

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)

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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 !

Stay Home

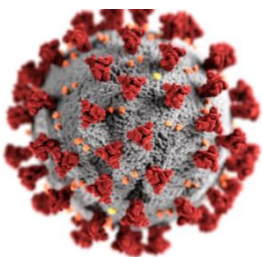
Stay Safe

Stay Healthy

Distance Socially

Keep Growing and Help Others Grow

Let us Conquer CORONA Collectively and Globally



विपदा की अनुभूति : एक वांछनीय सत्य

(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।

CONTENTS: (Against Each of the Contents Page Number is Indicated for Convenience)

IOMS Graphical perspective (4)

IT Infrastructure (5)

संपादकीय - लाकडाउन : आत्म-अनुशासन का कालखंड (6)

Evolution of IOMS (9)

Coordinator's View – Corona Disaster: Learning (11)

An Appeal (14)

Regular Columns

- अंदाज ए बयां : मास्क पहन कर बोलना मना है...- समीर लाल 'समीर' (15)
- **Ayurveda – Health Care: Immunity Booster Amid Covid-19 Scare - Dr Sangeeta Pahuja** (17)

Articles

- विपदा की अनुभूति : एक वांछनीय सत्य (2)
- School Education During COVID-19 – *Rajeeva Nayan Pathak* (19)
- Beyond the Rule of Law – *Prakash Kale* (21)
- Digital World: Remedy to COVID-19 – *Suman Dey* (24)
- Judiciary & Common Man: Impact pf Lockdown – *Adv. Jyoti Rani* (25)
- Divisibility Rule – *H.D. Motiramani* (26)

Poems

- भूख और कोरोना...- *मुकेश आनंद* (8)
- थोड़ी बदलने लगी हूँ मैं - *भावना मिश्रा* (8)
- आभार तुम्हारा ...- *मृणालिनी घुळे* (28)
- पाया है यह मध्य विराम ...- *मृणालिनी घुळे* (28)
- इतिहास की पुनरावृत्ति - *डॉ. संगीता पाहुजा* (29)

Growing With Concepts (51)

- Mathematics: Let's Do Some Problems in Mathematics- XIX – *Prof. SB Dhar* (47)
- Physics: Case Study – Dust-Pan (53)
- Chemistry: Oxides of Carbon – *Kumud Bala* (55)

Invitation for Contribution of Articles (10)

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Creativity During Lockdown**Seniors**

- Drawings - *अजीत मुरुमकर* (31)
- Drawings - *Mrs Savita Gupta* (31)

Students' Section

- Drawing – *M. Pawan*, (32)
- Poem: नमन हमारा आप सभी को -*Anupra Dubey* (32)
- Drawings – *Anupra Dubey* (33)
- Drawing –*Navya* (34)
- Drawing – *Mannan* (34)
- Drawings – *A. Sai Kiran* (35)
- Story: The Tiger and The Chicken *Natchya Tiwari* (36)
- Drawing – *Aditi Arya* (37)
- Drawing – *Presha Gupta* (37)
- Unity in Diversity in India – *M. Hari Chandra* (38)
- Utilization of Waste – *Paarth Karve* (38)
- Drawings – *Sumeet Jadhav* (39)
- Drawings – *K. Praneeth* (40)
- Culinary "Science" – *Pizza* – *Dishita Joshi* (41)
- Drawings – *Anura Joshi* (42)
- Drawings - *G. Ganesh* (43)
- Drawings- *Akanksha Kashyap* (44)
- Creativity and Innovation – *Akanksha Kashyam* (45)
- Drawings – *Krittika Dwivedi* (46)

Quizzes

- Crossword Puzzle: COVID-19 GYAN TEST – *Prof. SB Dhar* (52)
- Science Quiz: March'2020 – *Kumud Bala* (60)

From Previous e-Bulletin

- Answers to Science Quiz: April'2020– *Kumud Bala* (30)
- Answer: Crossword Puzzle: April'2020–*Prof. SB Dhar* (30)

Theme Song (62)

Aim at the Best, but...

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



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)

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:



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/>



... start, without loosing 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 Total with WSWD (at a later date once IOMS stabilizes)		60,000	Total with 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		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				
Cloud platform: Zoom is a free Video Conferencing cloud platform with connectivity of 100 participants with uninterrupted session of 40 minutes. This facilitates. 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: Google Hangout, a free-ware is used for IOMS in video-conferencing mode. Though it provides pre connectivity upto 15 Nodes, connecting maximum only 5 Learning Centres in one session is envisaged.

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

लाकडाउन : आत्म-अनुशासन का कालखंड

भारत के पूर्व प्रधानमंत्री श्रीलालबहादुर शास्त्री ने कहा था कि देश के प्रति निष्ठा सभी निष्ठाओं से पहले आती है। यह पूर्ण निष्ठा होती है क्योंकि इसमें कोई प्रतीक्षा नहीं कर सकता है कि बदले में उसे क्या मिलता है।

वैश्विक महामारी कोविड-19 ने हमें यह पहचान करने में मदद की है कि भारत में कौन देश के साथ है, कौन देश का भला चाहता है, कौन देश का नागरिक होने में गर्व का अनुभव करता है, कौन देश के सामने आने वाली किसी भी समस्या को निबटाने में सहयोगी है, कौन देश को एकजुट रखकर देश को आगे बढ़ा रहा है, कौन आज भी सामंती मानसिकता का गुलाम है, कौन अपने को देश का मालिक समझता है, किसे देश की जनता को एकजुट होने पर एतराज है, किसे किसी भी समस्या को निबटाने में कम और बढ़ाने में ज्यादा रूचि है, किसे इस संकट की घड़ी में भी केवल वोट की राजनीति करनी है और किसे समाज को विघटित करके खुश होने की आदत है?

हर परिस्थिति हमें कुछ न कुछ सिखा कर जाती है। जहां कुछ लोगों ने लाकडाउन कालखंड को मनन, पठन, पाठन, अध्ययन, विचारण, मंथन और अपनी समझ विकसित करने में उपयोग किया, वहीं कुछ लोगों ने इसे देश के विरोध में काम करने का एक मौका समझ लिया और महामारी को कम करने के बजाय इसे बढ़ाने में ज्यादा दिलचस्पी दिखायी।

यह मानना अनुचित नहीं होगा कि इसके पीछे अशिक्षा एक कारण है, अंधविश्वास से भरा दिमाग एक कारण है, देश से प्रेम न होना एक कारण है और देश का कानून न मानने की आदत पालना भी एक कारण है।

हमें यह मानने में किंचित संदेह नहीं है कि इस लाकडाउन ने हमें आत्मचिंतन, आत्मविश्लेषण, आत्म अनुशासन, आत्मज्ञान और आत्म अभिनंदन का अवसर दिया है।

इस लाकडाउन से हमने सीखा कि हम अपने रोजमर्रा के कार्यों को करने के तरीकों को बदल सकते हैं, बच्चे घर से पढ़ सकते हैं, हम घर से अपने आफिस के काम कर सकते हैं, हम घर के नियमित कामों में अपनी भागीदारी निभाकर एक साथ मिलकर ज्यादा खुश हो सकते हैं, हम अपने रहन-सहन के तरीकों को प्राकृतिक बना सकते हैं और हम धर्म, जाति, संप्रदाय, संगठन तथा विचारधाराओं को दरकिनार कर एकजुट रह सकते हैं।

लाकडाउन में हमने घर से निकलना क्या कम किया कि सड़कों पर गाड़ियों की अनावश्यक भीड़ कम होते ही प्रदूषण लगभग खत्म हो गया और आकाश का नीलापन साफ दिखायी देने लगा। हमें यह आभास होने में थोड़ी भी देर नहीं हुयी कि प्रदूषण तो हमारे कारण था।

इतिहास गवाह रहा है कि जब जब व्यक्तियों ने एकांत में अपना समय गुजारा, नयी खोजें की, नयी शक्तियों का निर्माण किया, अनुसंधान के कार्य किये और नयी विचारधाराओं की खोज की।

न्यूटन का प्लेग महामारी के समय अपने गांव में एकांत निवास करना, बुद्ध का आत्मज्ञान के लिये वृक्ष के नीचे एकांत में बैठना, कालिदास का एकांत में आराधना करना ऐसे ही कुछ उदाहरण हैं जिनका अंतिम परिणाम सैकड़ों वर्षों के बाद आज भी विश्व की धरोहर बना हुआ है।

कोई भी महान कार्य तभी संभव होता है जब हम शांत वातावरण में बैठकर अपने अंदर की प्रतिभा की पहचान करते हैं, उसे भलीभांति समझते हैं और फिर उसे बाहर निकालकर उसका सही उपयोग करते हैं।

हमारे जीवन काल का यह लाकडाउन का समय संभवतया दुबारा सैकड़ों वर्षों में भी लौटकर नहीं आने वाला है। यह हमारे विकास का एक कालखंड है। यह हमारे नवनिर्माण का एक छोटा अवसर है। यह हमारे अंदर छिपी प्रतिभा को बाहर निकालने का एक विलक्षण समय है। हमें समय रहते इसका अधिकाधिक उपयोग करना चाहिये।

जब बाहर शोर कम होता है, तब अंदर विचार अधिक उत्पन्न होते हैं, कार्यों को करने की प्रेरणा जागती है, अपने को छोड़कर औरों के बारे में विचार करने की चाह उमड़ती है और कुछ नया सीखने व कुछ नया करने की इच्छा जागती है।

प्रधानमंत्री श्री नरेंद्र मोदी का मानना है कि अगर हम कोरोना महामारी से निश्चित हो जायेंगे, सतर्कता छोड़ देंगे तो निश्चित तौर पर हम प्रभावित हो जायेंगे। अतएव हमारी जिम्मेदारी है कि हमारा सारा सामर्थ्य इससे बचने के लिये होना चाहिये। यह इसलिये भी जरूरी है क्योंकि इस महामारी से बचने के लिये अभी तक कोई दवा नहीं बनी है। बचाव का बस एक ही मंत्र है - **हम स्वस्थ तो जग स्वस्थ**

हमारी सरकार सजग है, सभी संभावित व्यवस्थाओं को संवार रही है। हर तरह की चिकित्सकीय सुविधाओं की सरकार ने पहले से ही पर्याप्त व्यवस्था कर रखी है। न तो देश में डाक्टरों की कमी है और न ही सेवाकर्मियों की।

सरकार न तो किसी को भूखे सोने दे रही है और न ही देश के किसी भी हिस्से में किसी भी जरूरी सामान की कमी होने दे रही है। राहत केंद्रों में भी प्रशिक्षित परामर्शदाता हैं जो समय समय पर मनोवैज्ञानिक व सामाजिक सहायता दे रहे हैं।

भारत सरकार की महामारी से निबटने की गंभीर तैयारी का पता इस बात से चल जाता है कि वह नित्य प्रतिदिन अपने देशवासियों

को बचाने के लिए अपनी प्राथमिकताएं बदलती जा रही है। पहले सरकार ने बचाव का मन्त्र दिया था - **जान है तो जहान है**। अब प्रधानमंत्री जी ने इसे बदल दिया है : **जान भी जहान भी**

आइये, लाकडाउन को हम धैर्य व अनुशासन का समय मानकर घर पर रहें और अदृश्य बीमारी से सुरक्षित रहें।

ज्ञान विज्ञान सरिता परिवार का विश्वास है कि हम जल्द ही इस महामारी के अंधकार से बाहर निकलेंगे, फिर से सड़कों पर, पार्कों में गहमागहमी होगी, जीवन फिर से अपनी चहल पहल में लौट आयेगा और हम लोग फिर से हंसते खेलते एक दूसरे से मिलते

जुलते नजर आएंगे। जरूरत है, बस थोड़े दिन संयम बरत लें और अपने को घर पर सुरक्षित रख लें।

फिक्र है, प्यार है, तो
दूरियां बनानी हैं
न तुमको घर से आना है
न हमें बाहर निकलना है

—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?

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...

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भूख और कोरोना...

मुकेश आनंद

सोचा था एक अच्छी कविता लिखूंगा,
कोरोना त्रासदी पर, बड़ी मानवीय समस्या है,
उकेर दूंगा दर्द, शब्दों से ऐसा,
सब कहेंगे, वाह क्या लिखता है!

छा जाउंगा फेसबुक और व्हाट्स ऐप पर,
देश और दुनियां में नाम होगा हमारा,
मर रहे हैं दुनियां में बहुत लोग,
अपनी बात कहने का ये अच्छा मौका होगा।

अंदर से एक आवाज उठी, जाग जाओ,
काम से भी कुछ लिखना जरूरी हो रहा है,
फाड़ दो कागज और फैक दो कलम,
तुम्हारे बगल में कोई भूखा रो रहा है।



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

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थोड़ी बदलने लगी हूँ मैं

भावना मिश्रा

वक्त का तक्राज़ा है, अब थोड़ी-सी बदलने लगी हूँ मैं,
शब्दों को सोच-समझ कर, अब बोलने लगी हूँ मैं।

भावनाओं में बहकर, अब हैरान परेशान नहीं होती हूँ मैं,
अब दिल पर पत्थर सा कुछ रखने लगी हूँ मैं।

वक्त का तक्राज़ा है, थोड़ी- सी सोचने लगी हूँ मैं,
दूसरों की बातों को गहराई से अब समझने लगी हूँ मैं।

कोई है मेरा भी, और किसी की भी तो हूँ मैं,
उसे भी होगी परवाह मेरी, अब ये समझने लगी हूँ मैं।

वक्त का तक्राज़ा है, कि अब थोड़ा सा महसूस करने लगी हूँ मैं,
बेपरवाही भी अब असर करती नहीं मुझे, बिन्दास रहने लगी हूँ मैं।

वक्त का तक्राज़ा है, दो पल खुद के लिए जीने लगी हूँ मैं,
अपने लिए अब थोड़ा- सा वक्त चुराने लगी हूँ मैं।

वक्त का तक्राज़ा है, कि अब दूसरों की बातों को नज़र अंदाज़ करने लगी हूँ मैं,
अब बेवजह परेशान ना होकर, दिल से सबका खयाल रखने लगी हूँ मैं।



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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Humanity is acquiring all the right technology for all the wrong reasons.

- **R. Buckminster Fuller**

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 in Two rural schools, one is RKM High School in A.P. and other is Army Public School, Dinjan, Assam, 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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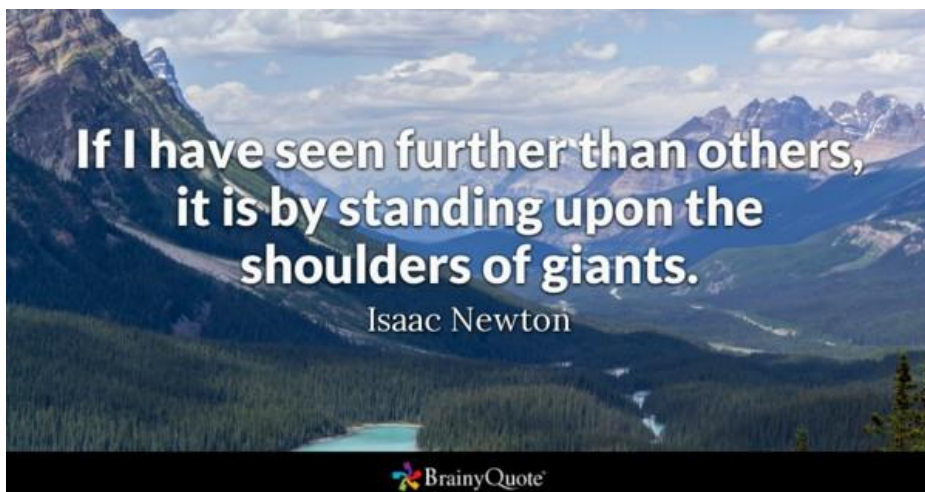
Roots of education are bitter, but the fruit is sweet.

- Aristotle

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Strength and sense of judgement comes from wisdom and not mere knowledge.

—00—



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—



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—



Coordinator's View

Corona Disaster: Learning

*World has conquered many epidemics, socio-economic and political turmoil. Despite, this world has progressively emerged as a global village and seen advancements in every field. The kind of interdependence that we have in present era we have faith that this global disaster will be conquered, rather it has to be conquered to be able to move on as soon as possible. Here, we have raised an overview on the prevalent scenario in Indian context with concerns of cautions. While doing so we have shared our efforts in the field of education to keep "Learning and Help Students to Keep Growing, while they Stay Home and Stay Safe". We shared salient details of the effort to mobilize resources on **Zero-Fund-&Zero-Asset (ZFZA)** basis. These are driven with a sense of **Personal Social Responsibility (PSR)** in a non-organizational, non-remunerative, non-commercial and non-political manner. Interested aspirants are welcome for greater details of the steps taken up by us. It is to make sure that amid complex challenges of immediate survival, education continues to flow like blood and spirit to retain vibrant nature society and nation, and educational initiatives is not pushed to rear seat.*

Corona virus initiated in China in November 2019 is an accident or a design is a big question for the global community to decide and take action. But, certainly it has endangered human race globally and taken shape of a global disaster.

It, therefore, compels us to think and act in three dimensions- **A) how to control spread of the menace? B) how to save lives affected by the menace? and C) how to manage sustenance of life, economy and growth?**

First two dimensions being of bio-medical in nature is beyond our domain. Nevertheless, it is seen that globally scientists, doctors, paramedical staff and governments are making efforts and trying to reach out across the global community to evolve solutions and remedies. So much Indian government responded to requests from various countries to remove ban on production of anti-malaria drug Hydroxychloroquine which is considered to be useful in cure of Corona patients.

The first dimension, however, reminded quote of Abraham Lincoln - "*Government of the people, Government by the people and Government for the people*". In such times of grave crisis any effort to pass on the blame and invent ways of gaining mileage is deeply disheartening. It is time to build collective synergy to fight against the menace endangering life on this planet. A basic question that needs to be meditated by all of us is - *can our living alone, at the peril of others, would be anyway different from feeling of looking around sitting on the top of pyramid of carcasses?* Definitely not, and if any section of society, community or a country that thinks, acts or defends such notion they need to immediately correct their course. This is the time when collective synergy is required to fight against the disaster, and in events of limitations to rise above self to support all those who are fighting against the menace. They, irrespective of their role and responsibilities, are endangering their lives to keep us safe, maintain law and order, maintain hygiene and ensure supply of our living necessities. It the time to respect their sacrifices and co-operate with them in their limitations and limit our demands to little less than necessity. This is in wake of facts that there is large section of daily wage earners and unorganized

workers who are finding difficult to survive. The whole production, supply chain is disrupted, agriculturists are finding it difficult to take their yield to market and warehouses. Worst affected are the producers of perishable items like vegetables, dairy products and many more.

