GYAN VIGYAN SARITA:शिक्षा

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A Small Step Towards Greater Independence



Grooming Competence to Compete Among Unprivileged Children





With a Sense of Personal Social Resposibility (PSR)



Interactive Online Mentoring Sessions (IOMS)

Happy

Independence



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Aim at the Best, but...



Equipments at Mentoring Center 1.Desk-/Lap-top (Linking platform : cloud based with as low bandwidth as 2. WebCam 3. Headset with Microphone 4. Digital Pen AND

Broadband-Internet Connection

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

Cloud Internet

possible for seamless connectivity of audio-video

whiteboard across nodes where internt connectivity is

poor- Presently A-VIEW is in use)



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 computer, internet modern 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



Mentoring

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Learning Centre - n



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www.gyanvigyansarita.i n/contact/



Learning

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Learning

Centre

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

Infrastructura	l requirement f	or Centers in	Interactive	Online	Mentoring	Sessions	(IOMS)
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Learning Center (if asked for by	y Mentor)	Mentoring Center (if asked	l for by Mentor)						
	Estimated Ca	pital Cost (One Time)							
Particulars	Cost (in Rs)	Particulars	Cost (in Rs)						
Desktop (without monitor)	20,000	Laptop	25,000						
Projector	15,000	Projector	-						
Web camera	10,000	Web camera	-						
Mixer cum amplifier with Speaker and	15,000	Headset with Microphone	3,000						
Wireless microphones									
Wireless Surface Writing device	15,000	Wireless Surface Writing device	15,000						
Total	75,000		43,000						
Estimated Recurring Cost									
Internet charges, based on estimated mor	nthly data transfer	Internet charges, based on estimated n	nonthly data transfer which						
which depends upon choice of cloud platf	form, and tariffs of	depends upon choice of cloud platform, an	nd tariffs of ISP						
ISP									
Cloud platform :									
a. A-VIEW indegeneously devel	oped by Amrita	IOMS is since an initiative drive	en with Personal Social						
University. It is found to be bes	t among available	Responsibility (PSR) operating n Zero-Fund-&-Zero-Asset (ZFZA)							
options for use in IOMS. It has b	been developed for	basis, the Cloud Platform has to provided by Learning Centers for							
use in imparting Interactive (Online Education,	deriving benefit of IOMS. Gyan Vigyan Sarita will be pleased to							
with bilateral audio-visual access	s, in an interactive	connect Learning Centers for collectively complementing the cost							
manner. Cloud platform.		of Cloud Platform, whenever payable, for arriving at a mutual							
		agreement for cost sharing.							
b. The IOMS envisages session up	pto Five Learning								
Centers. Charges for the pl	atform whenever	So also IT Infrastructure with the Men	itors has been in use and is						
payable may be shared ac	cross in mutual	working. But, at any stage if upgradation becomes essential,							
agreement between Learning Cer	nters.	support of learning centers, beneficiaries of the initiative, is							
		gratefully welcomed on ZFZA basis.							
c. Benefit of sharing of charges	of cloud platform								
can be optimized with offset o	f schedule among	Operating cost of Mentor, if require	ed, shall be supported by						
multiple sessions of IOMS, to	the extent Mentor	Learning Centers							
can deliver.									

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 centers and mentoring centers.

These specifications have been updated based on experience of operation of IOMS with available options. Whiteborad application in the tried out cloud platforms are a bit inadequate in terms of writing lucidity. This deficiency is being managed with Microsoft OneNote application. Suggestions for a proper Whiteboard application as a shared space are welcomed; it will be extremely helpful in exploiting Interactive feature of IOMS with a wireless surface-writing device at each learning center.

Web Camera: Logitech HD 1080p, with a tripod or wall mounting

Projector: Portronics LED Projector Beam 100", 100 Lumen, 130" Screen size, 800x480px resolution

Mixer-cum-Amplifier: Ahuja Make PA Mixer Amplifier Model DPA-370, 30 W Max/37W Max, with Two Cordless Mikes and Speakers. This device offers echoless input/output communication with base computer and Mikes and Speakers in the Class.

Cloud Platform: A-VIEW (Amrita Virtual E-Learning World) developed by Amrita University in association with IIT Bombay, an MHRD, GOI sponsored project.. Problems with Whiteboard functionality of A-VIEW are being circumvented with OneNote app of MS Office for IOMS. This has many features of minimizing bandwidth requirements.

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

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

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

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जीवन की आवश्यकता: संवेदनशीलता

विश्वभर में, 19 अगस्त का दिन, विश्व मानवीय दिवस (WORLD HUMANITARIAN DAY) के रूप में मनाया जाता है। यह वह दिन है, जिसको मनाने से हर पृथ्वीवासी अपने अंदर यह ज़ज़्बा पैदा करता है कि वह मानवीय कार्यों को स्वयं तो करेगा ही, औरों को भी करने के लिये प्रोत्साहित करेगा।

विश्व मानवीय दिवस, वह दिन है, जब हम विश्वभर में उन लोगों की पहचान करते हैं, जो विषम परिस्थितियों के बावजूद भी दूसरों की मदद के लिये तैयार रहते हैं। यह वह दिन है, जब हम मानवीय कार्यों को करते हुये अपनी जानें गंवा देने वाले लोगों को श्रद्धांजलि अर्पित करते हैं।

हर वर्ष लाखों लोग विभिन्न प्रकार की आपदाओं से विश्व के हर कोने में प्रभावित होते हैं और अपने जान-माल की हानि उठाते हैं। इन आपदाओं में कुछ प्राकृतिक होती हैं, और कुछ मानव-निर्मित। मानव-निर्मित आपदाओं की संख्या, प्राकृतिक आपदाओं की संख्या से अधिक रहती हैं। सरकारें आपदा की स्थिति में खड़ी जरूर होती हैं, पर उनके हाथ प्रायः कई राजनीतिक कारणों से बंधे रहते हैं।

