. However, it burns in the presence of oxygen to form dinitrogen and water.



- (vi) **Formation of amides:** When ammonia is passed over heated sodium or potassium at 575K, it forms amides with liberation of dinitrogen.



- (vii) **Precipitation of heavy metal ions from the aqueous solution of their salts:** Heavy metal ions such as Fe⁺³, Cr⁺³ and Al⁺³ etc. are precipitated from their aqueous solution as hydroxides with ammonia.



Uses of ammonia:

- (i) It is used in the manufacture of nitric oxide and sodium carbonate.
- (ii) Liquid ammonia is used as a refrigerant.
- (iii) It is used in the manufacture of rayon.
- (iv) It is commonly used for preparing various nitrogenous fertilizers such as ammonium nitrate, ammonium sulphate, ammonium phosphate and urea.
- (v) It is an important reagent and is used as a solvent in the laboratory.

Assignment

- Ammonia gas can be dried over ----
(A) CaCl_2 (B) conc. H_2SO_4
(C) PCl_5 (D) quick lime
- Pure nitrogen gas is obtained by heating ----
(A) $\text{NH}_3 + \text{NaNO}_2$ (B) $\text{NH}_4\text{Cl} + \text{NaNO}_2$
(C) $\text{N}_2\text{O} + \text{Cu}$ (D) $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$
- Which compound of nitrogen is formed when CaCN_2 reacts with hot water?
(A) NH_3 (B) N_2O (C) NH_2NH_2 (D) NO_2
- A solution of colorless salt X on boiling with excess of NaOH produces a non-flammable gas. The gas evolution ceases after some time. Upon addition of Zn dust to the same solution, the gas evolution restarts. The colorless salt X is ----
(A) $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ (B) NH_4NO_2
(C) NH_4Cl (D) $(\text{NH}_4)_2\text{SO}_4$
- On heating ammonium dichromate, the gas evolved is ----
(A) oxygen (B) ammonia
(C) nitric oxide (D) nitrogen
- Thermal decomposition of sodium azide gives ----
(A) nitrogen (B) ammonia
(C) oxygen (D) nitric oxide
- Ammonia acts as a Lewis base because----
(A) nitrogen atom in ammonia has one lone pair of electrons which is available for donation
(B) nitrogen atom in ammonia does not have lone pair of electrons.
(C) Ammonia gas is highly soluble in water
(D) none of these.
- Who discovered nitrogen?
(A) Deniel Rutherford (B) Karl Scheele
(C) C.W. Scheele (D) Glauber
- Which is the promoter used in Haber's process?
(A) molybdenum (B) platinum
(C) chromium (D) copper
- Nitrolim is a mixture of ----
(A) $\text{CaCN}_2 + \text{C}$ (B) $\text{CaCN}_2 + \text{N}_2$
(C) $\text{CaCO}_3 + \text{NH}_3$ (D) NH_4NO_3 and $(\text{NH}_4)_2\text{SO}_4$
- Among the following the correct statement is ----
(A) liquid nitrogen is used as a refrigerant to preserve biological specimens
(B) liquid ammonia is not used as a refrigerant
(C) ammonia is not soluble in water
(D) nitrogen is highly reactive gas.
- Why is N_2 less reactive at room temperature?
(A) due to the presence of a triple bond, it has very high bond dissociation energy
(B) nitrogen molecule has low bond dissociation energy
(C) nitrogen has little tendency for catenation
(D) nitrogen is a typical non-metal with electronegativity next only to fluorine and oxygen.
- Which are the conditions required to maximize the yield of ammonia in Haber's process?
(A) low temperature of the order of about 700K
(B) high pressure of about 200 atm.
(C) presence of catalyst such as iron oxide with small amount of K_2O and Al_2O_3
(D) all of the above.
- Which is the colored complex formed when copper sulphate dissolve in excess of ammonium hydroxide?
(A) white (B) blue
(C) brown (D) green
- The chemical used for cooling in electrical refrigeration is ----
(A) liquid CO_2 (B) liquid NH_3
(C) NH_4OH (D) solid CO_2
- Nitrogen can be purified from the impurities of oxides of nitrogen and ammonia by passing through ----
(A) a solution of $\text{K}_2\text{Cr}_2\text{O}_7$ acidified with H_2SO_4
(B) conc. HCl
(C) a solution of KOH
(D) alkaline solution of pyrogallol
- Catalytic oxidation of NH_3 gives ----
(A) nitrogen dioxide (B) nitric oxide
(C) dinitrogen pentaoxide (D) nitrogen
- Regular use of which of the following fertilizers increases the acidity of soil?
(A) urea
(B) super phosphate of lime
(C) ammonium sulphate