Despite clear-cut national Lockdown insistence of religious performances, family-social functions, people are coming out of homes for affordable luxury of morning walk etc. Such acts of wise and elite persons is astounding arrogance and insensitivity to common cause. The only pretext is "*I am safe, and nothing can happen to me*". The Corona Disaster has proved that howsoever powerful or resourceful a person or nation may be; it is helpless before corona. Persons of high profile, Prime Minister and ministers of developed countries, have been affected by Corona. It has proved that power and wealth is neither a guarantee nor a shield to be safe. *The only thing that can save humanity is its collective wisdom, human sensitivity, sensibility and efforts to win over.*

In India efforts were made by government to boost synergy of the countrymen by inspiring them to come out of their home, without crossing their boundary, to clap, ring bells, and light candles etc.; expressions of gratitude with a feeling of togetherness. But, few people tried to attach spiritual sense to it based on their religious beliefs. Such views were made viral on Social media. This was contributed by even people of scientific fraternity. Is it not indicative of orthodoxy prevailing at a level where rational considerations are expected? They are supposed to guide masses about the latent idea behind such appeals viz. **(1) to give a boost to synergy, (2) to think that none is alone in these tough times, and (3) it is for the break off the monotony caused by home confinement.**

Some of the encouraging effects of this adversity are that rivers and water resources are getting time to regain their purity, air is becoming cleaner and birds, and animals which were hiding away from human habitats have started feeling that this Mother Earth is equally their natural habitat. How pleasant it is to watch them moving freely on roads that were otherwise busy, cities that are crowded with people. Is it not

a feeling and spirit of coexistence? Is it not spirituality? Is it not the Nature?

Various alternatives being evolved to sustain in these tough times are "Stay Home, Stay Safe, Keep Working to Grow and Help Others to Grow".

The Lockdown theory in fight against Corona is based on this vital realization and it has been practiced by China, birth place of Corona, and all other countries fighting to survive the disaster. This period of Lockdown has created a big challenge for survival as individuals and families. These challenges are exponentially magnified at community, town, state and national level. There are exponents of human rights, social cause and politicians from different school of thoughts who keep criticizing either Lockdown or its implementation. *Is it sensitivity or sensibility? Have they ever handled any such crisis successfully or otherwise?* Advocacy of such liberal thinking is seen to be a flourishing business in a democracy like India. We certainly remain astute advocate of democracy. But, there cannot be any place in democracy who believe in right to live by letting others die or killing others. Rights of democracy are reciprocal. It demands a sense of responsibility among all in letting other too live democratically; it does not permit its breach. It is criminal to encroach democratic rights irresponsibly.

Another scare is the economic offence looming over the world crippled with the Corona disaster; it is struggling hard to survive. Corporate competition within the country and across the countries, in fare, conditions is fine. It helps to boost the quality, competence and economy as well. But, moral, ethical and professional propriety of economic offence to emerge as economic super power in such bad times is seriously questioned. This question is inspired by the basic principle of existence; it is an increasing compulsion as we grow socially, economically and technologically.

Tough time is like a storm. It comes and passes off. But, it leaves behind multiple effects to be borne by the survivors for a long time. Broken branches of trees and leaves are swept away; rigid trees are uprooted. What regains are those flexible plants that allow the storm to pass off. It would be incorrect to argue that these flexible plants are negotiating with storm for their survival. On the contrary their characteristic acceptance of inevitability with patience and perseverance for a valid opportunity to remain useful to the survivors is worth meditating.

This storm of Corona disaster will also pass off, it must pass-off at the earliest. Human life has to come out of the stalemate. Once we collectively emerge as victorious in the battle against Corona, real tough time would start to ensure resurgence of economy; it will be much bigger challenge. The Lockdown restrictions have impacted work culture from work-place to home. This has created a new matrix not only in work environment. It has also affected all production processes, consumption pattern, demand-supply economics, educational environment so much so that even social and family interactions have changed. These memories of

togetherness and synergy through all these psychological approaches might not last long. Everyone is desperately waiting for free fall under gravity in scientific parlance and logic of convenience in socio-economic parlance. Problems and solutions of resurgence of socio-economic order after lifting of Lockdown be it partial, stage-wise or total are too complex and beyond the author's capability to visualize.

We are raising a concern of caution considering our responsibility as a citizen, with full faith in policy makers and implementers that they would evolve necessary strategies and execute them to the best of their capability to rehabilitate the socio-economic order for a necessary growth, as fast as possible. On our part we are concentrating on our educational efforts through **Interactive Online Mentoring Sessions (IOMS)** in the new scenario that has emerged due to compulsions of social distancing. The IOMS is the flagship of this initiative.

Until January end we were mentoring students at Ramakrishna Mission School, Sitanagram, A.P. and Army Public School, Dinjan, Assam. Thereafter, with start of annual examinations IOMS session were suspended till start of new academic session. In line with our ZFZA financial model we were using free web based apps like Hangouts and Skype as number of schools were within the free nodes offered by these apps. But, declaration of LockDown on March 25, 2020 demanded change in our format that could connect students right in their homes, which we did successfully. Meanwhile, Kendriya Vidyalaya Dinjan and Ramakrishna mission School, Vishakhapatnam, A.P. agreed to complement in IOMS for their students. Schools in AP are governed under APSEB curriculum while schools at Dinjan are covered under CBSE curriculum. Both, the curriculums have slight differences and so also are their examination schedules. It was, therefore, decided to take the set of two schools in separate IOMS sessions. We had to resolve some of the challenges of implementation. Salient aspects of the model, as it has evolved. are as under -

Video Conferencing Platform: In new scenario connecting students of two schools in each session the with the web applications that were in use was not possible. Initially we went for Zoom, free subscription. It provides connectivity of 100 participants with the only limit on duration of each session, at max 40 minutes. It, however, allows immediate restart of session. Transition of session causes an with an interruption of 2-3 minutes and is affordable.

Initially, we confronted objections on use of Zoom, centered around its security credentials. The nature of our operations are purely academic and it is universal in nature. Thus, it is not vulnerable to any financial, governmental or security breach. Moreover, all stakeholders in IOMS are internet users and must have downloaded various free apps; every time they must have allowed changes in his system to enable web-based installation of the app making their device vulnerable to breach of security. In wake of this, *is the rational of security breach, in IOMS, is tenable?*

Further, in wake of the unprecedented growth of number and duration of Zoom users, possibility of corporate war waged by major players of web-conferencing products against Zoom cannot be ruled out. This opinion is based on the fact that some of big players of web-conferencing products, who were otherwise inaccessible, are now approaching with limited promotional offers. Since, ours is purely academic selfless initiative, we view this scare against Zoom objectively and impartially. Therefore, being convinced in merit of Zoom in furtherance of IOMS we have decided to go ahead with it.

Yet, any stake-holder having objection to our use of Zoom is gratefully welcomed: (A) to suggest any other free platform with capability either equal to or more than Zoom, after due verification, or (B) to subscribe to any other platform considered suitable, and make it available to us for use in IOMS. It is in line with our pre-declared PSR policy and ZFZA financial model.

Data Traffic: In the new scenario of social distancing and lockdown data traffic on communication network has increased drastically. Perhaps none of the ISP provided had ever envisaged it. This is causing network connectivity problems, interruption in audio/video bilateral transmission necessary in IOMS, and at times congestion at the cloud server causing interruption on continuity of session. Accordingly, we have taken a five pronged approach –

- (a) During session participants keep their audio and video off. They activate their microphone only when they have to make verbal communication on study related matters. Otherwise, assent or dissent is conveyed by hand-raise.
- (b) We have framed separate groups of students of each school, and that too subject-wise. This reduces traffic on unrelated subjects in the group.
- (c) Teachers post practice problems based on study material provided or portion covered during IOMS on the group. Students are advised to refrain from reciprocating to such study material by making respectful gestures to the teacher; objectivity at work. However, students post their solutions to the concerned teacher directly and not on the group.
- (d) Students are, however, are advised to raise their difficulties, doubts and problems on the group for inviting attention of their mentor.
- (e) Last but not the least, we are neither engaging nor entertaining in any forward of pics and videos, to relieve communication system from avoidable data traffic; it is a conscious exercise of personal discipline.

Collective Complementing of Efforts: This new environment involved building of confidence in honesty of purpose among stake holders who are management and teachers of schools, students and parents. Happily, they all are responding positively to the initiative. This inference is based on gradual increase in number of students participating in IOMS and is regarded as a recognition to the efficacy, level of passion and commitment at mentoring. So

much so that parents who do not have direct access to learning environment at school, coaching and/or tuition of their wards have found in it an opportunity to watch their ward learning right in front of them. They are getting involved in mentoring and making suggestions as well. It is a result of collective complementing of efforts by teachers.

Internet Connectivity: Unprecedented and abrupt dependence on internet has jeopardized bandwidth available to subscribers, especially those who are in far-flung areas. Dinjan in Assam is one such place where bandwidth available to public is low. However, we expect that in near future internet connectivity and bandwidth would improve.

Future: We have assured continuity of IOMS sessions beyond lockdown period. Thus during vacations and after resumption of school, these IOMS session would continue to complement in learning of these students by way of grooming their concepts; this is the focus of IOMS. This coupled with practice of problems would certainly help them to gain proficiency needed for higher score in examination, a common concern at large.

We are now operating in full capacity in respect of number of session that we can take at this age and stage. This IOMS model is open to all to know, add, delete, modify or use in their name for the larger good, especially children deprived of educational facility. All that it needs is patience with firm clarity of purpose.

It is envisaged that this new environment would help passionate and committed teachers to connect students deprived of learning opportunities for any reason beyond their control. God willing, continuity of such efforts would lay a foundation for necessary reform in educational environment. In recent past education has incidentally drifted towards severe commercialization and in turn parted away from ability to think, evolve solutions for sustainable coexistence and implement the solutions. Elite senior citizens may like to see in this model a great opportunity to give back their best to the society through education without stepping out of their dwelling. It is vouched from personal experience that it will give them a lifetime satisfaction of contributing to a cultural legacy, a matter of pride for their beloved descendants.

Conclusions: *We invite and welcome one-and-all in this time of global disaster to opt for Gyan+Karma Yagya, the eternal essence of survival and growth, with coexistence. Churchill had said “Never let a good crisis go to waste”. Crisis is a crisis, and there is nothing good about it. But, it is certainly bad to be oblivious of opportunities hidden in the crisis. God forbid! such global disaster recurs. But, being endangered be it we, our family, our neighbours or any person on this planet, we all are confronting an extremely costly opportunity for an up-rise in our own sphere of excellence, with the sense of PSR. Should we not hang up boots in repentance of having missed the opportunity? God Bless All!!!*

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 Centres. Efforts are being made to integrate 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.*

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अंदाज ए बयां

मास्क पहन कर बोलना मना है...

समीर लाल 'समीर'

कोरोना ने सबको चपेट में लिया है। जनता से सरकार तक सभी अपने-अपने हिसाब से जुटे हैं इसका सामना करने में। सरकार सुनिश्चित करने में लगी है कि लोगों को बहुत परेशानी न हो और जहाँ तक हो सके, जनता को नुकसान न हो। न जाने कितनों की नौकरियाँ चली गईं, कितनों के धंधे बंद हो गये। उसकी भरपाई करने सरकार तरह तरह की सहायता की नित घोषणा कर रही है।

निश्चित ही जिन्हें जरूरत है, जिनकी नौकरी, धंधे और आय के अन्य साधन चले गये हैं, उनको यह सब सुविधायें मिलना ही चाहिये मगर ऐसे वक्त में मौकापरस्तों की एक बड़ी तादाद दिखाई देने लगी है। जिनकी नौकरी जैसी थी वैसे ही चल रही है। आमदनी में कोई फरक नहीं पड़ा है वो भी हर योजना का फायदा लेने निकल पड़े हैं।

बड़ी पुरानी कहावत है - बैठा बनिया क्या करे, इस कोठी का धान उस कोठी करे। खाली बैठा दिमाग क्या क्या तरीके खोज रहा है?

घर में दो गाड़ियाँ हैं। अब दफ्तर तो जाना नहीं है, सभी घर से काम कर रहे हैं। सिर्फ एक गाड़ी वो भी हफ्ते में एक बार ग्रासरी लाने तक के सीमित उपयोग में आनी है। अतः एक गाड़ी का इन्श्योरेन्स तो तुरंत सिर्फ चोरी और आग को कवर करने वाला करवा कर लगभग नहीं के बराबर प्रिमियम पर करा लेना तो फिर भी समझ में आता है। लेकिन अब दूसरी वाली गाड़ी पर भी इन्श्योरेन्स कम्पनी डिसकाउन्ट दे, क्योंकि इतना कम इस्तेमाल हो रहा है तो दुर्घटना की संभावना न के बराबर है। ये भी तो विचार कर लो कि अब गाड़ी न चलने के कारण तुम्हारे भी तो पेट्रोल ऑयल के, टायर का घिसना, टूट फूट आदि की बचत हो रही है। इस बचत के बारे में पूछो तो मौन धर लेते हैं और कहते हैं कि मास्क पहन कर बोलना मना है।

जिनके धंधे इस महामारी के चलते बंद हो गये हैं, उनको मदद करने के लिए सरकार ने एक सस्ता लोन, जिसका २५% अनुदान है एवं लौटाना भी नहीं है, लोग उसे लेने के तरीके निकाल रहे हैं। क्या करना है उससे? कुछ नहीं, जो हिस्सा नहीं लौटना है, उसे छोड़ कर बाकी किश्तों में वापस कर देंगे।

घर से काम कर रहे हैं अतः घर का एक हिस्सा, जो यूँ भी खाली पड़ा होता था और जहाँ भूत लोट रहे होते थे, इन्कम टैक्स में होम ऑफिस के तौर पर क्लेम करने के तरीके खोज रहे हैं। कहीं जाना नहीं है तो बिजली, टीवी, इन्टरनेट आदि का खर्च बढ़ गया है,

सरकार बिजली के दाम कम करे, सो कर भी दिये। अब उनको इन्टरनेट बिल पर डिसकाउन्ट चाहिये। मगर दफ्तर न जाने के कारण चाय, कॉफी, नाश्ता जो खरीद कर खाते थे, आने जाने में ट्रेन आदि पर बेहिसाब खर्च करते थे, न कपड़े रोज के नये, न मेकअप, न जूता, न परफ्यूम के कोई खर्चे। इस पर बात करो तो कहते हैं कि यह तो हमारी बचत है इससे सरकार को क्या?

६५ साल के ऊपर वालों को सरकार की तरफ से ग्रासेरी, अन्य सामग्री, डेलीज और दवाई आदि दुकान से लेकर घर पहुँचाई जा रही है ताकि बुजुर्गों को घर से न निकलना पड़े। तो बुढ़ी अम्मा के नाम से ही सब शॉपिंग हो रही है ताकि होम डिलवरी हो जाये और निकलना न पड़े। आज पहली बार फायदा दिखा अम्मा को ओल्ड एज होम न भेजने का, तो वो तो ले ही लो। शॉपिंग में मुन्ने की चाकलेट, अपनी वाईन और बीबी के मेकअप का सामान भी धरवा ही लेना, वरना अगर उसे लेने निकलना ही पड़ा तो क्या फायदा हुआ अम्मा को घर पर रखने का?

आने वाले समय में, जब लोग निकलना शुरू करेंगे तब शायद कुछ पीर यह न मांग उठा दें कि घर में रह रह कर मेरा वजन बढ़ गया है, अतः सरकार जब तक मैं पुनः पूर्वास्था में न आ जाऊँ, मेरे जिम और हैल्दी डाईट का खर्च ऊठावे।

कभी वर्क लाईफ के बैलेन्स एवं क्वालिटी फैमिली टाईम न बिता पाने के लिए सदा नौकरी को कोसने वाले, आज जब दफ्तर से आवाजाही से बचा समय हाथ में लिए २४ घंटे घर पर हैं, तो बोरियत का नारा लगा रहे हैं और उम्मीद है कि सरकार नेटफ्लिक्स प्री में दिलवा दे।

लगता है कि तुमने कहीं सुन लिया होगा कि नींबू का पानी कोरोना में फायदा करता है और तुम सरकार को भी नींबू की तरह निचोड़ कोरोना में फायदा उठाने की फिराक में लगे हो।

अरे तुम्हारा ही पैसा है जो तुमने टैक्स के माध्यम से सरकार को दिया है। खजाना खाली करा लोगे तब भी तुमको ही बाद में उस खजाने को भरना है देश को चलते रहने के लिए किन्तु आज तुम्हारी यह बेजा मांग कहीं जरूरतमंदों को उचित मांग से भी न वंचित कर दे।



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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*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.

—00—

*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

—00—

*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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Ayurveda- Health Care

Immunity Booster Amid Covid-19 Scare

Dr Sangeeta Pahuja

Immunity boosters play an important role to fight viral Infections: In this phase of Covid-19 pandemic. Persons with immune system are weak and are prone to certain diseases. While a strong immune system can help to surpass this pandemic. Ayurveda's immunity boosting measures can help to boost immune system to fight various viral and secondary infections.

Coronavirus is identified as the cause of an outbreak of respiratory illness. Following herbs and lifestyle is helpful in the prevention of viral infections

Antiviral Herbs:

Tulsi (*Ocimum Sanctum*) -Regular consumption of Tulsi leaves are extremely helpful in the prevention of viral infections. It has antioxidant properties. It has an enzyme called cyclo-oxygenase, which has anti-inflammatory properties. Due to the presence of compounds like camphene, eugenol, and cineole, Tulsi cures viral, bacterial, and fungal infections of the respiratory system.

Pippali (*Piper Longum*) - Pippali has a rejuvenating effect on the lungs. It is very helpful in the recurrent attacks of asthma. It enhances the blood circulation to the lungs and is very good expectorant and bronchodilator.

Giloy (*Tinospora Cordifolia*) - It's an excellent immune-modulator. It is a powerhouse of antioxidants which fights with free radicals and keep body cells healthy and is helpful in getting rid of diseases. It is antipyretic and anti-inflammatory in nature, thus it helps to reduce problems like cough, cold, tonsillitis etc.

Coriander seeds - Coriander seeds are rich source of vitamins and phytonutrients. These are essential for keeping the immune system strong. Coriander seeds are also known for their antibiotic properties which make it one of the best home remedies for fever.

Fenugreek – It is very popular for its rich aroma. It is also known for its viral fever fighting properties. Its constituents like diosgenin, saponins, and alkaloids boost the immune system's performance.