आपदा की स्थिति में सबसे अधिक प्रभावी ढंग से, वे लोग काम करते हैं, जिनके अंदर दूसरों की सेवा करने का अंतर्मन रहता है।

दूसरों की मदद के लिये समय, असमय हमेशा खड़े रहने वाले लोग भी हम आप जैसे ही होते हैं। बस, अंतर यह होता है कि उनके अंदर दूसरों की मदद का जुनून होता है, और हम किसी की सहायता करने से पहले, अपने फायदे व नुकसान के बारे में ही सोच-विचार करने में समय व्यर्थ कर देते हैं।

आपत्कालीन सहायताओं में कुछ राजनेता, राजनीति करने लगते हैं और अपने स्वार्थ को ध्यान में रखकर काम करते हैं जबकि विपदा में फंसे व्यक्ति को राजनीति और उन नेताओं के स्वार्थ से कोई लेना देना नहीं होता है, उसका तो सर्वस्व छीन चुका होता है। राजनेताओं की यह असंवेदनशीलता बहुत नुकसानदायक होती है।

मानवीय सहायता कर्मी, सेना, पुलिस के जवान, आपदा प्रभावित लोगों की सहायता करते समय, उनकी राष्ट्रीयता, धर्म, जाति, लिंग आदि का ध्यान नहीं रखते हैं। वे निष्पक्ष होकर स्वतंत्र भाव से सहायता करते हैं। वर्ष 2003 में 19 अगस्त के दिन, संयुक्त राष्ट्र के बगदाद स्थित मुख्यालय पर बम से हमला हुआ। इस बम के हमले में 22 लोगों की जानें चली गयीं। इन मरने वालों में संयुक्त राष्ट्र के दूत सर्गियो वियेरा डी मेल्लो भी थे। वास्तव में, संयुक्त राष्ट्रसंघ इन्हीं मरने वाले लोगों की याद में, यह दिन मनाता है।

संपादकीय

इस दिन को मनाने का एक कारण यह भी है की हम इंसानियत की रक्षा के लिए सजग रहें। ईराक, नाईजीरिया, सीरिया, यूक्रेन, भारत, पाकिस्तान, अफगानिस्तान आदि अनेक देश हैं, जहां इंसानियत को खत्म करने के लिये आतंकी संगठन निगाहें लगाये हैं।

हम आम आदमी में मानवीय संवेदनशीलता पैदा करके ही आतंकवाद से लड सकते हैं और इसे खत्म कर सकते हैं।

यह सच है कि हम हर एक की सहायता नहीं कर सकते हैं क्योंकि हमारे संसाधन सीमित होते हैं लेकिन इन सीमित संसाधनों के साथ हम कुछ की सहायता अवश्य कर सकते हैं। यही कुछ की सहायता, धीरे- धीरे बहुत बड़ी सहायता हो जाएगी और मानवीय संवेदना का उदाहरण बन जाएगी।

मानवीय सेवा यह सोचकर नहीं की जाती है कि इससे हमें कोई लाभ मिलेगा। मानवीय सेवा यह सोच कर की जाती है कि ईश्वर ने हमें इस पृथ्वी पर इसलिये भेजा है कि हमें उसकी बनायी मानवीय धरोहर को मिटने नहीं देना है। मानवीय सहायता यह सोचकर की जाती है कि हर एक मनुष्य का जीवन कुछ अच्छा देने के लिये हुआ है लेकिन कब? जब वह बचा रहेगा।

मार्टिन लूथर किंग का मानना था कि प्यार से ही हम अपनी सभ्यता और अपने संसार की रक्षा कर सकते हैं। हमें अपना प्यार अपने दुश्मनों के प्रति भी जिंदा रखना चाहिये। दलाईलामा के लिये तो दयालुता से बड़ा कोई धर्म ही नहीं है।

संवेदनशीलता वह मानवीय गुण है जो एक दूसरे के प्रति दर्शाने से बढ़ती है। संवेदनशील व्यक्तित्व वह है जो यह याद रखता है कि उसने कब, कहां, और किसके साथ पहली बार संवेदनशीलता दिखायी थी और उसका क्या परिणाम रहा था?



मानवीयता सिखाती है कि सहायता के कार्यों में हमारा विश्वास खत्म नहीं होना चाहिये, इसमें धैर्य की बहुत जरूरत होती है और यह एक समुद्र है।

हम जानते हैं कि अगर समुद्र में कुछ गंदी बूंदे मिल जायें तो भी समुद्र गंदा नहीं होता है। ठीक इसी प्रकार अगर मानव समाज में कुछ गलत लोग हैं, तब भी मानवता कभी खत्म नहीं होगी।

मानवीय कार्य करने के लिये केवल एक गुण की जरूरत होती है और वह है, हिम्मत। यह वह दिमागी ताकत है जो हमेशा सम्मान के बहुत नजदीक होती है। हर हिम्मती व्यक्ति ही सम्मान का अधिकारी बनता है।

जब हम किसी की सहायता कर रहे होते हैं, तब वास्तव में, हम अपना भला ज्यादा कर रहे होते हैं क्योंकि उस मानवीय काम से हम सुरक्षा की तरफ बढ़ रहे होते हैं।

हमें मानवीय सहायता के लिये किसी जादुई शक्ति की जरूरत नहीं पड़ती है, बल्कि हमें अपने अंदर झांकनाभर होता है और उस शक्ति को पहचानना होता है जिसकी उस समय हमें जरूरत है क्योंकि सबकुछ तो हमारे अंदर ही है।

मानवीयता एक आचरण है जो एक मानव, दूसरे के साथ दिखाता है। इससे दोनों को खुशी होती है, और पूरे समाज का भला होता है।

एक अपाहिज व्यक्ति को एक स्थान से दूसरे स्थान तक उसकी जरूरत के अनुसार पहुंचा देना, एक मानवीय कार्य है, बशर्ते हम इस कार्य को दयाभाव से न करके, अपनी जिम्मेदारी समझ कर करें।