- (D) potassium nitrate
19. The electronegativity difference between N and F is greater than that between N and H yet the dipole moment of NH_3 (1.5D) is larger than that of NF_3 (0.2D). This is because ----
- (A) in NH_3 the atomic dipole and bond dipole are in the same direction where as in NF_3 these are in opposite directions.
- (B) in NH_3 as well as NF_3 the atomic dipole and bond dipole are in opposite directions.
- (C) in NH_3 the atomic dipole and bond dipole are in the opposite direction where as in NF_3 these are in the same direction
- (D) in NH_3 as well as in NF_3 the atomic dipole and bond dipole are in the same direction.
20. Which of the following statements is not correct regarding ammonia?
- (A) it is used in the manufacture of nitric acid and sodium carbonate
- (B) industrial fixation of nitrogen is the manufacture of ammonia by Haber's process
- (C) ammonia does not act as a Lewis base
- (D) liquid ammonia is used as a refrigerant.

ANSWERS

11. (A)	12. (A)	13. (D)	14. (B)	15. (B)	16. (D)	17. (B)	18. (C)	19. (A)	20. (C)
1. (D)	2. (B)	3. (A)	4. (B)	5. (D)	6. (A)	7. (A)	8. (A)	9. (A)	10. (A)



Author is M.Sc. (Chem.), M.Ed. and Advanced Diploma in German Language (Gold Medallist). She retired as a Principal, Govt. School Haryana, has 3-1/2 years' experience in teaching Chemistry and distance teaching through lectures on Radio and Videos. She has volunteered to complement mentoring of students for Chemistry through Online Web-enabled Classes of this initiative. e-Mail ID: kumud.bala@yahoo.com

—00—

A hundred times every day I remind myself that my inner and outer life are based on the labors of other men, living and dead, and that I must exert myself in order to give in the same measure as I have received and am still receiving.

Albert Einstein

—00—

Nature is a beautiful integration of different entities. Mathematics and science only discover them.

Euler's Identity $0 = 1 + e^{j\pi}$ is an excellent example of integration. Each of the constituent was discovered independently, by different mathematicians, at different point of time.

Yet they all complement each other.

Lest it not be there whole nature shall have to rediscovered

SCIENCE QUIZ: July 2020

Kumud Bala

1. Which are the two celestial objects we can see easily in the night sky?
(A) moon and stars
(B) sun and moon
(C) constellation and moon
(D) alpha centauri and sun
2. Which star is closest to the earth after the sun?
(A) pole star (B) alpha centauri
(C) moon (D) light year
3. Which star remains fixed at the same place in the sky in the north?
(A) pole star (B) ursa major
(C) orion (D) sirius
4. Which unit is used to express distance between the various celestial bodies like stars and planets?
(A) light year (B) kilometers
(C) orion (D) meteors
5. What do you understand by the statement that a star is 8 light years away from the earth?
(A) it means the distance between the star and the earth is equal to the distance travelled by light in eight years
(B) it is the distance travelled by light in one year
(C) stars emit light their own
(D) none of these
6. Which constellation is reminding us of a large ladle or a question mark in the night sky?
(A) orion (B) ursa major
(C) cassiopeia (D) leo major
7. Which of the following statements is correct regarding Ursa Major?
(A) it is also known as the big dipper, the great bear or the saptarshi
(B) there are seven prominent stars in this constellation
(C) there are three stars in the handle of the ladle and four in its bowl
(D) all of the above
8. One light year is equal to -----Km.
(A) 9.46×10^9 (B) 9.46×10^{12}
(C) 9.46×10^{10} (D) 9.46×10^8
9. In which season of the year is the constellation Ursa Major visible in the sky?
(A) the constellation Ursa Major is visible during winter in the late evenings
(B) ursa major can be seen during summer time in the early part of the night
(C) the constellation ursa major is visible in the northern sky
(D) it is visible in the northern hemisphere around the spring
10. The constellation Orion is visible during -----
(A) winter in the late evenings
(B) summer time in the early part of the night
(C) spring season
(D) summer time in the late evenings.
11. Which constellation is appearing like a distorted letter M or W?
(A) leo major (B) cassiopeia
(C) orion (D) ursa major
12. Which is the biggest planet of the solar system?
(A) mercury (B) jupiter
(C) saturn (D) earth
13. Which are the planets lie between the sun and the earth?
(A) mercury and venus (B) saturn and venus
(C) uranus and jupiter (D) saturn and jupiter
14. Which is the planet having a well-developed system of rings around it?
(A) earth (B) Saturn
(C) venus (D) uranus
15. Which is a star having a system of planets with life on one of its planets?
(A) sun (B) earth
(C) saturn (D) venus
16. Which is the smallest planet of the solar system?
(A) venus (B) mercury
(C) saturn (D) jupiter
17. Which is the nearest planet to the earth and is the brightest planet of the solar system?
(A) mercury (B) venus
(C) saturn (D) uranus
18. Which force keeps the members of the solar system bound to the sun?
(A) gravitational force (B) magnetic force
(C) electrostatic force (D) friction