Ginger - Dry ginger or saunth is also responsible for treating a viral fever because it contains antioxidant and analgesic properties. As far as home remedies for fever go, dry ginger is very good at easing the discomforts linked to the viral fever.

Black Pepper - Black pepper seeds contain an alkaloid called piperine which has anti-inflammatory properties. It is very good bronchodilator and thus it helps to relieve breathing difficulties.

Dalchini (*Cinbomomum Zeylanica*) - It has antimicrobial properties and is bronchodilator and helpful for Respiratory infections.

Ashwagandha - It has antiviral properties. It is used to treat the influenza virus and in the prevention of all type of viral infections.

Garlic - It has antibacterial, antiviral, antifungal properties. It is effective against Rhinovirus.

Amla (Amalki - Indian gooseberry) - Amalki is the best among rejuvenative and is an excellent immunity booster herbs as mentioned in Charak Samhita. It is the most nutritious food and is used in many Ayurvedic herbal formulations. Regular consumption of Amla balances all the three Doshas -Vata, Pitta and Kapha. These in aggravated conditions cause diseases. Amla is sour in taste and therefore decreases Vata Dosha. Due to its cold nature, it pacifies Pitta. Due to its rough(ruksh) nature it is helpful in pacifying Kapha. Hence, Amla is considered Tridoshshamak. In Ayurveda Amla is an excellent source of vitamin C. Regular consumption of Amla increases our Immunity and help in the prevention of all types of infections

Vasaka (*Adhatoda Vasika*) -The leaves of Vasaka has anti-allergic and anti-inflammatory properties. It has antitussive effect also and thus help to soothe the inflamed throat.

Shirish(*Albizia lebback*) - It has antiallergic properties. Thus it is very helpful in allergic rhinitis cases.

Ela (*Elletaria Cardamomum*) – It is a Vata-Kapha pacifying herb ,thus extremely helpful for Respiratory infections.

Licorice - Component present in licorice are antioxidants such as flavonoids, saponins, sterols, choline, aminoacids, inositol, lacithin and vitamin B1,B2,B3,B6 and E. This root is demulcent and gentle relaxant, soothing to mucous irritation and beneficial in the treatment of cough ,cold and bronchial asthma.

Peppermint (*Mentha x pipertia*) - It has menthol which is very good antihistaminic. Neutralize the free radicals and prevent allergic attacks

Pomegranate – It's extract is effective in treating genital herpes.

Neem -It has anti-inflammatory, anti-bacterial, anti- viral properties.

Echinacea - This herb activates the immune system and reduces the symptoms of cold and flu, as it has antiviral properties.

Oregano - It has anti-bacterial, antimicrobial and antiviral properties. It is helpful in the prevention of Respiratory infection.

Olive leaf - It has antiviral and analgesic properties and is used for prevention and treatment of cold,flu.

Lemon balm - It has antibacterial, antiviral, anti-inflammatory, antihistaminic and antioxidant properties.

Licorice root - It has antibacterial and antiviral properties. It can be consumed regularly for the treatment and prevention from viral infections.

Cranberry - It has anti viral properties. It is very good antioxidant also.

Elderberry – It has antiviral properties and has been used to cure viral fever,cough,cough,flu and respiratory tract infections.

Astragalus root - It has antiviral properties and increase the immunity.

Calendula - It has antibacterial, antiviral, antifungal, antipyretic properties. It has been used to treat cold, flu and to reduce fever.

Cat's claw - It has antifungal, antibacterial and antiviral properties.

Assorted Herbs – Combination ginger, honey, lemon water are also effective remedies. These can be taken in the form

of herbal tea. Turmeric milk, Black pepper and common salt are antiviral and can be used as Herbal tea. Herbal infusion in essential oils is also helpful.

Helpful Lifestyle: Salt and water gargle are also helpful. Wash your hands with soap and water or with sanitizer . Avoid crowded places and maintain social distancing. Cover your nose and mouth while going outside. Add neem leaves in water while taking bath. Wash your face with Triphala jal. Steam inhalation with mint leaves and Ajwain seeds is also very helpful in case of dry cough and sore throat. Fumigation with guggul at home is also work as air purifier.

Breathing exercises called Pranayam, they helps to improve the lung function and reduce the frequency of symptoms in patients with chronic respiratory problems caused by bacterial or viral infection. There are different type of breathing exercises that help in different conditions. For example **Sukha Pranayam** or Anulom vilom breathing exercise is helpful in wheezing problem. **Bhastrika pranayam** works well for congestion. **Ujjayini Pranayam** helps to improve immunity so that recurrences of allergic problems reduced.

Helpful Yogasan - Some of the yoga postures are very helpful in people who suffer from chronic Respiratory disorders caused by bacterial or viral infection, When they are performed on regular basis, they help to reduce the frequency as well as reduce the severity of symptoms. Some of the generally prescribed yogasan include -Surya Namaskar, Sarvangsan, Bhujangasan, Shalabhasan

By using the above helpful herbs and by following the healthy lifestyle, one can prevent all type of viral infections.

Follow Ayurveda and stay healthy.



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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.*

—00—

SCHOOL EDUCATION DURING COVID-19

Rajeeva Nayan Pathak

COVID-19 has given us a chance to explore various other alternative ways of School Education. The whole system is locked down without there being any physical interaction between men and material. It has disrupted the existing education model. It is adversely affecting the transaction of curriculum designed by various Educational Boards. How long will it take to declare this pandemic over, is not certain. The uncertainty over timeline of lockdown has increased the parental anxiety very much. Hence, it is the need of hour to foresight and plan for long term disruption in the existing education system and to provide emotional, mental and educational support to students till the normalcy regained.

School going children are basically divided in three groups

- (a) Play Group.
- (b) Primary Group.
- (c) Secondary / Sr Secondary Group.

The first aim of school is to understand the present mental and emotional condition of the target, that is, the students.

Play Group: As the name goes this group of children are the most vulnerable group and completely unaware of the gravity of the situation caused by COVID-19. It is a time for them to have fun and joy. Most of the time they are busy with their siblings (if any) or parents or Electronic Gadgets, confined within the four walls of a room.

How School Can Help: School can help parents in understanding the children and their need by engaging counselors who can talk to the parents and give various ideas specific to the child for the purpose of fruitful engagement of the student.

- (a) Parents have their different worries and challenges. It is a difficult task for them to engage their wards. So, school can support the parents by providing them link of various activity videos available on YouTube *after proper evaluation of the same.*
- (b) Teachers can post videos of different activities conducted specifically for the kids, if possible.
- (c) It is said that “*a child is the father of a man*”. Habits and tastes developed during childhood remains forever. We should basically focus on development of their communication skills and good habits. Story telling method may be one of the methods in which they may be engaged. It will also develop the much needed value education among students.

- (d) Basic physical activities, which can be done within four walls of the room is to be explored by the teachers / parents. Children should be engaged in these activities. It will develop love towards keeping oneself healthy.

- (e) Thus school's role will be minimal at this stage.

Primary Group (Classes I to V) (Age 5 to 10 years): It is the age of physical activities and social boundings. It is the age where the students learn from observation and from their peer group. COVID-19 has presented before them such a situation where they cannot go out. Most of them are limited to the two rooms where their families are confined within. Many are with their mothers only, as their fathers are either on duty or in other places. They are forced to live under constrained environment. They have to undergo tension of their parents too. They cannot meet their friends as well. There is no chance of socialization for them.

School's Role: Regular personal touch with the students through direct call to them or their parents is the need of the moment. It will help to boost morale of the children. It will make the bond between parent and teacher stronger, which ultimately help in creating positive environment. This positive environment will help the student to cope up with the present situation.

- (a) Study through WhatsApp/Social Media: Student of this category are gadget friendly. They operate the mobile phones etc better than the older generation. School can issue detailed time table for on-line classes to all students on WhatsApp.
- (b) Sharing educational materials on this group will keep them engaged. It will also fulfill the educational needs of the students.

Secondary / Sr Secondary Group: The level of anxiety remains the same as that of Primary Students but here the problems are more abstract and focused.

School's Role: Minimal parental care is needed at their stage, students mostly depend upon their peer group and teachers.

- (a) Whatsapp group can be used to create interactive environment. This interaction can be pursued using any one of the available video conferencing app viz. ZOOM, WebEx etc. It is the best way to support their

aspirations and build a positive interaction with their teachers.

- (b) Interaction with the school counselor is a must as they suffer a lot of emotional changes during this period. Its need has grown during this unprecedented lock down needing much required emotional stability.
- (c) Constant touch with the Physical Education teacher is also needed to channelize the energy of the students specially in this period. Students should be motivated for Yoga and other mental activities for their physical and mental fitness.

Practice Being Followed in New Environemt: Teachers of various schools are using WhatsApp groups for sharing assignments/projects as well as lesson plan, home-work, notice etc. They share the educational topics of the materials to be taught as per the scheduled plan, prepared by the teachers and monitored by the Academic coordinators.

- (a) This has become the effective way of teaching in present situation. All the students are participating actively in the group, E-books, video lecture and other e-contents from various sources, after verification by respective teachers, are made available to students.
- (b) Some teachers also make their own educational video to explain relevant topics and post the link in the students' group. Students go through the content and carry out the assignments themselves. Thus their time is getting fruitfully utilized. Photographs of the work done as assignment are sent by students to the teachers

individually to the respective teachers on their personal Whatsapp number.

- (c) Teachers go through the assignments and evaluate them. If found necessary, the teachers talk to the students and explain the things to the students. This is extremely helpful in strengthening spirit of concern and bondage between a student and a teacher.
- (d) Using available video conferencing Apps for connecting the students as per schedule, students login to the class and the class is taken on virtual platform. These classes are two-way interactive class, unlike pre-recorded videos, and render opportunity to student raise doubts, problems or clarification as may be need of individual students. Such interactions are shared across all students and it creates an environment where even silent or shy students are also encouraged to raise questions on how and why, an essential ingredient of grooming thought process during education. Thus it has evolved as an alternative to the regular class room interaction, in case of necessity. Teachers of some institutions have started using this mode of education effectively and they are helping their students in improving themselves day by day.

Conclusions: Principal is the head of an Institution, he/she with his/her sound planning and close cooperation of students, parents and teaching faculty can make use of this situation productive, purposeful and joyful.

God forbid!!! such situation recurs. But being deeply influenced by it we can make efforts to reap best out of worst.



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

- William Buttler Yates

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Beyond the Rule of Law

Prakash Kale

Like the history, which is written and reaches us through victorious party, law of the day/ land, too reflect the equilibrium point between different stakeholders of the society. These stake holders can be ruler-ruled, different genders, caste, economic class or political ideology, and so on. And if, based on power equation, this equilibrium is not just or natural, which is generally the case; rules made out of it **will not be just**. Further, the "Rule of Law" which is interpreted or assumed ideally as law being **above everyone** and to be applied to everyone, rulers or ruled and none can grant exemption to the application of the law and so on, is generally not found in practice anywhere. Thus before we sing in praise of "Rule of Law" or condemn the action of a section of society that is not obeying "Rule of Law". We have to examine above two aspects of "Rule of Law". One whether it is just and second whether assumptions made there in are followed in practice or not. If "Rule of Law" fails either of the condition, then "Rule of Law" cannot be said to be the ultimate solution for wellbeing of human kind. Then, "Rule of Law" is not enough; we need "Rule of Justice".

Before that let us understand how concept of "Rule of Law" has evolved through ages, to understand **spirit** behind it. The development of the legal concept of "Rule of Law" can be traced through history to many ancient civilizations. In the West, the ancient initially regarded the best form of government **as rule by the best men**. Plato advocated a benevolent monarchy ruled by an idealized philosopher king, who was above the law. However, Aristotle flatly opposed letting the highest officials wield power beyond **guarding and serving** the laws. For him it is more proper that by "Rule of Law" **law should govern than any one of the citizens**. Upon the same principle, if it is necessary to place the supreme power in some particular persons, they should be appointed to be only **guardians** and the **servants** of the laws. The Roman statesman Cicero said- "*We are all servants of the laws in order to be free.*" Under the Roman Empire, the sovereign was personally immune, but those with grievances could sue the treasury. In China, members of the school of legalism during the 3rd century BC argued for using law as a tool of governance, but they promoted "rule by law" as opposed to "rule of law", meaning that they placed the **aristocrats and emperor above the law**. The difference (between two) ... is that, under the "rule of law", the law is pre-eminent and serve as a check against the abuse of power. While, under "rule by law", the law is a mere tool for a government, which suppresses in a legalistic fashion. In contrast, Daoism rejected "rule by law" in favor of **a natural law** that even the ruler would be subject to.

In Islamic system rule of law was formulated in the seventh century, so that no official could claim to be above the law, not even the Caliph. In pre-independence India, in spite of general hereditary Monarchy structure found everywhere, though we find mention of some Republics also.

In modern times (1215 A.D.), Archbishop Stephen Langton gathered the Barons in England and forced King John and future sovereigns and magistrates to back the Rule of Law, preserving ancient liberties by (accepting) "Magna Carta (Liber Tatum)" (in Latin and meaning Great Charter of Freedom) in return for exacting taxes. This foundation (give and take between ruler and ruled) of a constitution was later carried into the United States' constitution also. Further, Samuel Rutherford in the title *Lex Rex* (1644) Latin for "the law is king", gave the principle theoretical foundations to concept, subverting the traditional formulation *Rex Lex* ("the king is law"). Further John Locke in his *Second Treaties of Government* (1690) wrote "*The natural liberty of man is to be free from any superior power on earth, and not to be under the will or legislative authority of man, but to have only the law of nature for his rule. The liberty of man, in society, is to be under no other legislative power, but that established, by consent; nor under the dominion of any will, or restraint of any law, but what that legislative shall enact, according to the trust put in it.*" Later the influence of Britain, France and the United States contributed to spreading the principle of the "Rule of Law" to other countries around the world.

The concept of "Rule of Law" have been properly defined by the *Oxford English Dictionary* as: The authority and influence of law in society, esp. when viewed as a **constraint on individual and institutional behavior**; (hence) the principle whereby all members of a society (including those in government) are considered equally subject to **publicly disclosed** legal codes and processes. It **stands in contrast to the idea that the ruler is above the law**, for example by "**Divine Right**". It means, no man, nor corporation, or association of men, have any other title to obtain **advantages**, or particular and **exclusive privileges**, distinct from those of the community, then what arises **from the consideration of services rendered to the public**; and this title being in nature **neither hereditary, nor transmissible to children, or descendants, or relations by blood, the idea of a man born a magistrate, lawgiver, or judge, is absurd and unnatural.**

Thus what is meant by the "Rule of Law" as evolved over time and defined in dictionary is ruler is guardian and servant of law. Rules are made by Consent of (ruled) and trust put upon ruler (by ruled), and law of nature is the

ultimate guide (of governance). Based on it, several meaning of rule of law follows and these are, one that no person or government is above the law. It also means that no government or its officials can enforce laws that are **unfair or unjust**. Rule of law should help to guarantee adherence to the beliefs of the **sovereignty of law**, **impartiality** before the legislation, **accountability** to the law, **fairness in the administration of the law**, the division of powers, assistance in decision making, **legal** confidence, absence of arbitrariness-procedural and **legal**. Further, what are/should be the objective of “Rule of Law” in a country? They are to keep the **peace** in a country, shaping **moral standards**, promoting **social justice**, facilitating **orderly change**, providing a basis for **compromise** and lastly to help in facilitating a **plan**. So, to put in practice above rules and achieve objectives, conventionally there are three branches of government in each polity that makes up the nation. These are the legislature, the executive and the judiciary. In a country of parliamentary democracy, the judiciary is independent of the other two branches; the executive is dependent on the legislature. Whereas the legislature enacts law, the judiciary interprets law and the ultimate power of enforcement of the law (as moderated by legislator and judiciary) lies in the hands of the executive. Under this arrangement arbitrary use of power by the executives is tantamount to challenging the concept of the rule of law.

Now, if we evaluate our constitution, legislative rules, procedural rules and interpretative rule, against the basic ideals, objective and functions of “Rule of Law” we need to understand enactment of most of laws including constitution. I am not saying they are good or bad, desirable or not desirable, just evaluating them based on concept of “Rule of Law”. Before, that context of enacting constitution and related laws should be understood. India got independence from British in 1947. That time India was mostly governed by independent princely states or princely states under British rule. Thus Indian ruler as well as ruled (in spite of 90 year direct British rule), was far away from the concept of “Rule of Law”. King was believed to be incarnation of “GOD” (Divine Right), and above the law or the way Plato had advocated King to be. However, the Constitution of India intended for India to be a country governed by the rule of law. It declared that the constitution shall be the supreme power in the land and provided for separation of power among three arms of governance. The legislature and the executive shall derive their authority from the constitution. **Ideals of “Rule of law”** were also given impliedly in the preamble and such concept is enshrined in Part III (Fundamental Rights) of the **Indian** Constitution.

Now evaluation, first take the constitution itself, by way of **affirmative action**, it provides for reservation (in education

and employment) for some caste, freedom of religious practices, different personal laws for followers of different religion, protection to aborigines from outsider and so on. This is generally seen as creating inequality before law, but it needs to be seen from a different perspective from the responsibility of the state can unequal, for no fault of individual be allowed to remain unequal. A socialistic state cannot allow continuance of status quo. Thus making statutory provisions are legislator’s intervention to bridge the gap, inspired by its responsibility to extend equal opportunity among equal. Problem of inequality starts when legislators abuse the provision to politicise the situation without performing their duty and responsibility to bridge the gap on the ground.

Further, although the Constitution of India may have been intended to provide details that would limit the opportunity for **judicial discretion**, in practice the more text in the constitution has given the greater opportunity to the judiciary to exercise judicial review. Thus a considered and deliberate effort is needed to review constitutional provisions, practices in vogue and the manner in which three wings of the government exercise their duty without orthodoxy and prejudices, but with full sense of responsibility to maintain spirit of law and not to thwart changes that are necessary in a vibrant nation. It is seen that intellectuals whenever find their interests in danger start creating hue and cry saying “*rule of law or rather the Constitution [is] in danger*”.