मानवीय कार्य क्या हैं, इसे बहुत सुंदर तरीके से कवि ने लिखा हैः

परहित सरिस धर्म नहिं भाई,

पर पीड़ा सम नहिं अधमाई

अर्थात् दूसरों की पीड़ा के समान कुछ भी अधर्म एवं निकृष्ट नहीं है और दूसरों की भलाई जैसा कोई अच्छा कार्य नहीं है।

प्रकृति के कण-कण में मानवता समाई हुयी है। जिस तरह वृक्ष अपना फल नहीं खाता है, नदी अपना जल नहीं पीती है, सूर्य-चंद्रमा अपनी रोशनी दूसरों को देते हैं, ठीक उसी प्रकार हमें भी अपने स्रोतों को औरों के उपयोग के लिये खुला रखना चाहिये।

अपनी आंखें और शरीर के अन्य महत्वपूर्ण अंग जो हमारी मृत्यु के बाद दूसरों के लिये उपयोगी हो सकते हों, हमें अपने जीवनकाल में ही, दान कर देना चाहिये। हमारे इस दान से हमारा कोई नुकसान नहीं होता है। हां, अगर हमने ऐसा नहीं किया तो ये सभी अंग, हमारी मृत्यु के बाद, नष्ट जरूर हो जाते हैं। हमारे अंग-दान से दूसरों को जीवन पाने का, उसे जीने का, और दुनिया देखने का आनंद जरूर मिलता है।

भारतीय दर्शन, सर्वे भवंतु सुखिनः सर्वे संतु निरामया: अर्थात् सभी सुखी हों और सभी निरोग हों, की प्रार्थना की शिक्षा देता है। मैथिलीशरण गुप्त ने मानवीयता के लिए लिखाः

यही पशु प्रवृत्ति है कि आप आप ही चरें वही मनुष्य है कि जो मनुष्य के लिये मरे

भारतीय इतिहास अनेक मानवीय कार्यों से भरा पड़ा है, जो हमें सोते-जागते प्रेरणा देते रहते हैं।

प्राचीन काल में एक परम तपस्वी हुये, महर्षि दधीचि। उनके पिता का नाम अथर्वा और माता का नाम शांति था। दधीचि वेद-शास्त्रों के ज्ञाता, परोपकारी और मानवीय कार्यों को करने के लिये प्रसिद्ध थे। वृत्रासुर नामका एक दानव अपने अत्याचार से सबको कष्ट दे रहा था। देवताओं के आग्रह पर दधीचि ने अपना शरीर उनको दान दे दिया। उनके शरीर की हड्डियों से वज्र का निर्माण हुआ और उससे वृत्रासुर सहित सभी दानवों का संहार हुआ। नश्वर शरीर का लोकहित में उपयोग का यह एक बहुत बड़ा उदाहरण है।

हमें नहीं भूलना चाहिये कि अगर हम भूखों को रोटी खिलाकर, भूले-भटकों को सही रास्ता दिखाकर, अशिक्षितों को शिक्षित करके, आतंकवादियों की खबर पुलिस, प्रशासन को देकर, और आतंकियों के बहकावे में आये युवकों के दिलों को बदलकर विकास के कामों में लगाने का प्रयास करें, तो यह बहुत बड़ा मानवीय कार्य होगा।

ईश्वर ने मनुष्य को संसार में स्नेह, सहानुभूति, संवेदनशीलता, दयालुता, करूणा आदि गुणों से सजाकर सुख और शांति का निर्माण करने के लिये भेजा है, जिससे समाज की उन्नति हो व सभी खुशहाल रहें।

हमें विचार करना होगा कि आखिर वे क्या कारण हैं कि इंसान इतना बदलता जा रहा है? वह इतना बुद्धिमान होते हुये भी, मानवीय मूल्यों के प्रति खोखला कैसे होता जा रहा है? लोगों के दुःख-दर्द को बांटने की इंसानियत के कार्य को छोड़कर, वह उनकी पीठ में खंजर चुभोने में आनंद क्यों ढूंढ़ने लगा है? वह किसी लाचार से भी छल-कपट करने में संकोच क्यों नहीं कर रहा है? अगर हम किसी की सहायता करते समय एक बार यह सोच लें कि अगर ऐसी परिस्थिति हमारे साथ होती तो, हम क्या महसूस करते, और क्या अपेक्षा करते, तब हमें पीड़ितों के दःख-दर्द को समझने में अधिक समय नहीं लगेगा।

मानवीय कार्य यही नहीं है कि प्राकृतिक आपदा की अवस्था में, या आतंकी हमले में घायल लोगों की सहायता के लिये हम वहां पहुँच जायें, उनकी मदद करें, उन्हें अस्पताल पहुंचायें, उनका उपचार करायें, भविष्य में फिर ऐसा न हो, इसके लिये चेष्टा करें बल्कि यह है कि कठिन परिस्थिति से निबटने के बाद हम अपने स्तर से उनके पुनर्वास और शिक्षा के बारे में विचार करें। ज्ञानविज्ञानसरिता एक ऐसा ही संस्थान है जो अपने सीमित संसाधनों के साथ बुजुर्ग बुद्धिजीवियों के सहयोग से, दूरस्थ शिक्षा के माध्यम से स्कूलों में बच्चों को उच्चस्तरीय गणित और विज्ञान की शिक्षा, निःशुल्क दे रहा है।

ज्ञानविज्ञानसरिता परिवार का निःस्वार्थ व समर्पण भाव से किया जा रहा शिक्षण-कार्य, समाज के प्रति संवेदनशीलता का प्रतीक है, और विश्व मानवीय दिवस के अवसर पर, मानवता के कार्यों में लगे लोगों के प्रति सच्ची श्रद्धांजलि है। जय भारत!