19. Which planet is known as red planet due to the presence of iron oxide on its surface?
(A) venus (B) mars
(C) saturn (D) earth
20. Which can two planets be seen as morning star and evening star?
(A) mercury and venus (B) venus and saturn
(C) mars and mercury (D) uranus and venus
21. What name is given to the celestial body which revolves around a planet?
(A) constellation (B) satellite
(C) asteroids (D) comets
22. Which two planets have asteroids between them?
(A) mars and jupiter (B) mercury and venus
(C) saturn and uranus (D) uranus and neptune
23. What are two objects other than planets which are members of the solar system?
(A) asteroids and comets
(B) constellation and comets
(C) stars and comets
(D) satellite and comets
24. Which is the member of the solar system appearing in the sky like a bright ball of light with a long growing tail?
(A) asteroids (B) comets
(C) constellation (D) meteor
25. Which celestial body is seen as a bright streak of light coming down the night sky?
(A) meteor (B) comets
(C) satellite (D) asteroids
26. Which celestial objects are also called minor planets?
(A) meteor (B) comets
(C) asteroids (D) satellite
27. Which was the first artificial satellite launched by India?
(A) aryabhatta (B) moon
(C) INSAT (D) none of these
28. The group of stars that appears to form a recognizable pattern in the sky is known as -----
(A) constellation (B) asteroids
(C) meteor (D) pole star
29. Ursa Major constellation appears to revolve around the ----- in the night sky.
(A) pole star (B) sun
(C) planet (D) asteroids
30. Orion constellation can be used to locate the position of ----- star whereas ursa major constellation can be used to locate the ----- star in the night sky
(A) sirius and pole (B) pole and Sirius
(C) sirius and planet (D) asteroids and pole
31. The long distance transmission of television programs have been made possible with the help of -----
(A) artificial (B) natural
(C) both (A) & (B) (D) none of these
32. How much time does light take to reach us from the sun?
(A) 9 minutes 20 seconds
(B) 8 minutes 20 seconds
(C) 7 minutes 20 seconds
(D) 6 minutes 20 seconds
33. Phases of the moon occur because -----
(A) we can see only that part of the moon which reflects light towards us
(B) our distance from the moon keeps changing
(C) the shadow of the earth covers only a part of the moon's surface
(D) the thickness of the moon's atmosphere is not constant.
34. Which of planets are known as 'outer planets'?
(A) mercury, venus, earth, mars
(B) mercury, venus, jupiter, Neptune
(C) Neptune, Venus, mercury, mars
(D) jupiter, saturn, uranus, neptune
35. The planet whose relevancy as a planet has been ended at Prague Summit of international astronomical union (IAU).
(A) uranus (B) pluto
(C) mars (D) Neptune
36. Which of the following constellation can be seen in the night sky during winter season? (a) Orion (b) ursa major (c) leo major (d) Cassiopeia
(A) a & b (B) b & c
(C) a & d (D) b & d
37. The brightest star in the night sky called sirius is located close to one of the following constellation. This constellation is -----
(A) great bear (B) leo major
(C) cassiopeia (D) orion