In democracy a basic tenant is, 50.1% people can make rule for 100% people and then it is declared “Law of The Land” and whether rest of 49.9 % agrees about it or not is immaterial, this is so even when subject matter is related to 49.9 % people themselves. Further in parliamentary democracy, like us, where “First Past The Post” system have been adopted, legislator having 50.1 % number do generally have only 30-33 % population’s (voter) support. The causes of this anomaly and ways of eradicating is another serious issue. Thus in practice “Rule of Legislator” becomes “Rule of (minority) Majority”. Next in line comes is “Procedural Law or Administrative Law” which are enacted to enforce legislative law and here in the name of implementing “Rule of Law”, most elements **anti thesis** to “Rule of Law” are introduced and justified. These are, **Discretion** (it supplants the rule of law, remember 2G and Coal allotment cases), **Privileges** (No accountability of MPs for what is spoken in side Parliament etc.), **Exemptions** (see long list of exemptions on Toll Booth) and so on, so better term them “Law of executive”. Last is “Interpretive Law”, these are the judgments pronounced by judiciary while reviewing a law or deciding a dispute and become “Law of the Land”. But these are affected by leaning or bias of individual judges and are never consistent over a period of time or by different judges. Thus as said above interpretive law in fact becomes “Law of Judges”

and speaking against them is “Contempt of Court”. Here, it would be incorrect to fix it on judiciary Again, Laws (due to reasons stated above) may be **unjust**, may be **unwise**, may be **dangerous**, may be **destructive**; and yet not be so unconstitutional (as passed by legislator and implemented by executive within the powers delegated to them) as to justify the Judges in refusing to give them effect. It is worth to be mentioned that all these aberrations occur when the administration in the governmental branches suffer from non-accountability & non-answerability, corruption, nepotism and favouritism. And these have the detriment which ultimately results in the vicious circle of “Tyranny of Law (elected)” and “Violation of rule of law” in a particular State. . In fact, every individual applies discretionary right as per rule of personal convenience and it is growing in proportion among elites and can be seen as professional, moral and intellectual dishonesty.

So far we have discussed that the way laws are framed, interpreted and implemented, many things go wrong with rule of law. Further “Rule of Law” has two aspects, “Letter” and “Spirit”. “Letter” means what is written in it and “Spirit” is what is the intention of law, what it intends to achieve and so on? Ruler and Ruled both may seem to follow “Letter” of law but breaking the “Spirit” of law to suit their convenience. There are battery of advocates and chartered accountants whose value depends upon the way they find out loop holes in laws. A few well known cases will explain this situation. First, Demonetization of 2016, where in against the government’s initial estimate that Rs. 3.4 Lac crore worth notes will not return to banking system, people (with help of banker or bankers having closed the eye) devised ways and means to deposit all the money. Take another case of Hanging of Murderers of Nirbhaya Rape case. While legal remedies as well as “law of hanging together” is there to protect individuals from injustice from **irreversible action**, they or their advocates **cleverly used all the legal remedies** one by one and with maximum interval to delay execution of judgment. Next, take our Anti-Defection Law to prevent “Aya Ram Gaya Ram” culture in politics. But, look at the way political parties have come up with idea of getting resignation of ruling party MLA to lower effective strength in state assembly, resulting in their own strength becomes majority and in turn present majority government is toppled. For example, in a

legislator house if total strength is 100, with 51 ruling party and 49 opposition party MLA, just getting resignation of 3 ruling party MLA (by any means) changes the scene as effective strength becomes 97, ruling party 48, opposition party 49 and so government changes. And in neither case any **violation of any law** can be found.

Thus, even just viewing society as **static** (not changing with time) we observe that ruler is turning “Rule of Law” in to “Rule by Law” (exempting self). Ruled (citizen), following the ruler (not obeying law) and finding rules unjust they either find loop holes in it or directly violet the same. But, due to technology, economic and social changes, society is always in dynamic condition and basic equilibrium of stake holder itself changes over the time. This necessitates change in law. Under the circumstances if “Rules” do not find new equilibrium amicably, we find unrest and unsolved issues in society, Anna Hazare Movement, Naxal problem, Maratha /Jat reservation issues (reservation issue aroused due to decline in Agriculture as against other sector) and so on all indicate the requirement to change the law.

Thus, we conclude that “Rule of Law”, (which is better than and has replaced ancient concept of “Rule by King”), as practiced is not achieving its basic objective of peace and harmony (supporter say in absence of rule of law anarchy will prevail) in society. Thus praising Rule of Law or condemning breaking of Rule of law is not sufficient. Presently it seems to have lost its sanctity among ruler as well ruled and we may be inching towards anarchy of law. In fact, we need to evaluate “Rule of Law” based on concept of Natural Law. And we need “Rule of Justice” based on Natural Laws. It will enhance peace and harmony in society. It will promote moral behaviour. It is important for citizens, as otherwise they wish to escape from motherland. It is important to foreign investors too and for economic development of country. Its spill over will enhance prospects for related values such as democracy and human rights. Without good governance and a strong commitment to the rule of justice on letter and spirit with full sense of responsibility at each level and citizen development would be difficult if not impossible. Change of mind state and attitude is urgently required to emerge as country growing on sound foundation.



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Digital World: A Remedy to COVID-19

Suman Dey

As we all know that COVID-19, one of the treacherous and murderous virus, is continuously swallowing the people on the Mother Earth. The COVID-19 outbreak has set off alarm bells across the whole world. No sector is left unaffected.

If we talk about the educational sector, it is deadly affected. Schools, colleges and other institutions are ordered shut down. Most examination have been put off, people are postponing their assignments and important lectures. Situation across the globe is continuously worsening like uncontrolled fire. Yet, educational sector has played a tremendous role in addressing the obvious anxieties of students, families and staff to deal with this unexpected disruption.

Despite, the disastrous effects of COVID-19, causing impairment of India's educational system where students are unable to follow their regular academic routines, educational institutions have taken route to the initiatives to provide the utmost help to students.

Technological environment prevailing in the country offering facility of telecommunication, Skype calls, Zoom call access is used as virtual learning options to maintain continuity of learning of students and their interaction with students. This is a transition from classroom learning environment, yet it is manageable. It requires a bit of training to students and teachers to use technology to facilitate virtual classes and exchange of information. Discontinuity in learning is devastating. Hence in these crucial times for the students, main aim is to continue teacher-student interaction in a proactive manner and keep students in their vibrant stage of life inspired and optimist through continuous learning.

The institute is providing pre-recorded videos of lesson followed by necessary clarification of doubts of students through Skype calls. The Institute is arranging group calls for each batch to avoid the gaps in their studies. Ironically, the COVID-19 outbreak has shifted classroom learning mode to digital mode with a virtual learning environment.

Hats off to teacher's effort and children's patience for the speed at which they have upgraded into the digital world and adapted it. It is seen as a potential means to connect students

deprived due to geographical, economical or any other to their teachers.

Technology is now seen as an instrument, a tool for change. Achieving effective learning through digital media continues to be a great opportunity and a matter of concern in contemporary education. This is because the qualitative method of learning through digitalization influences student's behaviour and attitude of educator towards formal and informal learning. Here the challenge of educator is to constantly review, design and upgrade educational approaches supporting students towards using the available tools meaningfully and helping them to become active participants in the process.

The role of digital media is really giving a profounding effect in the lives of students. It provides students with the combination of theoretical knowledge and presenting it clarity and sense of aesthetics.

I think students are really going to take best of the freedom in digital technology classes coupled with proactive interaction with their teachers. A considered, deliberate and best possible efforts are being made to motivate students, to examine the knowledge acquired by them. Legacy of this inevitable COVID-19 is being viewed optimistically.

Knowledge is constructed in the context of building a personally meaningful connection to efforts. So, the steps which we have taken with the help of digital media is surely going to change the developmental landscape for learners in the digital age of today and the future. I hope that this dreaded pandemic is controlled soon. But until normalcy returns, it is the digital learning that will bridge the gap between teachers and learners.

At last, let's talk about Mathematics, the language of nature, though it is a bit tougher to teach the same without direct interaction with students and with poor network connectivity at certain places, still we are trying our fullest to stay connected with our students and give our best to them.

Conclusion: *We should never stop whenever we feel defeated, the journey to the other side is beautiful only after great sufferings.*



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Judiciary & Common Man: Impact of Lockdown

Adv. Jyoti Rani

Judicial systems are in inseparable system of a democracy. Despite diversity in terms of geographical, social, cultural, religious, economic and political nature judiciary has been striving its best to maintain a balance for retaining confidence of the People of India in its choice of Democracy. No system is designed for unprecedented conditions, and judiciary is no exception to this. This article is to analyze impact of lockdown necessitated by global corona disaster and trigger a thought process to be ready for delivery of justice in case of extended lockdown or post lockdown era.

During the present lockdown the judiciary is going through unprecedented hardships. The already overburdened judiciary is likely to get more additional burden as after the removal of lockdown huge numbers of cases will be filed and quick disposal of the same would be an assiduous task. Numerous technical difficulties are likely to erupt up as various cases already filed and were in the process of clearance for listing may have expired their limitation period forcing them either to be refiled or wait for fresh notification by court administration. The panacea to combat Covid 19 i.e. Social distancing would get severely affected as taking into account the prevalent situation of the courts jam packed courts would be anticipated. Every lawyer is entitled to enter the court room and in that way maintaining distance from one another would be almost impossible. The sanitization of whole court campus will be another herculean task as it would require huge man power, expenditure and lengthy process. Those litigations where the process of taking evidence was in process would be badly affected as the long hiatus would break the flow and will discourage witnesses to come up for deposition. So far accused prisoners are concerned they are the worst sufferers as due to limited functioning of the court almost to nadir would hamper their possibility of securing bail and moreover they are exposed to the risk of being infected if any Covid 19 outbreak occurs in the jail where the prisoners are stashed like livestock. The cases of all nature except bail matters are likely to get jeopardized as when the court would function normally it would get focussed on bail matters and most of the judges would be assigned to hear bail matters and in that way civil and service matters would be put in cold baggage. Video conferencing as a substitute as boasted by Supreme Court can't take place of regular court and disposal would be almost dismal.



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The lawyers as a professional class are the one among the worst sufferers as their livelihood is entirely dependent on the functioning of the court. If litigants do not turn up then many of the lawyers would go to the edge of starvation. Moreover, many other people such as advocate clerk, typists, canteen owners, shopkeepers of stationary materials would get severely affected as their livelihood too depends upon on pursuit of judicial processes. The registry of the courts is likely to be inundated in post lockdown scenarios; there would be huge rush at filing counter and creating a long que of aspirants of justice. It is likely to would take few months to reach a state of pre-lockdown era.

Moreover, there is an abrupt rise of new pattern of crimes during lockdown. Such cases are related to breach social distancing, disruption of services of Corona fighters, hoarding of essential commodities and corona carriers.

Lastly in the present circumstances the confidence of ordinary litigants are shaken since the wheels of judiciary has come to a screeching and grinding halt at sudden.

Conclusions: *Judicial systems are specialized in nature and are not available for widow shopping, it has to be groomed. It, therefore, as a first step requires creating an awareness, and not the scare, about the impact of lockdown on all segments of democracy so that they are prepared to bear with the possible delay in justice that may occur. Secondly, in this virtual sabbatical judicial systems shall have to explore ways and means of speeding delivery of justice. Thirdly, ensuring delivery of justice is responsibility of the state and therefore on its part it shall have to make extra efforts to reinforce judicial systems that are already overstressed.*

DIVISIBILITY RULES

H.D. Motiramani

Let us refresh speed-math techniques that were taught to us in our school. It is a refresh of "Divisibility Rule" for typical numbers.

Divisibility By	Rule	Number Divisible	Number not Divisible
2	If the number is an Even number	40852	45003
3	If the sum of digits is divisible by 3	621	821
4	If the last two digits are divisible by 4	120	122
5	If the last digit is either 0 or 5	8750	2759
6	If the number is even and the sum of digits is divisible by 3	5100	7012
7	Double of last digit, deduct it from rest of the digits of that number. Repeat this process till you get a two digit number. If this two digit number is divisible by 7 or becomes zero(<i>See example below</i>)	9597	8597
	<p><i>The number 9597 has the last digit or unit digit = 7</i></p> <p><i>Now leaving this unit digit we get 959. From this truncated number 959 we will reduce the sum = 2 *unit digit no. 7 so 959-14=945</i></p> <p><i>We will repeat this process till we arrive at a two digit number. Now in 945 last digit is 5. So, 94-2*5 gives 84</i></p> <p><i>Test this two digit number 84 if is divisible by 7. Yes 84 is divisible by 7. Hence the number 9597 is divisible by 7</i></p>		
8	If the last three digits are divisible by 8	2544	5548
9	If the sum of digits is divisible by 9	7632	8632
10	If the last digit is zero	9620	8625
11	If the sum of Alternate digits subtracted from each other is zero or divisible by 11(<i>See example below</i>)	144507	10803511
	<p><i>Alternate digits of the number 144507 are 1,4,0 of first lot and 4,5,7 of second lot. The total sum of first lot is 5 and sum of second lot 4,5 and 7 is 16. The difference of these two lots is 16-5=11 which is the divisor itself. Hence the number 144507 is divisible by 11.</i></p>		
12	The number is divisible by 3 & 4 both	47244	9462
13	Multiply last digit by 4, add to rest of digits successively till we get 2 digits divisible by 13 (<i>See example below</i>)	2749	2869
	<p><i>The number 2769 has the last digit or unit digit =9, Like the process for divisibility for 7 above here we need to multiply the last digit by 4 and add to the rest of the truncated number which is 276. So the new number becomes 276+36 that is 312. Now we repeat this process till we get a two digits number. 312 was the new number and truncated number is 31 so 31+2*4=39 which is divisible by 13 so the number 2769 is divisible by 13</i></p>		
14	The last digit is 5 or 0 & the number should be even and divisible by 7	10122	10222
15	The last digit is 5 or 0 & the Sum of digits is divisible by 3	1545	1645
16	Last four digits are divisible by 16	596464	596564
17	Multiply last digit by 5 and add to rest of the digits successively till we get a 2 digit number divisible by 17) (<i>See example below</i>)	11359	12359
	<p><i>The number to be tested is 11359</i></p> <p><i>Process is similar to that for 13 above. But, here we multiply the last digit by 5 and add to rest of the number. So 1135+5*9= 1135+45=1180 Now repeat this process till we get a two digit number. 1180+5*0=1180, next 118+5*9=118+45=163 which is divisible by 17 hence the number 11359 is divisible by 17</i></p>		
18	The number is even and the sum of digits is divisible by 9	42210	42212

19	If the last digit doubled is added successively to rest of the digits, the final two digit sum gets divided by 19 (<i>See example below</i>)	11362	21562
<i>The number to be tested is 11362. Like the process for testing divisibility by 7 or 13 or 17, we operate upon the last digit of the number and come down to a truncated number. Here we multiply the last digit by 2 and add to the truncated number. In the number 11362 Last digit is 2 and truncated number is 1136. So we will add $2 \times 2 = 4$ in the truncated number and repeat the process till we arrive at a number which gives clear cut divisibility. So, $1136 + 4 = 1140$. Now 114 becomes truncated number and we add 2×0 or zero to it. Now $114 + 0 = 114$ is to undergo the same process. So $11 + 4 \times 2 = 19$ which is divisible by 19..</i>			

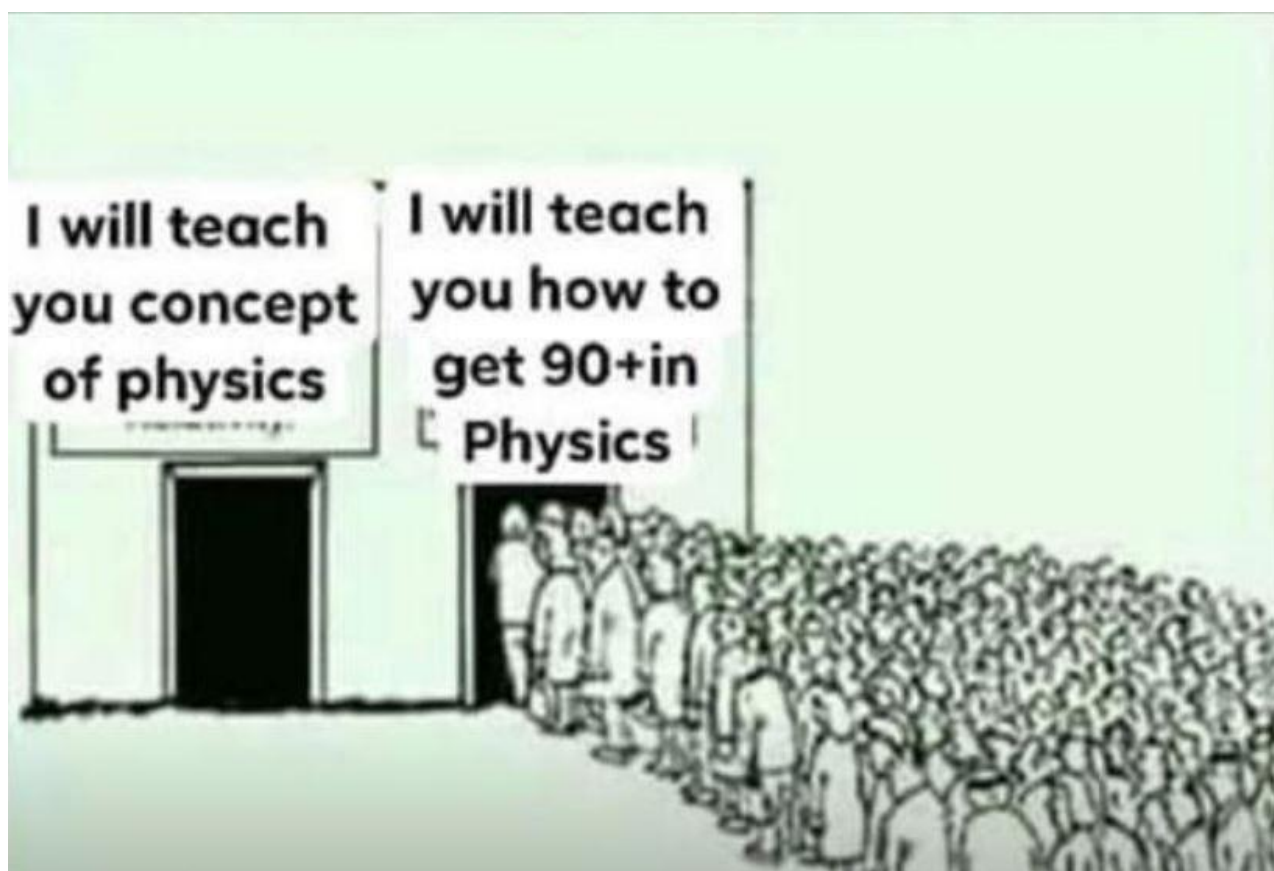
Note: Yet importance of learning and remembering tables upto 20, cannot be ruled out for accuracy and speed of calculations.



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आभार तुम्हारा ...

पाया है यह मध्य विराम ...