·00-

Go not to the temple

Go not to the temple to put flowers upon the feet of God, First fill your own house with the Fragrance of love and kindness.

Go not to the temple to light candles before the altar of God, First remove the darkness of sin, pride and ego, from your heart.

Go not to the temple to bow down your head in prayer, First learn to bow in humility before your fellowmen. And apologise to those you have wronged.

Go not to the temple to pray on bended knees, First bend down to lift someone who is down-trodden. And strengthen the young ones. Not crush them.

Go not to the temple to ask for forgiveness for your sins, First forgive from your heart those who have hurt you!



Rabindranath Tagore

-00—

19 अगस्त, विश्व मानवीय दिवस पर....

उबंदू – UBUNTU (Marathi Movie) Title Song

मूल काव्य

हीच अमुची प्रार्थना, अन् हेच अमुचे मागणे माणसाने माणसाशी, माणसासम वागणे ।

भोवताली दाटला, अंधार दुःखाचा जरी, सूर्य सत्याचा उद्या, उगवेल आहे खात्री, तोवरी देई आम्हाला, काजव्यांचे जागणे माणसाने माणसाशी, माणसासम वागणे।

धर्म, जाती, प्रांत, भाषा, द्वेष सारे संपू दे, एक निष्ठा, एक आशा, एक रंगी रंगू दे, अन् पुन्हा पसरो मनावर, शुद्धतेचे चांदणे, माणसाने माणसाशी, माणसासम वागणे।

लाभले आयुष्य जितके, ते जगावे चांगले पाउले चालो पुढे.., जे थांबले ते संपले घेतला जो श्वास आता, तो पुन्हा ना लाभणे माणसाने माणसाशी, माणसासम वागणे

हिंदी अनुवाद

यही हमारी प्रार्थना और यही हमारी चाह है , हर इंसान, इंसान से, इंसान की तरह ही रहे।

चहुँ ओर छाया हो अँधेरा हो भलादुःख का , सूर्य सत्य का कल ऊगेगा यह हमें विश्वास है, दे हमें धीरज कि हमजागें जुगनुओं की तरह , हर इंसान, इंसान से, इंसान की तरह ही रहे।

धर्म, जाती, प्रांत, भाषा, द्वेष सारे मिट सकें, एक निष्ठा, एक आशा, एक रंग में रंग सकें, और सबके मन पर छाये शुद्धते की चांदनी, हर इंसान, इंसान से, इंसान की तरह ही रहे।

जीवन जितना है मिला वो कर सकें हम सार्थक हर कदम आगे बढ़े...., जो रुके वह आखरी, साँस जो हम ले रहे, वह फिरन मिल पायेगी, हर इंसान, इंसान से, इंसान की तरह ही रहे।

Ubuntu is a South African word,; it means in English - Compassion and humanity. A movie in Marathi language was produced and directed by <u>Pushkar Shrotri</u>. This title Song was written by Shrirang Godbole and Musiv by Kausal Inamdar.



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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: RT&T**, 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 20^{th} 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 <u>Gyan-Vigyan Sarita: शिक्षा</u> is aimed to continue endlessly, till we get your तन and मन support in this sefless educational initiatice 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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"A hundred times every day I remind myself that my inner and outer life are based on the labors of other men, living and dead, and that I must exert myself in order to give in the same measure as I have received and am still receiving."

Albert Einstein

-00-

Nothing is more important in our national life than the welfare of our children.

- Harry S. Truman (33rd President of the US)

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Power of Selflessness?

Coordinator's View

In India most of the spiritual discourses and sermons directly or indirectly refer to – कर्मण्येवाधिकारस्तेमा फलेषु कदाचन । मा कर्मफलहेतुर्भुमति संगोऽस्त्वकर्मणि॥

You have a right to perform your prescribed duty, but you are not entitled to the fruits of action. Never consider yourself to be the cause of the results of your activities, and never be attached to not doing your duty. - Bhagavad Gita, Chapter II, Verse 47

It also said that 'hope breeds hopelessness'. This raises a fundamental question can life be meaningful without hope, expectation of fructification of efforts? If answer to this selfless life is assertive then what is the kind of life? Is that life purposeful? What is the power of selflessness?

Any action has inputs. The way inputs are sequenced and interleaved determine outcome. Any thoughtful person determines the inputs, their proportion, sequence and their interaction before initiating an action. These predeterminations are based on expected outcome. There it puts a question mark to understand \overline{rrept} \overline{rpt} \overline{rt} \overline{rt} *a myth or a reality?* Understanding the reality of the Bhagwat Gita's theme requires one to understand - *what is selflessness?*

Every action of a living creature may be driven by a natural urge or be it thoughtful, has a motive. Therefore human being the most intelligent creation of the nature is bound to perform actions as a result of complex regulation of physiological and psychological needs for survival in a considered manner.

It Indian mythology Ved Vyas could detach himself from the cause of birth of Pandu, Drutrashta and Vidhur executed under advise of his mother Satyavati, and leave the offspring to their respective destiny. But, that is not true in case of most of the children. Birth of a child, more than often, is a considered choice and, therefore, mostly parent tries to month, date, times and moderate environment pre/postconcept for grooming their offspring in a desired manner.