38. The two pointer stars, the line passing through which points to the direction of pole star are a part of the constellation called ----
(A) ursa major (B) orion
(C) cassiopeia (D) leo major
39. Which of the following are non-luminous objects?
(a) orion (b) morning star (c) moon (d) pole star
(A) (a) & (b) (B) (b) & (c) (C) (b) & (d) (D) only (c)
40. Which of the following planets show phases like the moon? (a) venus (b) mercury (c) Jupiter (d) mars
(A) (a) & (b) (B) (b) & (c)
(C) (a) & (c) (D) (c) & (d)
41. Which of the following is the hottest in the solar system?
(A) earth (B) mercury
(C) venus (D) mars
42. The agency responsible for the development of space science programs in India is -----
(A) INSAT (B) ORS
(C) IRS (D) ISRO
43. X is a group of stars which is visible during the summer season in the early part of the night. It can be seen clearly in the month of April in the northern part of the sky. It resembles a bowl with a handle. It also resembles a big kite with a tail.
(a) What is the general name of groups of stars like X?
(b) Which famous star can be located in the sky with the help of X?
(c) What is the name of X?
(A) (a) constellation, (b) pole star, (c) ursa major
(B) (a) pole star, (b) constellation, (c) ursa major
(C) (a) ursa major, (b) pole star, (c) constellation
(D) (a) constellation, (b) ursa major, (c) pole star
44. In which direction do stars appear to move in the sky?
(A) the stars appear to move from east to west direction in the sky.
(B) the stars appear to move from west to east direction in the sky.
(C) the stars appear to move from north to south direction in the sky
(D) none of these.
45. The number of main stars in constellation O is 5, in constellation P is 7, in constellation Q can be 7 or 8, where as in constellation R is usually 9. Name the constellation O, P, Q and R.
(A) O= cassiopeia, P= ursa major, Q = orion, R = leo major
(B) O= ursa major, P= orion, Q = cassiopeia R = leo major
(C) O = orion, P = cassiopeia, Q = leo major, R = ursa major
(D) O = leo major, P = ursa major, Q = orion, R = cassiopeia

(Answers to this Science Quiz shall be provided in Monthly e-Bulletin)

—00—



Theme Song :

PREMISE: We are pleased to adopt a song “ इतनी शक्ति हमें देना दाता.....” from a old Hindi Movie *Do Aankhen Barah Haath* दो आँखें बारह हाथ of year 1957, directed by The Late V. Shantaram. The lyrics are by Shri Bharat Vyas, singer Melody Queen Sushri Lata Mangeshkar, and Music Direction by Vasant Desai. It has become a widely accepted inspirational song and/or prayer in many educational institutions and socially inspired initiatives engaged in mentoring of unprivileged children. This newly formed non-organizational initiative, being selflessly operated by a small set of compassionate persons, finds its philosophy in tune with the song and conveys its gratitude to all the eminent persons who brought out the song in a manner that it has attained an epitome of popularity. While working its mission and passion, the group invites one and all to collectively complement in grooming competence to compete among unprivileged children. The song/prayer goes as under -

इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर होना
हम चले नेक रस्ते पे हम से, भूलकर भी कोई भूल होना ॥

दूर अज्ञान के हो अंधेरे, तू हमें ज्ञान की रोशनी दे
हर बुराई से बचते रहें हम, जितनी भी दे भली ज़िन्दगी दे
बैर होना किसी का किसी से, भावना मन में बदले की होना ॥

इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर होना
हम चले नेक रस्ते पे हम से, भूलकर भी कोई भूल होना ॥

हमना सोचें हमें क्या मिला है, हम ये सोचे किया क्या है अर्पण
फूल खुशियों के बाँटे सभी को, सबका जीवन ही बन जाए मधुबन
अपनी करुणा का जल तू बहा के, कर दे पावन हर एक मन का कोना ॥

इतनी शक्ति हमें देना दाता, मन का विश्वास कमजोर होना
हम चले नेक रस्ते पे हम से, भूलकर भी कोई भूल होना ॥



**Together Each Achieves More
(TEAM)**

*Every end, so also end of this e-Bulletin, is a pause for a review, before
Resuming of the journey far beyond ...*