मृणालिनी घुले

न तुमसे नाता, न तुमसे रिश्ता
तुम हो मानव या हो फरिश्ता
मोह रहित करते जन सेवा
बदले में कुछ भी न चाहा
सुरक्षाकर्म या हो परिचारक
सफाई कर्म या हो चिकित्सक
केवल पर उपकार है मन में
शांति, स्वास्थ्य फैले जन-जन में
स्व प्राणों की फिक्र नहीं है
मौनकर्म है, जिक्र नहीं है
यह समाज परिवार हमारा
करता है आभार तुम्हारा

पाया है यह मध्य विराम
इसमें करना न विश्राम
समय है चित्त प्रबोधन का
आत्म विवेचन चिंतन का
अपनी कमियों को चुन लो
सद्गुणों को कुछ गुन लो
शुद्ध हो सके अंतरतम
भावी पथ हो जाए सुगम
नव प्रभात होगा द्युतिमान
अपने पर होगा अभिमान ।



कवियत्री 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।

ई-मेल: mrinalinighule46@gmail.com

—00—

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

- Albert Einstein

—00—

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

—00—

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

- Frank A. Clark

इतिहास की पुनरावृत्ति

डॉ. संगीता पाहुजा

युगों युगों से चली आ रही, यह देव और दानव की लड़ाई।
कोरो ना वायरस ने फिर से यह ऐतिहासिक बात दोहराई।

नरकासुर से श्री कृष्ण ने देवताओं को मुक्ति दिलाई।

आज फिर देव और मानव ने स्वयं को दानव से छुपाया है।
सरकार ने कोरोना रूपी दानव से मुक्ति का बीड़ा उठाया है।

दौड़ती, भागती इस दुनिया में अजब सा ठहराव आया है।
चारों दिशाओं से परिवार से बिछड़ा हर कोई, अपने अपने घर को आया है।

एकल परिवारों को संयुक्त परिवार का महत्व बताया है।
पक्षियों के कलरव ने प्रकृति का सौंदर्य दर्शाया है।

ऐतिहासिक जीत को फिर साबित करना, हम भारतीयों का सरमाया है।
इसी एकता से कोरोना का करना सफाया है।



कवियत्री आयुर्वेदिक चिकित्सक हैं | आपने B.A.M.S. की उपाधि M.D. University, रोहतक से प्राप्त की | आपके दिल्ली एवं नॉएडा में परामर्श केंद्र है | धार्मिक, नारी एवं समाज उत्थान कार्यों में आपकी विशेष रूचि है |

संपर्क: मो. क्र. - 9953967901, ई-मेल: sangeeta.pahuja3@gmail.com

—00—

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.

—00—

Answers: Science Quiz- April'2020

Kumud Bala

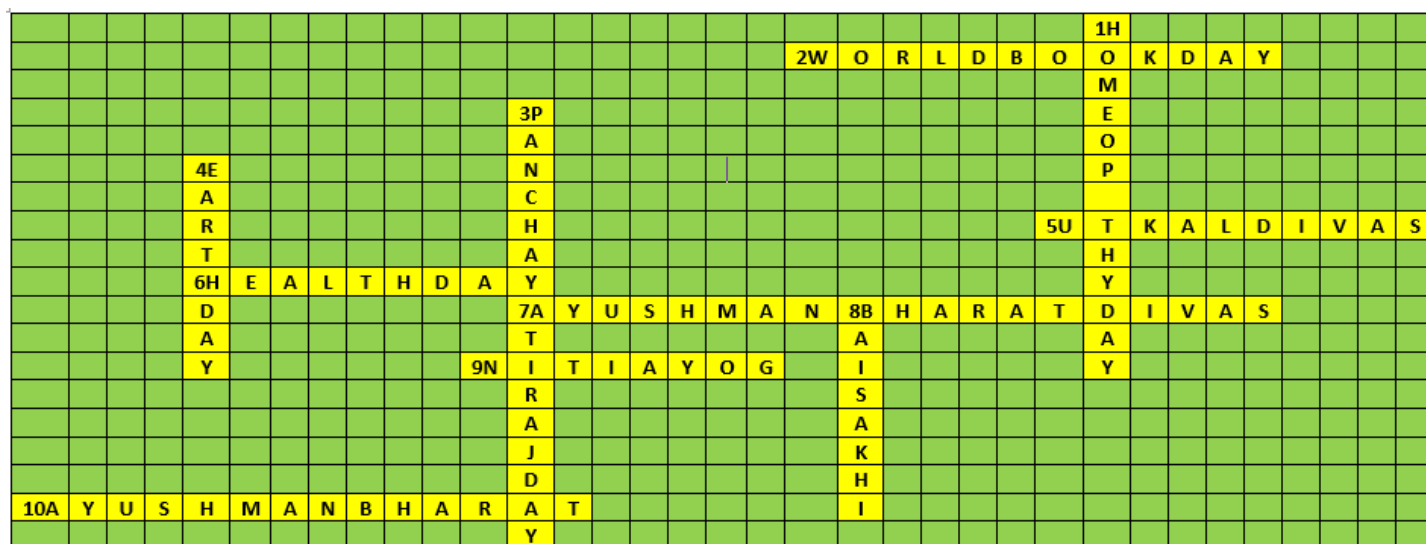
1 (D)	2 (B)	3 (B)	4 (B)	5 (C)	6 (A)	7 (C)	8 (A)	9 (A)	10 (D)
11 (B)	12 (D)	13 (B)	14 (A)	15 (C)	16 (A)	17 (C)	18 (B)	19 (B)	20 (A)
21 (C)	22 (D)	23 (C)	24 (B)	25 (C)	26 (C)	27 (A)	28 (C)	29 (A)	30 (A)
31 (A)	32 (D)	33 (C)	34 (D)	35 (B)	-	-	-	-	-

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ANSWER: CROSSWORD PUZZLE, April'2020

(Observance Days of April)

Prof. S.B. Dhar

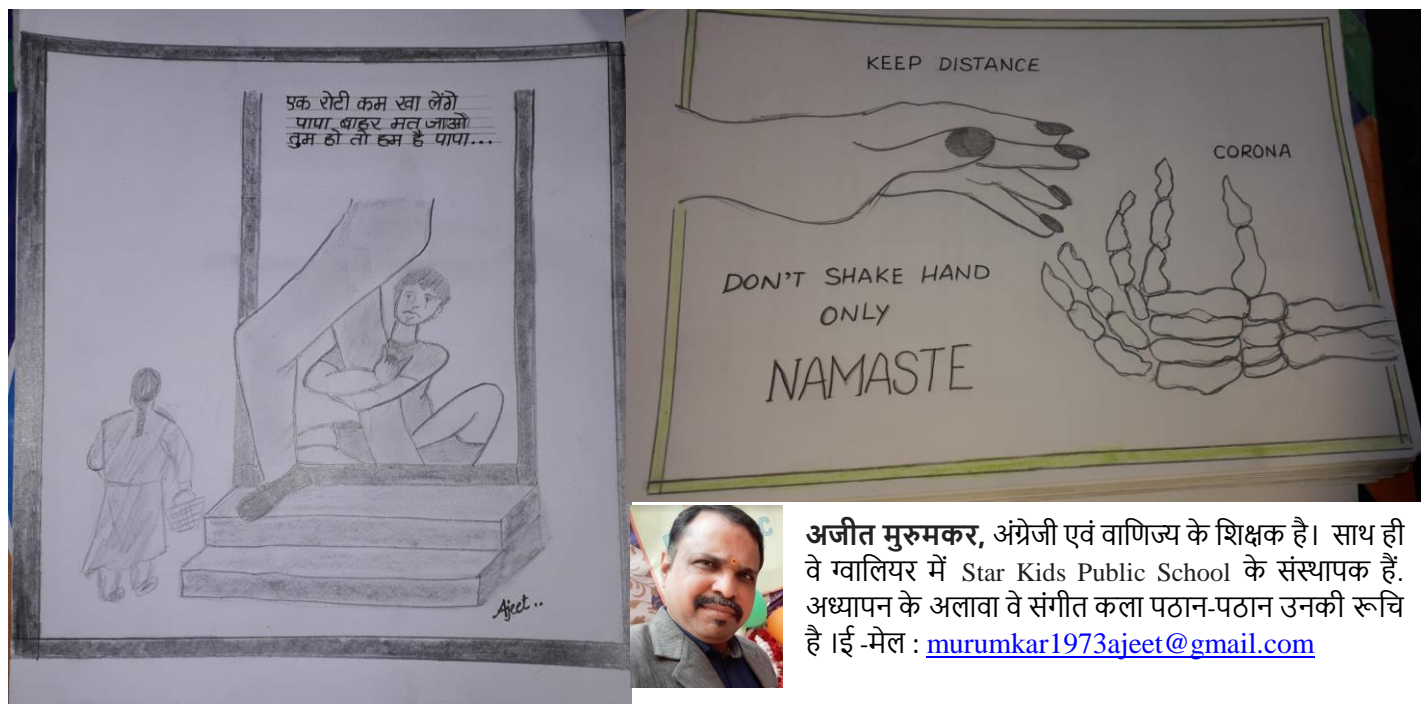


—00—

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.

—00—

*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*

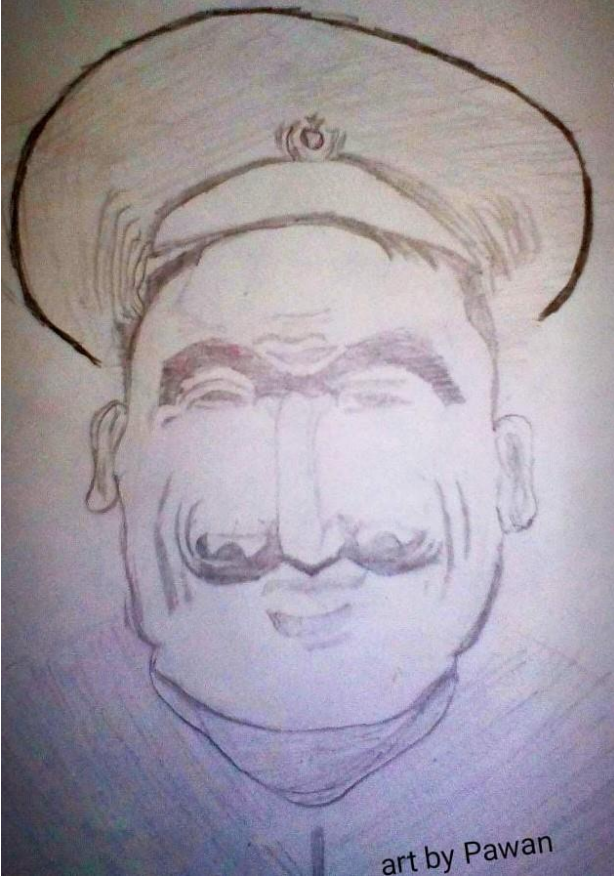


अजीत मुरुमकर, अंग्रेजी एवं वाणिज्य के शिक्षक है। साथ ही वे ग्वालियर में Star Kids Public School के संस्थापक हैं। अध्यापन के अलावा वे संगीत कला पठान-पठान उनकी रुचि है। ई-मेल : murumkar1973ajeet@gmail.com



Mrs. Savita Gupta is M.A., B. Ed. Ex Center Manager, S. D Polytechnic, and Ghaziabad, 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. e-Mail ID: goeltanvi@gmail.com





M. Pawan, student of Class X
at RKM School Sithanagram,
A.P. He is attending IOMS at
the school since class IXth.

*Please view the sketch Upside-down
also to enjoy creative imagination*

—00—

नमन हमारा आप सभी को

अनुप्रा दुबे

जिनको छूने से डरते सब
उनकी सेवा करते सुबह-शाम हो
करते काम महान हो
आप भारत की शान हो

नमन हमारा आप सभी को
जो बचाते कोरोना से जान हो
करते काम महान हो
आप भारत की शान हो



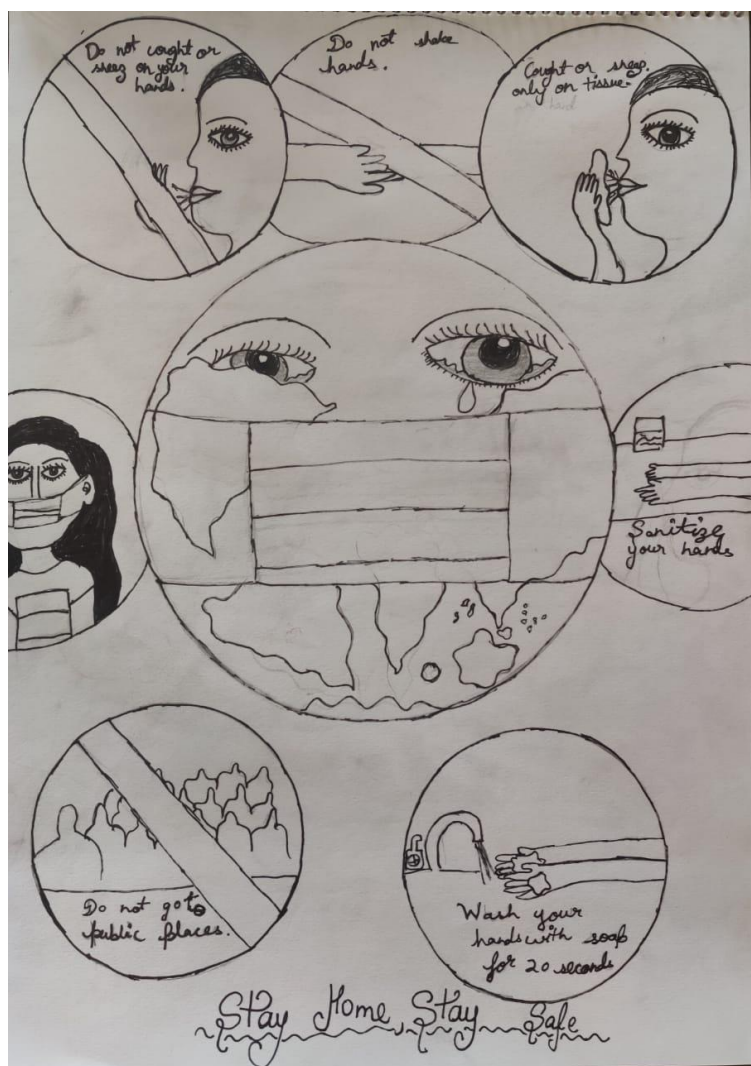
इस कविता की रचयिता यह कक्षा 5 की डी इंडियन पब्लिक स्कूल रोहिणी दिल्ली की छात्रा है। लाकडाउन कालखंड में उसने यह कविता लिखी है। इस छात्रा द्वारा बनाये गये कुछ ड्राइंग भी प्रस्तुत हैं।

—00—



Anupra Dubey





Navya Nayan, is a student of class 5 at Birla Vidya Niketan, Delhi

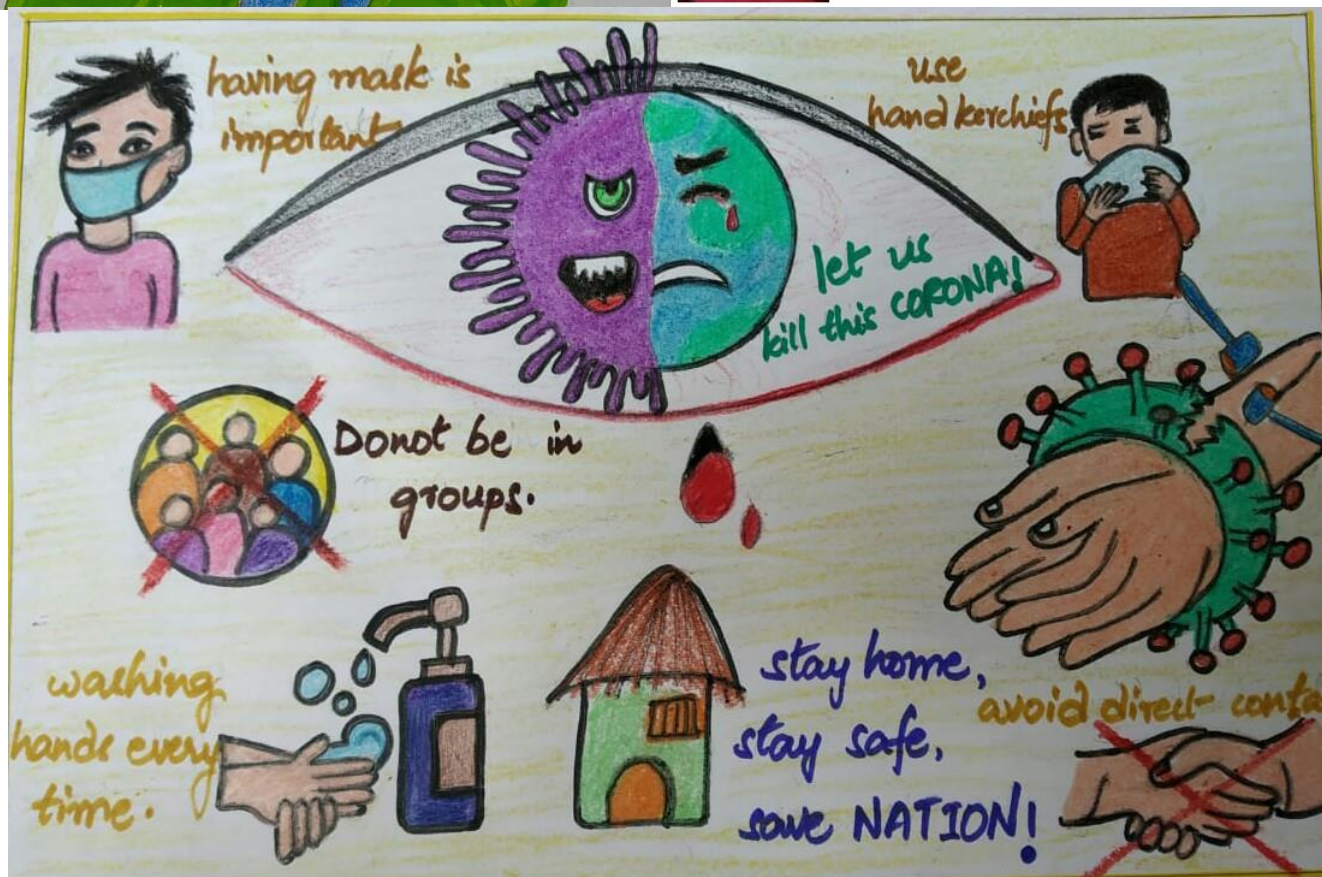


Mannan, the author, is a student of class 4th at Birla Niketan, Delhi





A Sai Kiran is a Student of Class Xth at RKM School Sithanagram, A.P. He attends IOMS at the school and is continuing it from class IXth



The Tiger and The Chicken

Natchya Tiwari



Once upon a time, there was a chicken. It crowed normally every day when it saw the sunrise. But one day when the chicken was crowing, a tiger came with an idea of eating the chicken. The tiger asked the chicken, "Why is your voice so beautiful? Can you come down and crow for me?"