Birth of child, which is so natural, is when driven purposefully can there be any purposeless action. In every purpose there is a centrality which goes in to decide merit of the purpose on the scale of selflessness. Teacher (Guru) is a person who has privilege to be selfless. Teacher works continuously and consistently with passion and dedication. Despite, every deliberation on education is filled with criticism of prevalent state of educational competence while RTE has been in force for a decade since 2009 in India. This is not a subject of debate but a matter of deep meditation by every person be it accomplished, in administration, politician, teacher and educationist. It needs a review in the context of how Confucius saw the education "If your plan is for one year plant rice. If your plan is for ten years plant trees. If your plan is for one hundred years educate children." The decline in quality of education despite growing number, degrees and salaries it is an indicator of loss of selflessness among teachers. This raises a fundamental question what crime a teacher has done to remain selfless while every other person is racing for materialistic gains? India has proud culture of a socioeconomic balance where teacher (Guru) was most respectful person and the society including state took care of teacher and his family in highest esteem, and not to pity them. Today general notion is that a person, irrespective of his competence, if chooses teacher's career, he/she is branded as an unsuccessful person, who couldn't find employment in corporate world or a government office. In such a scenario, we despite having chosen to become mentor of unprivileged children with a sense of Personal Social Responsibility (PSR), we uphold the view that a teacher striving to compensate his socio-economic loss by any other means is certainly not wrong. Yet, is that a right direction of socioeconomic dynamics? Is selflessness a powerful virtue or a liability for self, family and society? Salient experiences, among numerous, during seven years in this initiative are being analyzed to find an answer to Power of Selflessness and are placed before readers to explore their own justifications.

Selflessness does not mean only detaching from materialistic gains. Gains can be even meta-physical, emotional or any other form which is neither measurable nor comparable. It is the gain which catalyzes cause of action and it pursuance. It is the वस्धैव कृटुम्बकम through परमार्थ में स्वार्थ that makes selfless pursuit relevant, and not vice-versa. At this point again a question crops up as to - who can work selflessly? In this connection it is to be remembered that a strong, capable and competent person alone can work selflessly to support persons who are not as privileged as they ar. Parasites like creeper have no choice but to be dependent. This is where motive behind selflessness takes central place. If selfless actions are driven with charity, mercy, help or donation it is the easiest thing to do, for those who can afford. It is driven with the philosophy of स्वान्तः सुखाय and thus fall in the category of स्वार्थ में परमार्थ, a sense opposite to the subject matter.

Availability of a selfless person is an opportunity of association for those who are convinced that selfless is a desirable virtue to do well and pursue it for the larger interest. Moreover, working selflessly in either difficult or adverse circumstances is confronted with ground realities. This requires a judicious patience to maintain drive amongst persons connected on the ground. At the same time aggressive persuasion of the cause is essential so that complacence, for the reasons beyond control, is not allowed to creep in among person in-line with the mission.

Selflessness is never random and a manifestation of an inspiration arising out of strong conviction for certain actions. There could be some error in either conviction or circumstances leading to certain conceptual aberrations. Since selfless person has nothing to gain, whatsoever, and hence he is always open for value addition. Cause of action for the larger good is supreme for such a person and individuals are secondary. Hence his side is receptive without conflict of interest. A selfless person would always be available for value addition to his endeavour, and deserves necessary inputs for the larger good. This makes a selfless person at times candid when posed with untenable propositions or arguments.

There is another side of the same phenomenon with selfish persons. He sees the selfless person as a thorn in the way and, therefore, desperate to root out each and every thorn in accomplishment of selfish motive. Therefore, he unknowingly becomes irrational and ill tolerant to any selfless advances. These are seen as a threat to self-existence.

There is third side of the phenomenon. A person is selflessly driven but has many riders to take along the systems constrained by many orthodoxies, obsolete practices and notion in a desired manner or direction. His survival in the system is a necessity for him to be able to contribute for the necessary change. Therefore, such a person may not always be able act as expected of a selfless person, yet such persons have moral courage to positively respond to critic ism.

Basic philosophy of marketing and presentation is to present all positives in a manner that either negatives if any is camouflaged are it creates an illusion free of any negatives. This fundamentally wrong as there is always some adverse associated with everything that is good. Therefore, for a person holding responsible position has to be judicious in disbursement or allocation of resources to different players. Simply demonstration of positivity by taking stake-holder on face value might end up in making wrong choices which can be either seen as abuse of authority or competency to hold position bestowed upon the person. This is the reason that many times incumbents delay their decision process unless there is an emergency. This notion of judgment process is correlated to the spiritual pursuit through तपस्या (Tapasya) in Indian mythology, there is no equivalent word for it in English and calling it penance which in Hindi is प्रायश्चित (Prayashchit) a very different meaning. In the mythology, attainment of spiritual power was only possible through long and tedious tapasya. Degree and intensity of tapasya was a measure used by spiritual authorities to grant the power to its subjects. Sincerity in pursuit of tapasya was means to judge dedication, commitment and conviction on the need of spiritual power. There are instances in mythology when demons acquired spiritual power that were meant for larger good and used it to harm then civilization. Ultimately, GOD had to exercise its super-natural powers to destroy the

undeserving recipients of those spiritual powers. This philosophy is equally valid in real life during pursuit of selflessness and judgment of right subjects of selflessness.

Despite being an agnostic, the above discussions though drawn from mythological scriptures add to a pragmatic positivity to the kind of resistance, denial and distrust meted out in a selfless endeavour. The greater the retardation caused by different negativities to the selflessness, it is seen is an indication that -

- a) the efforts have not reached a level of maturity where one would be inclined to trust in actions and versions of selflessness,
- **b)** perversion in the surrounding has reached to a level that a truthful decision makers need more time to judge passion, conviction, continuity and commitment of selflessness.

Both the considerations are necessary to ensure that the selflessness is introspected by incorporation of the respective subjects and necessary refinements. This helps to reduce possibility of error in selflessness and thereby creation of a distrust in the event of a colossal aberration in premise. In this context famous story of <u>Baba Bharati and Kharag Singh</u> is worth recalling.

Prima facie, denial of right to hear a selfless proposition tantamount to blocking communication and interaction. It is only through interaction that it is possible to judge selflessness and need of correction in the proposition if any. At times it might look to be idiotic for a person to be selfless while every other person around has visible or hidden motive. If availability of such a person after due verification of his credentials is not promoted for larger good it is an idiocy of bigger order and is indicator of incompetency of an incumbent to hold the position.

One most important characteristic of selflessness is in its transparency and an openness to know scope of improvement. Primary reason behind transparency is the basic motive for the larger good beyond self. The more an observer indicts of aberrations more is an opportunity of refinement. In case indiction is not tenable conviction for the cause is reinforced. It is seen that despite an open offer to collectively complement for the educational competence of unprivileged children big players were not prepared to even know our initiative, moving together or complementing each other was the remotest possibility. *Why should an initiative proclaimed to be selfless, working for the larger good and preaching social welfare and pleading charity through donations from wherever available be so closed?* Answer is obvious.

While honesty is an indispensible ingredient of selflessness, it is equally important to be effective. Selflessness is neither of cosmetic nor ornamental importance. Selflessness is not in claiming but it is in performing. Attainment of effectiveness in selfless initiative at times may require to be ruthless to anything or anyone that is counterproductive. Since in selflessness objective is larger good with nothing to either gain or loose in person. This attaches propriety to such actions. It is very tough. Yet a person aggrieved by such strong actions may become more repellent only if he is a subject of a direct or indirect selfish intent. Otherwise, it may cause a momentary heart burning if the subject is selfless; as soon as the subject undergoes self-introspection, which is just a matter of time, a sense of penance or remorse would replace the anguish caused to him. With passage of time such a person would emerge with a stronger conviction and big force in pursuance of the selfless cause.

At times a selfless person may find self to be alone, especially when he is surrounded by people with vested interests. It is bound to create a conflict of interests with those having something to gain in person otherwise. Such persons would react hostile to selfless person. With the widening of conflict of interests the journey gets tougher and sharper. In such a situation the only recourses are to intensify efforts to -

- (a) counter anti-currents,
- (b) do role of others who dissociate in the process and
- (c) while playing ones own role manage actions, reactions and foreseeing or envisioning challenges ahead.

Case Study: The IOMS initiative had its beginning Seven years ago. It was started with a sense of Personal Social Responsibility (PSR). Since beginning it remained nonremunerative, non-commercial and non-political. It has gone many upheavals, interaction with proclaimed NGOs, interaction with some great personalities in social, business, corporate, administrative, and political domain. Without quoting any of them we decided to go forward in a nonorganizational manner. Our progress has been slow and we decided to pursue it with consistency, continuity and commitment with perseverance. Nevertheless, we have encountered few individuals who initially appreciated our concern. Yet response to our concern was far below expectations. As a strategy we expressed our candid views on their responses and are classified in three categories-

- (1) Those who had selfish motives dissociated from us,
- (2) Those who were unable to choose a forward path were in two sub-categories-
 - (a) susceptible to reform and the impulse worked,
 - (b) those not susceptible to reform chose the way of those in first category,
- (3) there are always some selfless people. They took to the concern and waited for an opportunity to push it ahead. In this category we did come across some proactive selfless people and soon after knowing about this selfless initiative placed their full weight on it. These are the real torch bearers of reform. For them duty is a means of survival. But, they never lack behind in assuming responsibility to explore what more can be done to promote selflessness.

We have realized that in the journey of seven years we have gone lot of refinement. Taking a premise that had we been granted full trust and an easy pathway, we would have missed the refinement that we have undergone during the Tapasya. It could have lead to abuse or improper use of the prima facie trust and opportunities granted to us. It would have created ine more an unsuccessful story and a cause of caution to persons in incumbency of authority to facilitate any other genuine person. We would never even imagine to this to happen. Therefore, we take this opportunity to thank those who didn't take us on face-value and posed upon us a challenge to prove our worth.

This initiative of a small group of Four persons including Prof. SB Dhar. Smt Kumud Katval, and Shri Shailendra Parolkar, USA, has grown over Seven years on the path of selflessness in the form of Interactive Online Mentoring Sessions (IOMS) to groom competence to compete among unprivileged children. It is driven with a sense of Personal Social Responsibility (PSR). It is purely a nonorganizational, non-remunerative, non-commercial and nonpolitical initiative. Currently, along with this monthly e-Bulletin we have developed a Mentors Manual being supplemented with question banks, supported with illustrations; everything is a free web-resource with no financial attachment. Currently it is in English and gradually with widening of association of teachers from Hindi belt we envisage its Hindi version also. God willing its versions in other regional languages.

In this journey we take pride to cite names of some organizations that trusted us. These are Sarthak Prayash, Pooja Samiti Mahagun Moderne, Rajhans Kutumb, Amrita Univrsity, Ramkrishna Mission, Sitahnagram Vijaywada, Bharat Sewa Bharati, Jabalpur. In addition individuals also came forward to facilitate up-gradation, maintenance and resolving problems of this technology driven mission and they are - Shri Vijay Baleja, Shri Vijay Chandel, Shri Rakesh Tiwari, Shri Sameer Lal, Shri Prakash Deo, Shri Mukesh Tiwari, Shri Vijay Rajawat, Er. Abhinav Shrivastava, Shri Sanjay Shukla and a few more. We also thank all those individuals who by way of their response of non-acceptance gave us an opportunity to refine our propositions and take a re-plunge into it with stronger conviction; however, their names are deliberately skipped.

Conclusion: Trust bestowed upon us selflessly by sa few persons is the greatest virtue of our society. We believe that it demonstrates a **power of selflessness**. The Almighty is also waiting for our Tapasya to complete all riders of proving selflessness before it grants a wide acceptance to IOMS proposition as an opportunity to all elite persons to reach out to unprivileged children. It is just a small step towards a greater independence.

<u>An Appeal</u>: 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 9^{th} upto 12^{th} . 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 9^{th} and above at few Learning Centeres. Efforts are being made to integerate 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 <u>website</u> and operational aspects of can be online accessed at <u>IOMS</u>.