The chicken came down with narcissism. As soon as the chicken was about to crow, the tiger caught the chicken and tried to eat it. The chicken didn't stop crowing and told the tiger, "If you don't release me my owner will come to me."

The villagers wondered why the chicken was not stopping crowing. They came together with the wood stick. When the tiger saw that the villagers were coming, it ran away with the chicken in its hand.

The chicken told the tiger, "If you want to survive then you don't need to run, you just tell the villagers that you are also a chicken."

With its foolishness, the tiger stopped running and waited for the villagers to come. When the villagers came, they hurriedly used their bats to beat the tiger without waiting for anything. The chicken thus survived from the tiger.

Moral of the story: *You should think before doing something and shouldn't believe others without thinking. You shouldn't be narcissistic.*

Next morning, the man quickly ran to the diamond shop and sold it. He got a lot of money. He bought a new house and a farm for him.

One month later, the dove again spit out a diamond. The man sold this diamond also and got much more money this time. Now he got married. He told his wife, "If the dove is spitting out a diamond every month, it means it has many diamonds in its stomach".

The man and his wife started thinking again and again about this. Lastly, they decided to rive the dove's stomach. When they rived the stomach of the dove, they found not any piece of diamond in it.

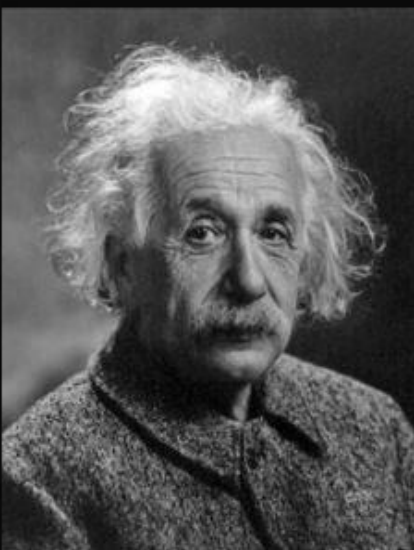
Moral of the story:

We shouldn't be greedy because greediness brings loss.



.Author is a student of CRM School in Chiangrai (Thailand). She studies in Grade 8. 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—



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)

izquotes.com



Aditi Arya, is student of class XIIth (PCM), K.R Manglam World School, GK-2, New Delhi

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UNITY IN DIVERSITY IN INDIA

M.Hari Chandana

Unity in diversity is used as an expression of harmony and unity between dissimilar individuals or groups. It is a concept of unity without uniformity and diversity without fragmentation that shifts focus from unity based on mere tolerance of physical, cultural, linguistic, social, religious, political, ideological and /or physiological difference towards a more complex unity based on an understanding that difference enriches human interactions. The idea and related phase is very old and dates back to ancient times in both Western and Eastern Old World cultures. It has applications in many fields including, cosmology, physiology, religion and politics.

India has many races , castes , sub-castes , nationalities and communities , but the heart of India is one, a country of many ethnic groups, is a land of myriad languages, numerous modes of apparel .Besides, there are several religions, sects and beliefs .But there are certain common links and uniting bonds that people have sought to develop in order to achieve the eminently desirable goal of unity amidst diversity. Even the early Indian history unmistakably shows that the political consciousness of the people has from the very early times grasped the whole of India as a unit and assimilated the entire area as the theatre of its activities. India is not a mere geographical expression, nor is it a mere collection of separate peoples, traditions and conventions. India is much more than this. The best proof lies in the fact that Indian history has quickened into life.

We are all heirs to a common and rich culture. Our cultural heritage consists of our art and literature as they flourished

centuries ago. Our cultural heritage serves as a bond of unity between people of different faiths and creeds. The streams of different cultures have flowed into our subcontinent to make us what we will be.

India has one hundred and fifty dialects and twenty-two recognized languages, but Hindi, like English, has come to stay as the lingua franca of our nation.

India has a rich cultural heritage. We are inheritors of several grand treasures in the fields of music, fine arts, dance, drama, theatre and sculpture. Our sages and seers have left behind a tradition of piety, penance, spiritual, greatness, conquest of passion, etc. Our scriptures are the storehouses spiritual wisdom. Our saints aspired to the realization of infinite. We have inherited great spiritual values.

India yogis and maharishis, musicians and spiritual leaders have all attracted them in a big way. A significant move to project India's cultural unity has been the holding of Festivals of India in various parts of the world.

Indian classical music, like in the Indian dances, is built on the concept of Ragas and Talas. Other significant features of India's cultural Unity are the variety, colour and the emotional richness of its dances. The country abounds in tribal dances, old dances as well as classical dances of great virtuosity. Throughout India, Dance is regarded not nearly as an accompaniment to social intercourse, but also as a mode of aesthetic expression and spiritual their realization.



Author is a Student of Class IX at RKM School Sithanagram, A.P. He attends IOMS at the school and is continuing since class IXth.

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Pod Cover made from
Discarded Genes and Belt
Stay Home, Stay Safe
and Keep Learning New Skills



Paarth Karve

He is student of Class Vth,
Pune Institute of Computer
and Technology Model
School, Pune. His fond of
playing cricket, music

—00—





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Culinary “Science” – Pizza

Dishita Joshi



Pizza, one of the most famous Italian dishes, is also one of the finest dishes to prepare and relish. Following is how it happens:

STEP 1: THE DOUGH

Activity: Prepare Mixture of warm water, salt, yeast, sugar, and leave it for 5 minutes for the

chemical reaction to happen

When yeast is added to the *dough*, it uses the sugar present in the dough as its food and uses it to reproduce. As it reproduces, it converts the sugar into alcohol and releases CO₂, which makes the dough to rise. This chemical change is known as fermentation. This reaction happens only in the presence of warm water – water should neither be cold, nor should it be too hot – Yeast is active only in mildly warm conditions. The yeast cells die when the water is too hot, and they are inactive in cold water.

Then, add flour in this mixture, and knead continuously for 10 minutes. Then, leave the dough for 30 minutes. This allows for the **generation of CO₂, which makes the dough rise.**

As we add the flour into the water mixture, the proteins in wheat flour mix with water to form gluten. The mixing process works these proteins into chains of linked proteins. Too little mixing of the dough may result in our crust not rising at all. On the other hand, if we overmix, dough will be too stiff, won't stretch properly, and have a chewy texture.

STEP 2: PREHEATING THE OVEN

Activity: set the oven to a temperature of 230 degree Celsius, and leave it for 15 mins.

Any enclosed volume needs time to come to a specified temperature, based on the overall specific heat. Thus, when

the oven is started, the temperature will gradually rise over the next 15 minutes to the temperature set by the knob.

Temperature setting is done using a device called a thermostat. This uses a bimetallic strip and the differential expansion of two materials to turn the strip as per temperature.

When the pizza comes inside the oven, we need the exact prescribed temperature inside the oven, for which we pre-heat the oven.

STEP 3 - PREPARE THE PIZZA

Activity: Roll the dough into a consistent crust, spread pizza sauce, then sprinkle cheese and finally toppings

Dough gets evenly spread between a flat surface and the roller. Toppings are placed on the top of everything so that they are directly exposed to heating rods, which ensures that they get cooked properly.

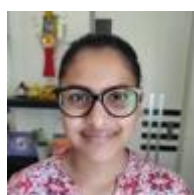
STEP 4 – BAKE

Activity: Bake with both top and bottom heating rods ON and bake in the oven at 230 degree Celsius until the crust turns golden brown.

You must be wondering why golden brown? Besides looking great, the golden-brown color signals the result of the Maillard reaction which produces a lot of the flavor and smell associated with a great pizza crust. The Maillard reaction is a simple reaction between amino acids and sugars that occurs in the crust when it is baking. If your crust turns out too light, then the flavor profile will not be fully formed. Or if your crust turns out too dark then your crust will be bitter and charred due to another unwanted reaction.

Having both top and bottom heating rods ON ensures that the base also gets properly cooked, and the toppings also get properly cooked.

Cooking seems so simple yet involves so many chemical and physical reactions. We see that understanding culinary sciences is really very interesting.



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CREATIVITY and INNOVATION

Akanksha Kashyap

Creativity and innovation are essential elements for survival and growth of an organization. Creativity is vital for the birth of fresh and beneficial ideas. Creative thinking allows groups and individuals to solve problems or stimulate to think differently in order to bring forth fruitful ideas. Creativity begins the spark which brings on the design to create innovation. Creativity is the ability to surpass traditional ideas, rules and patterns to create meaningful new ideas, products and methods. Today's innovation can be the secret sauce for a successful business.

Competition and increasing survival pressure has been realized that the striking role of creativity and it's application in the operation and management of modern organization should be attached with more attention. The inspiration and cultivation to be one of the most important

features of not only individuals but also enterprises for that creativity may bring in with new changes and different possibilities in a variety of ways .

Emphasizing ideas and thinking processes help us to build and organize the framework for an action oriented project. Creativity is thinking up new things. Innovation is doing new things.

A very powerful quote on creativity and innovation given by Eugenia Herlihy is - "*whoever threatens your capability of creativity and innovation, has no power to destroy you because you will called by name to be creative and innovative before the foundations of Earth. Keep moving forward and stay authentic. Your authenticity and your uniqueness will carry you. Be proud to be the person you were called to be.*"

—00—

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

Never let crisis go to waste

Winston Churchill

—00—





Krittika Dwivedi is a student of Class 3, Brigade Schhol, Mahadevpura Banglore



Growing With Concepts - Mathematics

LET'S DO SOME PROBLEMS IN MATHEMATICS-XIX**Prof. SB Dhar**

GRE (Graduate Record Examinations) is a very prestigious test. This Test is divided into three parts: Verbal Reasoning, Quantitative Reasoning and Analytical Writing.

Prospective graduate and business school applicants from all around the world who are interested in pursuing a master's, specialized master's in business, MBA, J.D. degree, or doctoral degree take the GRE General Test.

Applicants come from varying educational and cultural backgrounds and the GRE General Test provides schools with a common measure for comparing candidates' qualifications.

It is a computer based standardized test. It was started in 1936. Its official website is www.ets.org/gre

This test qualifies the aspirants to take admissions in the United States and Canada.

The content of the GRE consists of certain specific algebra, geometry, arithmetic, and vocabulary sections.

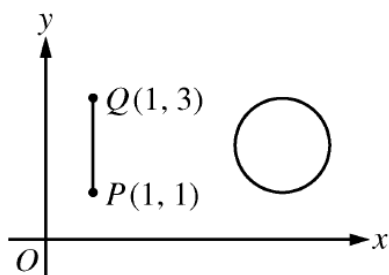
The first universities to experiment the test on their students were Harvard University, Yale University, Princeton University and Columbia University. The University of Wisconsin was the first public university to ask their students to take the test in 1938. In 1943, it was taken by students at Michigan State University, where it was analyzed by Paul Dressel.

Some Indian Universities and even IIM has started considering GRE score for admissions to their Business Management courses for the ongoing session.

This article consists of some questions to reveal the difficulty level and the contents that may be asked in the GRE

Questions

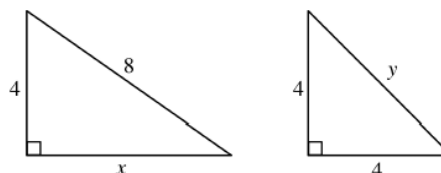
The figure shows line segment PQ and a circle with radius 1 and center $(5, 2)$ in the xy -plane. Which of the following values could be the distance between a point on line segment PQ and a point on the circle?



Indicate all such values.

- (a) 2.5 (b) 3.0 (c) 3.5 (d) 4.0
(e) 4.5 (f) 5.0 (g) 5.5 (h) 6.0

2. Compare quantities A and B.



Quantity A: x Quantity B: y

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

1. Consider the expression:

$$(x-2y)(x+2y)-4$$

Quantity A: x^2-4y^2

Quantity B: 8

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

4. A certain recipe requires $\frac{3}{2}$ cups of sugar and makes 2 dozen cookies. (1 dozen=12)

Quantity A: The amount of sugar required for the same recipe to make 30 cookies

Quantity B: 2 cups

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given
5. A power station is located on the boundary of a square region that measures 10 miles on each side. There substations are located inside the square region.
Quantity A: the sum of the distances from the power station to each of the substations.
Quantity B: 30 miles
(a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

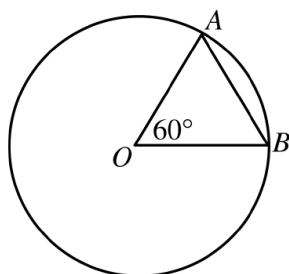
6. $6 < x < 7$ and $y = 8$

Quantity A: $\frac{x}{y}$

Quantity B: 0.85

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

7. O is the centre of the circle and perimeter of $\triangle AOB$ is 6.



Quantity A: the circumference of the circle

Quantity B: 12

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal

- (d) The relationship cannot be determined from the information given

8. Given are –

Quantity A: The standard deviation of a set of 5 different integers, each of which is between 0 and 10

Quantity B: The standard deviation of a set for 5 different integers, each of which is between 10 and 20

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

9. Consider the equations:

$$7x + 3y = 12, \quad 3x + 7y = 6$$

If x and y satisfy the system of equations shown, what is the value of $x - y$?

- (a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) 1 (d) 4 (e) 6

10. In triangle ABC , the measure of angle A is 25° and the measure of angle B is greater than 90° . Which of the following could be the measure of angle C ?

- (a) 12° (b) 15° (c) 45°
(d) 50° (e) 70°

11. What is least integer n such that $\frac{1}{2^n} < 0.001$?

- (a) 10 (b) 11 (c) 500
(d) 501 (e) There is no such least value

12. In the sunshine, an upright pole 12 feet tall is casting a shadow 8 feet long. At the same time, a nearby upright pole is casting a shadow 10 feet long. If the lengths of the shadows are proportional to the heights of the poles, what is the height, in feet, of the taller pole?

- (a) 10 (b) 12 (c) 14 (d) 15 (e) 18

13. If a is the smallest prime number greater than 21 and b is the largest prime number less than 16, then ab is

- (a) 299 (b) 323 (c) 330
(d) 345 (e) 351

14. This question has five answer choices. Select the best one of the answer choices given.

List R: 28, 23, 30, 25, 27

List S: 22, 19, 15, 17, 20

The median of the numbers in list R is how much greater than the median of the numbers in list S?

- (a) 8 (b) 10 (c) 12 (d) 13 (e) 15

15. If c and d are positive integers and m is the greatest common factor of c and d , then m must be the greatest common factor of c and which of the following integers?

- (a) $c+d$ (b) $2+d$ (c) cd (d) $2d$ (e) d^2

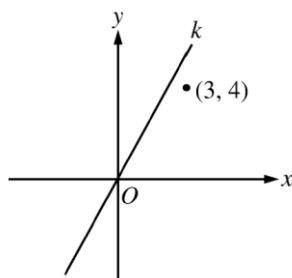
16. Of the 750 participants in a professional meeting, 450 are females and $\frac{1}{2}$ of the female and $\frac{1}{4}$ of the male participants are less than thirty years old. If one of the participants will be randomly selected to receive a book prize, what is the probability that the person selected will be less than thirty years old?

- (a) $\frac{1}{8}$ (b) $\frac{1}{3}$ (c) $\frac{3}{8}$ (d) $\frac{2}{5}$ (e) $\frac{3}{4}$

17. In the xy -plane, what is the slope of the line whose equation is $3x-2y=8$?

- (a) -4 (b) $-\frac{8}{3}$ (c) $\frac{2}{3}$ (d) $\frac{3}{2}$ (e) 2

18. Consider the figure below:



Quantity A: The slope of line k

Quantity B: 1

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

19. One of the roots of the equation $x^2+kx-6=0$ is 3, and k is a constant.

Quantity A: the value of k

Quantity B: -1

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

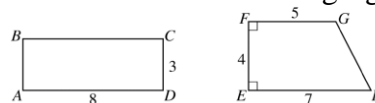
20. The original price of a suit was 30 percent less than the suit's \$250 suggested retail price. The price at which the suit was sold was 20 percent less than the original price.

Quantity A: the price at which the suit was sold

Quantity B: 50% of the suit's suggested retail price

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

21. Consider the following figures:



Quantity A: the area of rectangular region ABCD

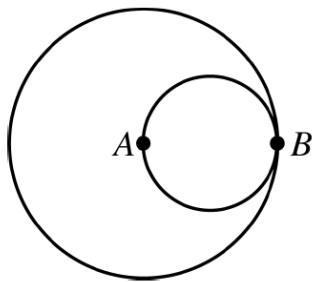
Quantity B: the area of trapezoidal region EFGH

- (a) Quantity A is greater
(b) Quantity B is greater
(c) The two quantities are equal
(d) The relationship cannot be determined from the information given

22. If j and k are integers and $j-k$ is even, which of the following must be even?

- (a) k (b) jk (c) $j+2k$
(d) $jk+j$ (e) $jk-2j$

23. Consider the following figure:



The circles shown are tangent at point B. Point A is the centre of the larger circle, and line segment AB (not shown) is a diameter of the smaller circle. The area of the smaller circle is what fraction of the area of the larger circle?

24. If p is a negative number, and $0 < s < |p|$, which of the following must also be a negative number?

(a) $(p+s)^2$ (b) $(p-s)^2$ (c) $(s-p)^2$
(d) p^2-s^2 (e) s^2-p^2

25. If $\frac{1}{2^k} + \frac{1}{2^k} = \frac{1}{2^x}$, then x expressed in terms of k is

(a) $\frac{k}{2}$ (b) $k-1$ (c) $k+1$
(d) $2k$ (e) k^2

26. If x and y are the tens digit and the units digit, respectively, of the product 725278×67066 , what is the value of $x+y$?

(a) 12 (b) 10 (c) 8 (d) 6 (e) 4

27. A developer has land that has x feet of lake frontage. The land is to be subdivided into lots, each of which is to have either 80 feet or 100 feet of lake frontage. If $\frac{1}{9}$ of the lots are to have 80 feet of frontage each and the remaining 40 lots are to have 100 feet of frontage each, what is the value of x ?

(a) 400 (b) 3200 (c) 3700
(d) 4400 (e) 4760

28. The operation $*$ is defined for all positive numbers r and t by

$$r * t = \frac{(r-t)^2 + rt}{t}$$

(a) $71 * 37$ (b) $37 * 71$

29. The water level in a tank is lowered by 6 inches, then raised by $8\frac{1}{2}$ inches, and then lowered by 4 inches. If the water level was x inches before the changes in level, which of the following represents the water level, in inches, after the changes?

(a) $x - 1\frac{1}{2}$ (b) $x + 1\frac{1}{2}$ (c) $x - 6\frac{1}{2}$
(d) $x + 6\frac{1}{2}$ (e) $x - 18\frac{1}{2}$

30. The probabilities that each of the two independent experiments will have a successful outcome are $\frac{8}{15}$ and $\frac{2}{3}$, respectively. What is the probability that both experiments will have successful outcomes?

(a) $\frac{4}{5}$ (b) $\frac{6}{5}$ (c) $\frac{2}{15}$
(d) $\frac{16}{45}$ (e) $\frac{64}{225}$

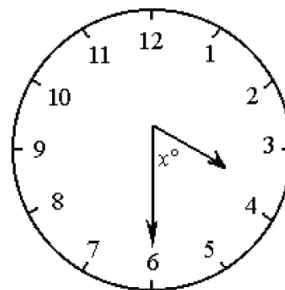
31. If x is 1, 2, or 3 and y is either 2 or 4, then the product xy can have how many different possible values?

(a) three (b) four (c) five
(d) six (e) seven

32. If the cube of n is 180 greater than the square of n , then n is

(a) 10 (b) 9 (c) 8 (d) 7 (e) 6

33. The circular clock below shows a time of exactly 3:30. What is the value of x ?



(a) 60 (b) 75 (c) 85 (d) 90 (e) 105



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—

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.

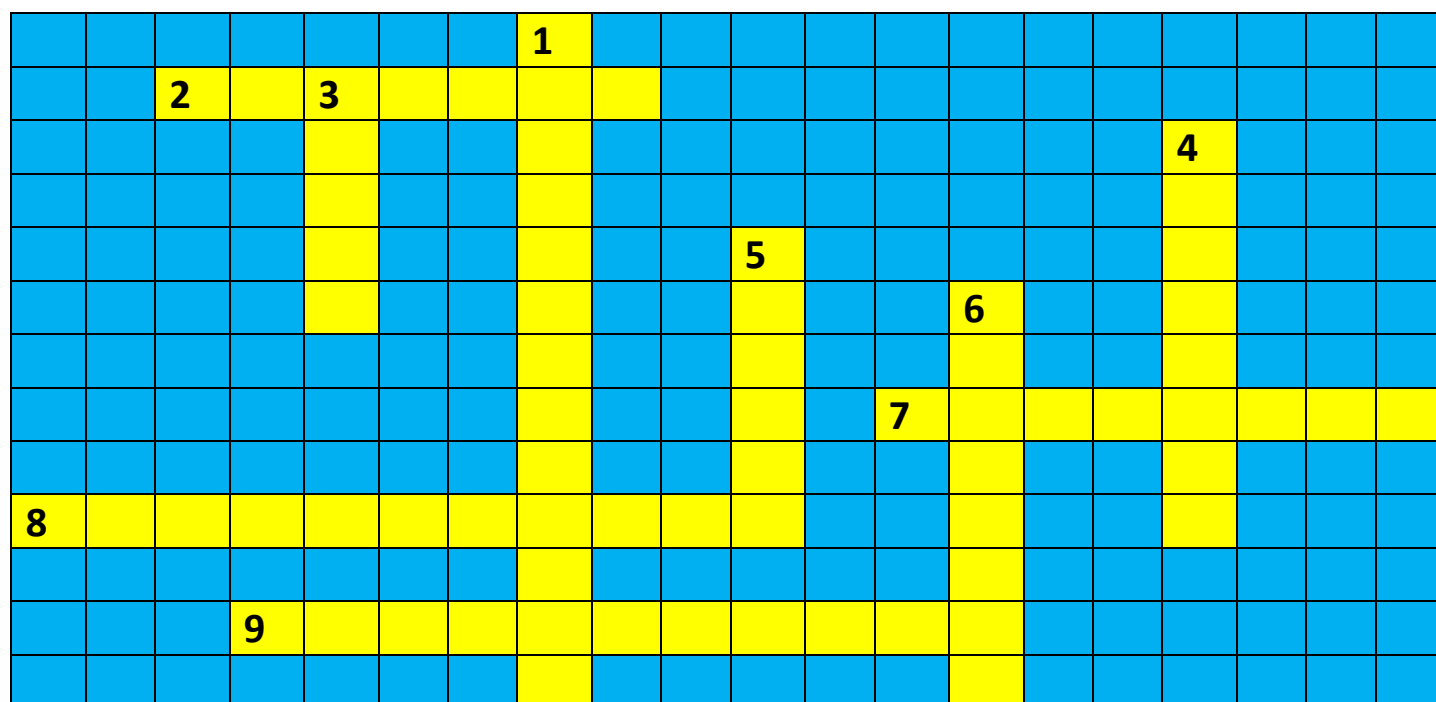
This e-Bulletin covers – a) [Mathematics](#), b) [Physics](#), and c) [Chemistry](#). This is just a beginning in this direction. These articles are not replacement of text books and reference books. These books provide a large number of solved examples, problems and objective questions, necessary to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

—00—

CROSSWORD PUZZLE May'2020 : COVID-19 GYAN TEST

Prof. SB Dhar



Growing with Concepts: Physics

Case Study: Dust-Pan

This article is on application of physics in real life through design of everyday use product Dust-Pan. This analysis is to invoke thinking skill not only among students but everyone, on how science finds place in our surrounding which is generally ignored.

Dust Pan is a plastic product, non-biodegradable material, except that it is reusable. Yet, if quantity of plastic used in manufacture of dust bin can be reduced by increasing ruggedness of the dust-pan specific consumption of plastic per year of its useful life time is reduced. It is a step towards a eco-friendly solutions, wherever use of plastic cannot be avoided.

A dust-pan that was recently procured through online shopping incidentally came under of scientific scanning. Each part of the dust-pan has been photographed and its illustration has been brought out in a collage, placed below.

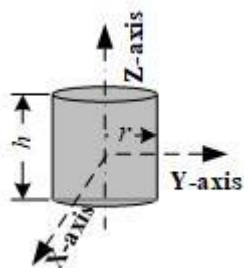
Basic principle used in design of the various sections of dust-pan is distribution of mass around axis of bending rather than putting more mass along the axis of bending. This axis of bending has been judged based on functionality of dust pan in real use.

It may not be out of place to highlight that a person who has worked with the dust pan can relate functionality of dust pan with various kind of bending possibilities of the dust pan. This is what makes a difference between a naïve user and a person with scientific thought process.

Scientific thought process does not develop by neither of reading costly books, attending expensive schools with air-conditioned environment, expensive coaching etc. nor it can be infused in one step. It groomed gradually and is a continuous learning process. A student who is studying in rural or government school with bare minimum infrastructure can also develop such a scientific thought process by using text books of NCERT or state education boards alongwith basic reference books. Such books are cheap, easily available and affordable to them, but many are not aware of them.

All that it needs is hand-holding of such raw students by passionate teachers. Such teachers catalyse among students ability to observe, correlate observations, analyse them for merit and demerits, evolve possible alternatives for optimization of available resource, and select one of the alternative which is economical, viable, feasible and sustainable for coexistence among people and nature. Last but not the least is ability to apply the solution evolved called skill and creativity.

The concept of Moment of Inertia which adds to bending strength of any cross-section of material is applied in this case.

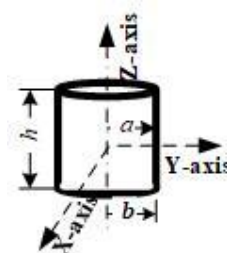


Solid Rod: Let density of material is ρ then mass of the rod of radius r per unit length is $M_R = \pi r^2 \rho$. Rod as shown in the figure would experience bending moment along Z-axis, also called axis of the rod, and it is maximum at the support.

Accordingly, moment of inertia along the axis is $I_R = \frac{M_R r^2}{2} = \frac{(\pi r^2 \rho) r^2}{2} = \frac{\pi r^4 \rho}{2}$.

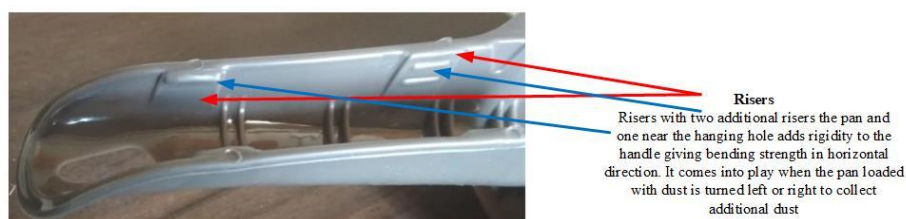
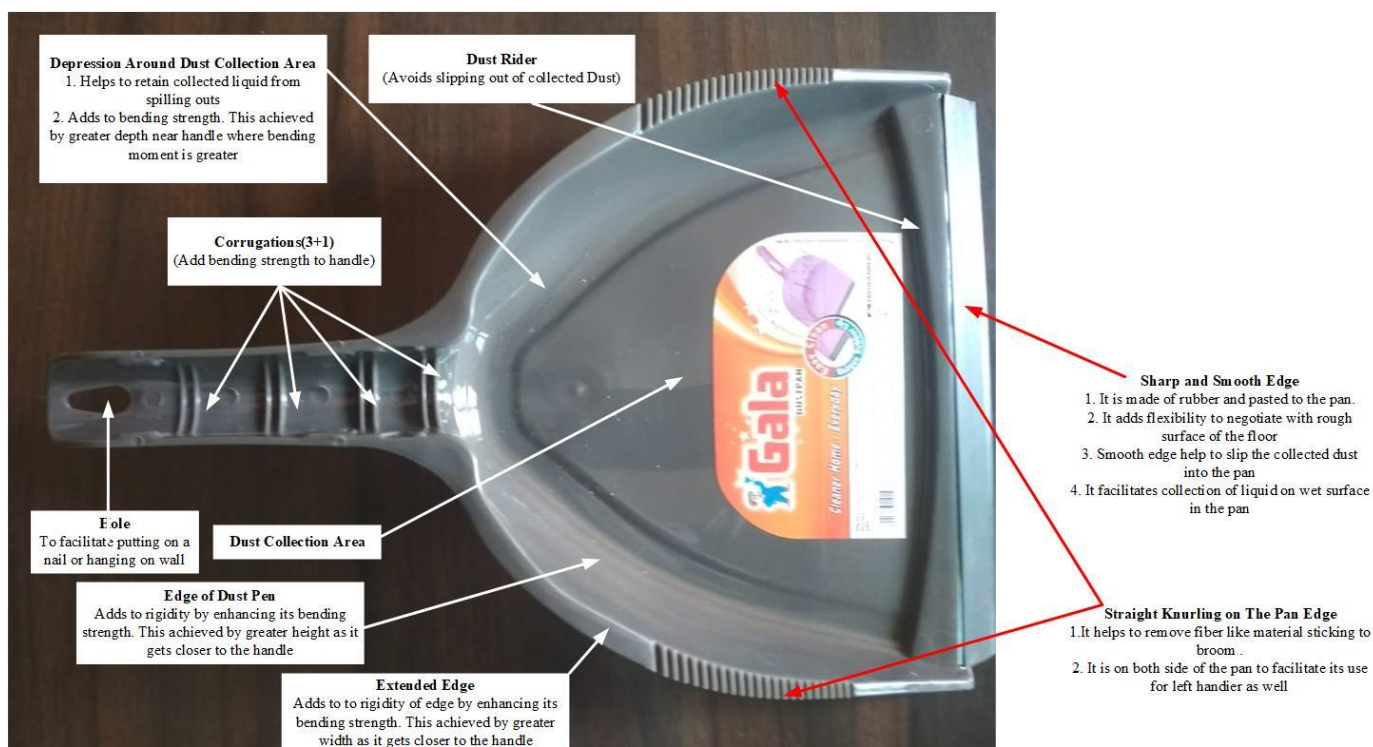
Solid Pipe: Taking pipe to be made of material same as that of the rod for which mass of the pipe per unit length would be $M_P = \pi(b^2 - a^2)\rho$, here, b is outer radius of the pipe and a is inner radius of the pipe. Further moment of inertia on lines similar to that of the rod is $I_P = M_P \left(\frac{b^2}{2} - \frac{a^2}{2} \right) =$

$[\pi(b^2 - a^2)\rho] \left(\frac{b^2}{2} - \frac{a^2}{2} \right) = \frac{\pi(b^2 - a^2)^2 \rho}{2} = \frac{\pi r_{av}^2 t^2 \rho}{2} = \frac{\pi(b+a)^2(b-a)^2 \rho}{2}$. This can be simplified into $I_P = 2\pi r_m^2 t^2 \rho$. Here, means radius of pipe is $r_m = \frac{a+b}{2}$ and thickness of pipe is $t = b - a$.



Thickness of pipe is decided considering of requirement of rigidity to possible dents or impacts that can occur during transportation, handling and use, and leads to engineering considerations. Smaller the thickness of tube greater is the radius of pipe. It is possible to establish that mass of material required to have a pipe such that $I_R = I_P$ is less than that used in rod. This can be done both algebraically and numerically. Yet, for now discussion is concluded based on qualitative analysis only.

May like to continue to read insertions in the photographs placed on the next page –



Growing with Concepts: Chemistry

Oxides of Carbon

Kumud Bala

Carbon forms many oxides. Two of these oxides, for example, carbon monoxide (CO) and carbon dioxide (CO₂) are extremely stable and important. Carbon sub oxide and graphite oxides are less stable e.g., (C₃O₂), C₅O₂, C₁₂O₉, C₂O and C₂O₃.

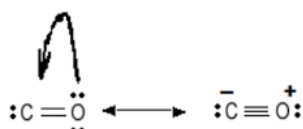
Carbon monoxide

Preparation:-

(i) It is formed by incomplete combustion of carbon and carbon containing fuels.



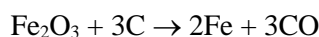
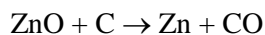
Carbon monoxide is also present in exhaust gases from automobiles due to incomplete combustion of carbon or carbon compounds during burning of petrol or diesel. It is



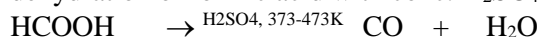
also present in volcanic gases and gases coming out of furnaces.

(ii) Carbon monoxide is prepared by the

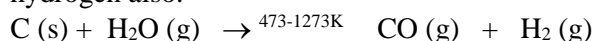
reduction of oxides of heavy metals with carbon.



(iii) In the laboratory, pure carbon monoxide is obtained by dehydration of formic acid with conc. H₂SO₄ at 373K.

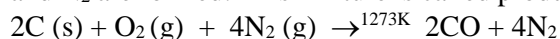


(iv) Commercially, carbon monoxide is prepared by passing steam over red hot coke. This reaction produces hydrogen also.

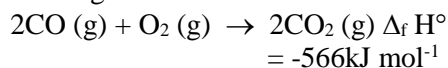


The mixture of CO and H₂ is called water gas or synthesis gas

(v) When air is passed instead of steam, a mixture of CO and N₂ are formed. This mixture is called producer gas.

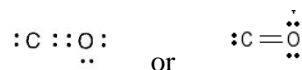


The water gas and producer gas are very important industrial fuel. Carbon monoxide present in water gas or producer gas can undergo further combustion forming carbon dioxide with the evolution of heat.

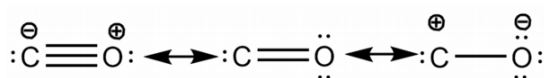


Structure: In CO molecule, both C and O are sp-hybridized. One sp-hybrid orbital each of C and O overlap to form a C-O, (σ bond) while the other sp-orbital on each atom contains the lone pair of electrons. The two unhybridised p-orbitals of C and O form two pπ-pπ bonds. Thus, CO is a linear molecule (lone pair →:C≡O⁺: ←lone pair in sp-hybrid orbital). Due to the presence of a lone pair

of electrons on the carbon atom, CO acts as lewis base and can form a coordinate bond with metals (M←C≡O⁺) to form metal carbonyls. The electron dot structure for CO:



In these structures, C has 6 while O has 8 electrons in the valence shell. To complete the octet around C, O donates a pair of electrons as shown in structure.



However, CO is best represented as a resonance hybrid of the following two structures.

The presence of a triple bond between C and O is supported by the following evidences:

- The carbon-oxygen bond length is just 113pm which corresponds to a carbon-oxygen triple bond.
- The dipole moment of CO is very low due to back donation of a pair of electrons from the more electronegative O to the less electronegative C-atom.

Properties:

- It is a neutral oxide.
- It is a colorless and odorless gas which is almost insoluble in water.
- Toxic nature:** carbon monoxide is highly poisonous in nature. Its toxic nature is due to its ability to form a complex with hemoglobin (carboxyhemoglobin) which is about 300 times more stable than the oxyhemoglobin complex formed in the lungs.

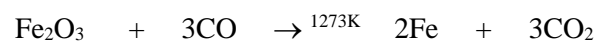
$$\text{Hemoglobin} + \text{CO} \rightarrow \text{carboxyhemoglobin}$$

$$\text{Hemoglobin} + \text{O}_2 \leftrightarrow \text{oxyhemoglobin}$$
 This prevents hemoglobin present in the red blood cells from carrying oxygen from the lungs to all parts of the body thereby causing suffocation ultimately leading to death.
- Combustibility:** carbon monoxide burns in air with a pale blue flame forming carbon dioxide.

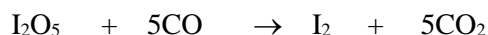
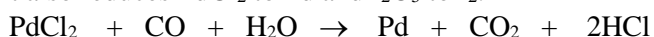
$$\text{CO} + \frac{1}{2}\text{O}_2 \rightarrow \text{CO}_2 + \text{heat}$$
- Reducing character:** since CO can be easily oxidized to CO₂, it acts as a powerful reducing agent. As such it reduces many metal oxides to their respective metals.

$$\text{ZnO} + \text{CO} \xrightarrow{\Delta} \text{Zn} + \text{CO}_2$$

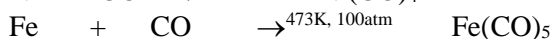
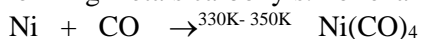
$$\text{CuO} + \text{CO} \rightarrow \text{Cu} + \text{CO}_2$$



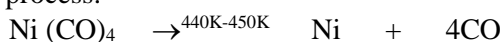
It also reduces PdCl_2 to Pd and I_2O_5 to I_2 .