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

बिजली रानी, बड़ी सयानी

समाचार पढ़ा:

"मेसाचुसेट्सविश्वविद्यालय के वैज्ञानिकों ने प्रयोग कर दिखा दिया है कि अब बिजली के तार की जरूरत नहीं पडेगी। उन्होंने बिना तार के बिजली को एक स्थान से दूसरे स्थान पहूँचा कर दिखा दिया. वैज्ञानिकों ने बताया है कि यह रिजोनेंस नामक सिद्धांत के कारण हुआ है।"

यह खबर जहां एक तरफ खुशी देती है तो दूसरी तरफ न जाने कैसे कैसे प्रश्न खड़े कर देती है दिमाग में. अमरीका में तो चलो, मान लिया.

मगर भारत में?

एक मात्र आशा की किरण, वो भी जाती रहेगी. अरे, बिजली का तार दिखता है तो आशा बंधी रहती है कि आज नहीं तो कल, भले ही घंटे भर के लिए, बिजली आ ही जायेगी. आशा पर तो आसमान टिका है, वो आशा भी जाती रहेगी.

सड़कें विधवा की मांग की तरह कितनी सूनी दिखेंगी. न बिजली के उलझे तार होंगे और न ही उनमें फंसी पतंगे होंगी. जैसे ही नजर उठी और सीधे आसमान. कैसा लगेगा देखकर. आँखे चौंधिया जायेंगी. ऐसे सीधे आसमान देखने की कहाँ आदत रह गई है.

चिड़ियों को देखता हूँ तो परेशान हो उठता हूँ. संवेदनशील हूँ इसलियेआँखें नम हो जाती हैं. उनकी तो मानो एक मात्र बची कुर्सी भी जाती रही बिना गलती के. ये पंछी तो बेचारे चुपचाप ही बैठे थे बिना किसी बड़ी महत्वाकांक्षा के. पेड़ तो इन निर्मोहि मानवों ने पहले ही नहीं छोड़े. बिजली के तार ही एकमात्र सहारा थे, लो अब वो भी विदा हो रहे हैं.

विचार करता हूँ कि जैसे ही ये बिना तार की बिजली भारत के शहर शहर पहुँचेगी तो उत्तर प्रदेश और बिहार भी एक न एक दिन जरुर पहुँचेगी. तब जो उत्तर प्रदेश का बिजली मंत्री इस कार्य को अंजाम देगा वो राजा राम मोहन राय सम्मान से नवाज़ा जायेगा.

राजा राम मोहन राय ने भारत से सति प्रथा खत्म करवाई थी और यह महाशय, उत्तर प्रदेश से कटिया प्रथा समाप्त करने के लिए याद रखे जायेंगे. जब तार ही नही रहेंगे तो कटिया काहे में फसांयेंगे लोग. वह दिन कटिया संस्कृति के स्वर्णिम युग का अंतिम दिन होगा और

आने वाली पीढ़ी इस प्रथा के बारे में केवल



थोड़ा विश्व बैंक से लोन लेने में आराम हो जायेगा. अभी तो उनका ऑडीटर आता है तो झूठ नहीं बोल पाते, जब तक तार-वार नहीं बिछवा दें कि इस गाँव का विद्युतिकरण हो गया है. तब तो दिन में ऑडीटर को गाँव गाँव की हेलिकॉप्टर यात्रा करा कर बता दो कि १००% विद्युतिकरण हो गया है. तार तो रहेंगे ही नहीं तो देखना दिखाना क्या? शाम तक दिल्ली वापिस. पाँच सितारा होटल में पार्टी और लोन अप्रूव अगले प्रोजेक्ट के लिए भी.

एक आयाम बेरोजगारी का संकट भी है. अभी भी हालांकि

अधिकतर बिजली की लाईनें शो पीस ही हैं, लेकिन टूट-टाट जायें, चोरी हो जायें तो कुछ काम विद्युत वितरण विभाग के मरम्मत कर्मचारियों के लिए निकल ही पड़ता है. एक अच्छा खासा भरा पूरा अमला है इसके लिए. उनकाक्या होगा?

न तार होंगे, न टूटेंगे, न चोरी होगी. वो बेचारे तो बेकाम हो जायेंगे नाम से भी.

न मरम्मत कर्मचारियों की नौकरी बचेगी, न तार चोरों की रोजी और न उनको पकड़ने वाली पुलिस की रोटी. बड़ा विकट सीन हो जायेगा हाहाकारी का. कितनी खुदकुशियाँ होंगी, सोच कर काँप जाता हूँ. विदर्भ में हुई किसानों की खुदकुशी की घटना तो इस राष्ट्रव्यापी घटना के सामने अपना अस्तित्व ही खो देगी हालांकि अस्थित्व बचाकर भी क्या कर लिया. कौन पूछ रहा है. सरकार तो शायद अन्य झमेलों में उन्हें भूला ही बैठी है.

चलो चोर तो फिर भी गुंडई की सड़क से होते हुए डकैती का राज मार्ग ले कर विधान सभा या संसद में चले जायेंगे, जाते ही है, सिद्ध मार्ग है मगर ये बेकार बेकाम हुए मरम्मत कर्मचारी और पुलिस. इनका क्या होगा?

एक तार का जाना और इतनी समस्यायों से घिर जाना. कैसे पसंद करेगी मेरे देश की भोली और मासूम जनता!!

योजना अधिकारियों से करबद्ध निवेदन है कि जो भी तय करना, इन सब बातों पर चिन्तन कर लेना.

मेरा क्या, मैं तो बस सलाह ही दे सकता हूँ. भारतीय हूँ, निःशुल्क हर मामले में सलाह देना मेरा जन्मसिद्ध अधिकार है.



लोकप्रिय चिट्ठाकार समीर लाल व्यवसाय से चार्टर्ड एकाउंटेंट हैं। आजकल वे कैनैडा में रहते हैं। उन्होंने कहानी लिखना पाँचवीं कक्षा में ही शुरु 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।ई-मेल: <u>sameer.lal@gmail.com</u>



समीर लाल 'समीर'

Ayurveda- Health Care

Blood Disorders – Helpful Remedies

- Dr Sangeeta Pahuja

This article describes about the helpful Herbs and food items for the prevention and treatment of blood disorders. These are blood purifiers which help to remove the toxins and impurities from the blood. Liver, Kidney and lymphatic system are mainly responsible for the removal of toxins from the body.