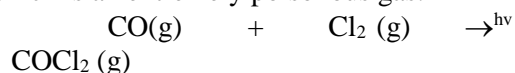
- (vi) Formation of metal carbonyls: It combines with many transition metals such as iron, nickel, cobalt etc. forming metals carbonyls. For example-



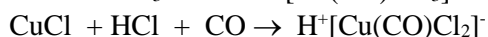
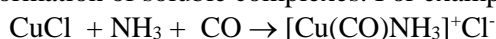
$\text{Ni}(\text{CO})_4$ is volatile. When heated to 440 to 450K, it decompose to form pure nickel. Therefore, nickel carbonyl is used for purification of nickel by Mond's process.



- (vii) Reaction with chlorine: It readily combines with Cl_2 in presence of sunlight to give carbonyl chloride or phosgene which is an extremely poisonous gas.



- (viii) Adsorption: carbon monoxide is readily absorbed by a solution of CuCl in conc. HCl or NH_3 due to the formation of soluble complexes. For example-



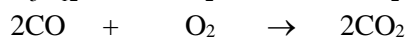
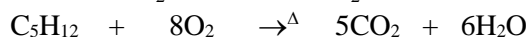
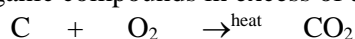
Uses of carbon monoxide:

- It is an important constituent of two industrial fuels i.e., water gas and producer gas.
- It is used in Mond's process for purification of nickel via its nickel carbonyl.
- It is used in the manufacture of methyl alcohol, acetic acid, synthetic petrol and sodium formate.
- In the metallurgy of iron as a reducing agent.
- Iron carbonyl is used in the manufacture of magnetic tapes for videos and tape recorders.

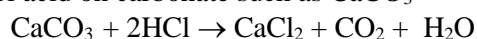
Carbon dioxide

Preparation:

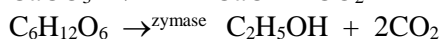
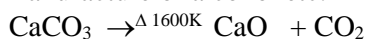
- (i) It is prepared by burning carbon, fossil fuels and other organic compounds in excess of air or oxygen.



- (ii) In the laboratory, it is prepared by the action of dilute HCl acid on carbonate such as CaCO_3



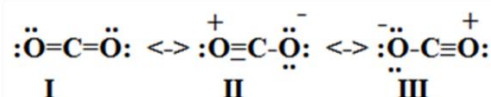
- (iii) On an industrial scale, it is obtained as a by-product in some industrial processes such as manufacture of lime, manufacture of alcohol etc.



Structure: In CO_2 molecule, C is sp -hybridized. It forms two σ bonds with two oxygen atoms and two $\text{p}\pi\text{-p}\pi$ multiple bonds. As a result, CO_2 is a linear monomeric covalent compound. The electron dot structure for CO_2 may be represented by:



This structure predicts that both the carbon-oxygen bond lengths in CO_2 should be equal and should have a typical bond length of 122pm. However, experimentally it has been found that carbon-oxygen bond length in CO_2 is only 115pm.

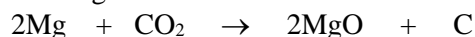


This can be

explained, if CO_2 is considered to be a resonance hybrid of the following structures due to resonance, carbon oxygen bond length acquires some triple bond character and hence the bond length decreases from 122pm to 115pm.

Properties:

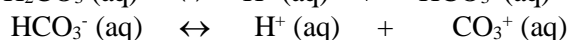
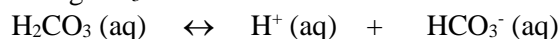
- It is a colorless, odorless gas about 1.5 times heavier than air with density of 1.977g l^{-1} at 298K.
- unlike CO, it is not poisonous but it does not support life in animals and human beings. Animals and human beings die in it for lack of oxygen.
- Solubility: carbon dioxide is slightly soluble in water. Its solubility in water, however, increases with increase in pressure. Soda water and other aerated soft drinks are solutions of carbon dioxide in water (containing sugar, some flavouring and colouring substances) under pressure.
- Non-combustible nature: ordinary carbon dioxide is neither combustible nor supporter of combustion. Therefore, it is used in fire extinguishing. However, certain active metals such as Na, K, Mg etc. continue burning in it.



- (v) Acidic nature: carbon dioxide turns blue litmus to red and is therefore, acidic in nature. It dissolves in water forming carbonic acid (H_2CO_3).



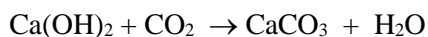
Therefore, carbon dioxide is regarded as an anhydride of carbonic acid. Carbonic acid is a weak dibasic acid and forms two series of salts namely: bicarbonates (hydrogen carbonates) containing HCO_3^- anion and carbonates containing CO_3^{2-} anion.



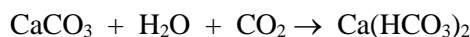
Thus, a solution of carbon dioxide in water is an equilibrium mixture of CO_2 , H_2CO_3 , HCO_3^- , and CO_3^{2-} . It may be noted that these equilibria play an important

role in carbonic acid-hydrogen carbonate ion buffer system in maintaining the pH of human blood between 7.26-7.42. Furthermore, the rate at which CO_2 comes in equilibrium with H_2CO_3 is slow and has significant role in the physiology of CO_2 . (

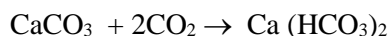
- (vi) Action with lime water: When CO_2 is passed through lime water (Ca(OH)_2), milkiness is produced due to formation of insoluble calcium carbonate.



However, on passing excess of CO_2 gas through the milky solution, the milkiness disappears due to the formation of calcium bicarbonate which is soluble.

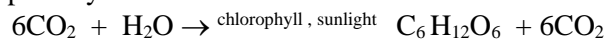


Or



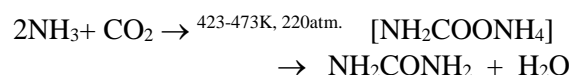
- (vi) Carbon dioxide can be readily liquefied under a pressure of 50-60 atm. at room temperature. When liquid carbon dioxide is allowed to evaporate rapidly, it changes to a solid called solid carbon dioxide. The solid carbon dioxide is also called dry ice because it looks like ice. However, unlike ordinary ice, it does not wet a piece of cloth because it sublimates (changes to vapours without melting). It is a soft, snow like substance. It is used as refrigerant for ice-cream and frozen food. Mixed with ether or acetone, it forms freezing with very low temperature and is used as a coolant for preserving perishable food stuffs. For example, a temperature of 196K (-77°C) is obtained by using a mixture of dry ice and acetone and a temperature of 165K (-108°C) is obtained by using a mixture of dry ice and ether.

- (vii) Photosynthesis: Carbon dioxide is absorbed by plants. In presence of chlorophyll (green colouring pigment of the leaves) and sunlight, the absorbed CO_2 combines with H_2O to form glucose and starch which are used as food by the plants. This process is called photosynthesis.



By this process plants prepare food for themselves as well as for animals and human beings.

- (viii) Action of ammonia: When CO_2 is reacted with liquid ammonia at 453-473K under a pressure of 220 atm. it first forms ammonium carbamate which subsequently decomposes to give urea.



Uses:

- In the preparation of aerated waters.
- As a fire extinguisher because it is a non-supporter of combination.
- In the manufacture of washing soda by solvay ammonia process.
- Solid carbon dioxide is used as a refrigerant under commercial name dry ice.
- For artificial respiration as a mixture of 95% O_2 and 5% CO_2 under the name carbogen.
- For the purification of cane sugar juice in the manufacture of sugar.
- In plants during photosynthesis of glucose, starch and cellulose.

Assignment

- When formic acid is treated with conc. H_2SO_4 , the gas evolved is -----
(A) H_2S (B) SO_2 (C) CO (D) CO_2
- Which of the following oxides is neutral?
(A) CO (B) SnO_2 (C) ZnO (D) SiO_2
- The correct order of C-O bond length among CO , CO_3^{2-} , CO_2 is -----
(A) $\text{CO} < \text{CO}_2 < \text{CO}_3^{2-}$ (B) $\text{CO}_2 < \text{CO}_3^{2-} < \text{CO}$
(C) $\text{CO} < \text{CO}_3^{2-} < \text{CO}_2$ (D) $\text{CO}_3^{2-} < \text{CO}_2 < \text{CO}$
- Which of the following is a combustion reaction?
(A) $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$ (B) $\text{CH}_4 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
(C) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ (D) all of these
- Which of the following statements is incorrect?
(A) CO is used as a reducing agent
(B) Ti(III) salts undergo disproportionation
(C) CO_2 is a green house gas
(D) SiO_2 is a covalent solid.
- The anhydride of carbonic acid is -----
(A) CO_2 (B) CO (C) SiO_2 (D) SnO_2
- When CO_2 is passed through water, which of the following species will be present in water?
(A) H_2CO_3 , CO_2 , CO_3^{2-} , HCO_3^-
(B) HCO_3^- , CO_3^{2-}
(C) CO_3^{2-} , CO_2
(D) H_2CO_3 , CO_2
- Water gas is a mixture of -----
(A) CO_2 and H_2O (B) CO and H_2O
(C) CO and H_2 (D) CO and N_2
- Supercritical CO_2 is used as -----
(A) dry ice

- (B) fire fighting
(C) a solvent for extraction of organic compounds from natural sources
(D) a highly inert medium for carrying out various reactions
10. Identify the correct resonance structure of carbon dioxides from the following:
(A) $O-C\equiv O$ (B) $O=C=O$
(C) $O\equiv C-O^+$ (D) $O-C\equiv O^+$
11. Dry ice is -----
(A) solid NH_3 (B) solid SO_2
(C) solid CO_2 (D) solid N_2
12. The linear shape of CO_2 is due to -----
(A) sp^3 hybridisation of carbon
(B) sp hybridisation of carbon
(C) $p\pi - p\pi$ bonding between carbon and oxygen
(D) sp^2 hybridisation of carbon
13. Poisonous gas present in the exhaust fumes of automobiles is -----
(A) C_2H_2 (B) CO (C) CH_4 (D) CO_2
14. Producer gas is a mixture of -----
(A) CO and H_2 (B) CO_2 and H_2
(C) CO and N_2 (D) CO_2 and N_2
15. $A(g) + Cl_2(g) \rightarrow D \xrightarrow{NH_3\Delta} E \xleftarrow{NH_3\Delta} B$
Identify A to E
(A) CO, $COCl_2$, NH_2CONH_2 , CO_2
(B) CO_2 , $COCl_2$, CO, NH_2CONH_2
(C) CO_2 , $COCl_2$, CO, NH_2CONH_2
(D) $COCl_2$, CO, NH_2CONH_2 , CO_2
16. CO is poisonous due to the formation of -----
(A) carboxyhaemoglobin which is reversible
(B) oxyhaemoglobin which is irreversible
(C) carboxyhaemoglobin which is about 300 times more stable than the oxygenhaemoglobin complex
(D) none of these
17. The temperature of the earth and other bodies on the earth increases. This is called -----
(A) greenhouse effect (B) greenhouse gas
(C) combustion (D) photosynthesis
18. Carbon dioxide is utilised by plants ----- and ----- gas is released into atmosphere.
(A) photosynthesis, oxygen
(B) photosynthesis, carbon monoxide
(C) greenhouse effect and oxygen
(D) none of these
19. For artificial respiration as a mixture of 95% O_2 and 5% CO_2 called -----
(A) carbogen
(B) carboxyhaemoglobin
(C) oxyhaemoglobin
(D) none of these
20. When compound A is heated at 1600K, compounds B and C are obtained. Compound C is passed through lime water, milkyness is produced. Identify A, B and C.
 $A \xrightarrow{1600K} B + C$
(A) $CaCO_3$, CaO, CO_2
(B) CaO, CO_2 , $Ca(OH)_2$
(C) CaO, $CaCO_3$, CO_2
(D) $CaCO_3$, CO_2 , CaO

1. (C) 2. (A) 3. (A) 4. (D) 5. (B) 6. (A) 7. (A) 8. (C) 9. (C) 10. (B)
11. (C) 12. (B) 13. (B) 14. (C) 15. (A) 16. (C) 17. (A) 18. (A) 19. (A) 20. (A)

ANSWERS



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

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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

We are about to sacrifice our civilization for the opportunity of a very small number of people to continue to make enormous amount of money...

But it is the sufferings of the many which pay for the luxuries of the few...

You say that you love your children above everything else. And yet you are stealing their future.

- Greta Thunberg

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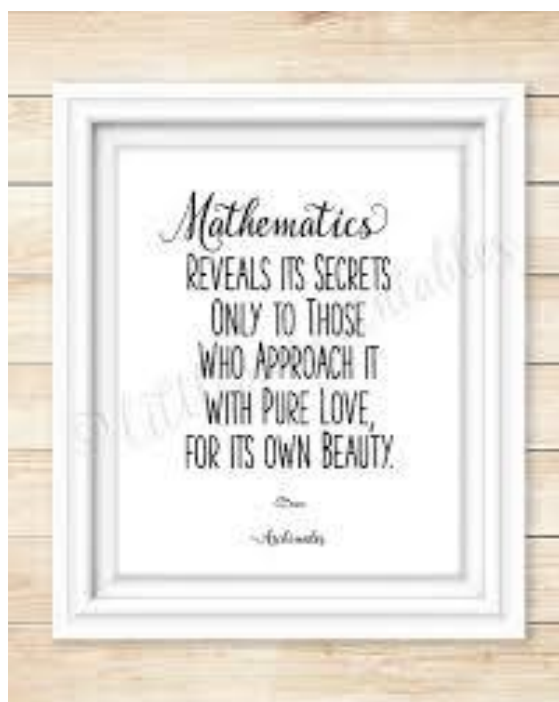
Nature is a beautiful integration of different entities. Mathematics and science only discover them.

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.

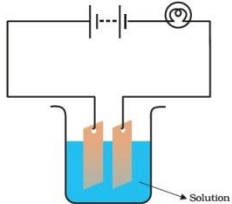
Yet they all complement each other.

Lest it not be there whole nature shall have to rediscovered

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SCIENCE QUIZ: May'2020**Kumud Bala**

1. Current in a conductor is due to -----
(A) motion of free electron in it
(B) motion of positive ions
(C) free electrons and holes
(D) protons
 2. An electric current can produce -----
(A) heating effect
(B) chemical effect
(C) magnetic effect
(D) chemical, heating and magnetic effects
 3. Which one of following solution will not conduct electricity?
(A) lemon juice (B) vinegar
(C) tap water (D) vegetable oil
 4. Which of the following metals is used in electroplating to make objects appear shining?
(A) iron (B) copper
(C) chromium (D) aluminium
 5. When electric current is passed through a conducting solution, there is a change of colour of the solution. This indicates -----
(A) the chemical effect of current
(B) the heating effect of current
(C) the magnetic effect of current
(D) the lighting effect of current.
 6. Which of the following solution will not make the bulb glow in figure?
(A) sodium chloride
(B) copper sulphate
(C) silver nitrate
(D) sugar solution in diluted water
- 
7. Iron objects can be protected by electroplating them with -----
(A) chromium (B) nickel
(C) zinc (D) all of these
8. Which of the following is not used for electroplating metal articles?
(A) nickel (B) silver
(C) chromium (D) sodium
 9. Electroplating prevents -----
(A) corrosion (B) passing of current
(C) dissociation (D) shining
 10. An electric lamp glows due to -----
(A) heating effect (B) magnetic effect
(C) chemical effect (D) physical effect
 11. An electrolyte is -----
(A) a metal
(B) a liquid that conducts current
(C) a non-metal
(D) none of these
 12. Waste from an electroplating factory must be disposed off -----
(A) in the nearby river
(B) in the nearby pond
(C) in the nearby cornfield
(D) according to the disposal guidelines of waste management bodies
 13. Which of the following is a good conductor?
(A) brick (B) steel
(C) plastic (D) cotton
 14. Why potato turns green on passing current? Around which terminal greenish patch is observed?
(A) potato turns green due to chemical effect of current. Around positive terminal greenish patch in potato is observed
(B) potato turns green due to magnetic effect of current. Around positive terminal greenish patch in potato is observed
(C) potato turns green due to heating effect of current. Around negative terminal greenish patch in potato is observed
(D) potato turns green due to chemical effect of current. Around negative terminal greenish patch in potato is observed.
 15. Why electric fires are extinguished with either using CO₂ extinguisher or mud but not water?
(A) as water is a good conductor of electricity so it can cause electrocution. Hence, water is avoided in extinguishing electric fires.
(B) as water is a bad conductor of electricity so it can cause electrocution. Hence, water is avoided in extinguishing electric fires.

- (C) as water is a good conductor of electricity so it can cause electrocution . Hence, water is used in extinguishing electric fires.
(D) none of these.
16. One of the most common application of chemical effect of electric current is -----
(A) good conductor
(B) electroplating
(C) chromium
(D) electrode
17. Good conductors are called -----
(A) the substances that conduct electricity through them
(B) the substances that do not conduct electricity through them
(C) the substances that made up of rubber or plastic conduct electricity through them
(D) none of these.
18. What is the full form of LED?
(A) light emitting diode
(B) light energy diode
(C) light electricity diode
(D) none of these
19. An LED is more efficient device than a bulb because ----
(A) it can glow even when a weak or less current flows through it
(B) it cannot glow when a weak or less current flows through it
(C) it can glow only when a strong current flows through it
(D) none of these
20. A layer of zinc is coated over iron because -----
(A) it prevents iron from corrosion and rust
(B) it does not prevent iron from corrosion and rust
(C) it is an expensive process
(D) none of these
21. How can the magnetic effect of current be checked?
(A) by using magnetic compass
(B) by using a tester
(C) by using a bulb
(D) none of these
22. What is the disadvantage of electroplating?
(A) pollutants from electroplating industries are very harmful. Some chemicals are very lethal for both human and animals
(B) chromium coating on metals give luster to objects
(C) it can make more reactive metals like iron less reactive
(D) none of these.
23. The decomposition of an electrolyte when electricity is passed through it, is called-----
(A) conduction (B) coating
(C) electrolysis (D) electro refining
24. The electrode connected to the positive terminal of a battery, is called -----
(A) anode (B) pole
(C) cathode (D) photo diode
25. A cell is an example of conversion of -----
(A) magnetic energy into chemical energy
(B) electrical energy into chemical energy
(C) chemical energy into electrical energy
(D) chemical energy into magnetic energy

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(Answers to this Science Quiz shall be provided in Monthly e-Bulletin)

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Education breeds confidence.

Confidence breeds hope.

Hope breeds peace.

- Confucius

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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 ...*