Helpful Food Items and Herbs: Green vegetables: Green leafy vegetables like broccoli, cabbage, Brussels, sprouts, kale has such properties which helps in detoxifying the body and prevent us from diseases like cancer, diabetes etc.

Fruits: The regular intake of fruits builds the strong immunity. They reduces the risk of cardiovascular diseases.

Garlic: Garlic has antimicrobial properties, which helps with blood purification and keep the intestine free from bacteria, parasites and viruses. It has anti-cancerous properties also and a very good antioxidant.

Ginger: Ginger is the best anti inflammatory herb. As per research, ginger reduces the risk of colorectal cancer. It reduces cholesterol, lowers the risk of blood clotting and helps to maintain blood sugar levels. very helpful in case of cold and flu.

Onion: Onions are bactericidal. consuming half a onion per day will keep you away from common cold and flu.It enhances the smooth blood flow, lowers the cholesterol levels also.

The paste of onion is a very good disinfectant and helpful in case of insect bite skin problems.

As per the research studies Onions are helpful in reducing symptoms of diabetes mellitus and Asthma.Promote healing of stomach ulcers and reduces cancer tumor initiation.

Apple Cider Vinegar (ACV): It is a natural antibiotic to get rid of infection. It is acidic in nature but after metabolizing in the body, it helps to keep the body alkaline and maintain the PH levels. Consuming 1-2tsf ACV with one glass of water every day will keep your blood free of impurities.

Capsicum: It has been used to treat a wide range of problems like arthritis, Diabetes, Bronchitis, fatigue, migraine, psoriasis and urinary tract Problems. It is also powerful antioxidant. It contains so many nutrients like

vitamin A, B6, E, C and K and is a good source of minerals like Iron, magnesium, potassium and phosphorus.

The presence of vitamin B6 and folate helps lower the level of homocysteine, which prevents cardiovascular problems. Potassium in capsicum also responsible for maintaining blood pressure..

Peppermint: Peppermint is pitta pacifying and has antihistaminic properties, Thus used in allergic problems. It has been used as an anti-inflammatory and analgesic herb also. So Very helpful in cough, cold, sinusitis, and dysmenorrheal cases. Headache, nervine pain, toothache, inflammation of joints can be relieved by the use of peppermint

Dandelion: It is best blood purifier and pitta pacifying. It is a rich source of vitamin A,B,C and k. which are Essential for healthy blood. As Dandelion has diuretic properties, it flushes out the waste products. Dandelion roots and leaves are used to treat liver and kidney problems.

Broccoli Sprouts: It has detox properties to purify blood. It has been found very helpful in liver and kidney disorders. Broccoli can help to reverse the effect of Airborne Pollutants and detoxify the body.

Alfalfa: Alfalfa has so many nutritive properties. It acts as a diuretic and digestive. It has been used in gastrointestinal problems. It is helpful in softening the thickened arteries. thus helpful in maintaining the blood pressure.

Echinacea: Echinacea is a immune-modulator, natural pain reliever, natural laxative and anti inflammatory herb .So it has been used in Respiratory problems, skin problems since ages.

Burdock root: It has blood cleansing properties. It improves blood circulation and detoxify the blood.

Basil leaves: They are very helpful in the prevention of blood disorders. It contains vitamin A,K ,C,and good amount of minerals like calcium, potassium, manganese, copper. Basil leaves are excellent source of iron. These components of basil leaves help to fight many diseases and boost the immune system.

Guduchi: It is Tridosh shamak. Guduchi or Giloy is well known immune-modulator herb. It has been used for Blood Disorders, fever, Diabetes, Jaundice, Asthma, cardiac Disorders.

Amla: When it is taken with honey, it purifies the blood. The high level of Iron in Amla juice prevent Anemia by increasing the hemoglobin levels. Amla is a rich source of vitamin C.It contains around sixteen times more vitamin C than a glass of orange juice. Amla is the best immunemodulator. Adding a few drops of Amla juice to the nostrils can cure bleeding nose.

Aloe Vera: It is very good antioxidant and has antimicrobial properties. The leaf skin extract has animycoplasmic properties also.

Anantmool: It is pitta-pacifying and anti inflammatory. This is a potent blood purifier herb. This herb is used to treat many diseases. It is beneficial in many tooth related problems. It provides relief in Asthma and gastric problems. It enhance hair growth.

Manjishta: In Ayurveda Manjishta is described as effective blood purifier. It balances the aggravated Pitta in the body.

It improves appetite and useful in the treatment of diarrhea, dysentery, bleeding ulcers and urinary tract infections.

Pitpapda: In Ayurveda it is called kaphapitta hara, Raktdoshara. Very effective blood purifier and it is used to treat many skin problems.

Amarbel: It has been used in many Ayurveda preparations since ages. It is very good blood purifier. And it has been used for treating constipation, liver and spleen disorders It is carminative and antihelminthic.

Chopchini: This herb is Tridoshshamak. It is anti inflammatory, Antipyretic diuretic, anti-helminthic. It is used as blood purifier also. And very helpful in treating skin problems like psoriasis, leprosy and veneral diseases like syphilis. It reduces general debility also.

Beets: Beets stimulate the detoxifying enzymes in the blood, which helps in the cleaning of lymphatic system.

Turmeric: This is the best blood purifier. It has compound Curcumin, which had blood cleansing properties.

Cayenne pepper: It has Capsaicin, which has blood purification properties. It has the potential to destroy carcinogens.

Parsley: It has blood purifying agents and has diuretic properties, which helps in the elimination of wastes from the body.

Blue berries: It is a very good antioxidant, which helps in detoxifying the blood. Blueberries have been found helpful in the treatment of liver disorders.

Cranberry: Cranberries are the best source of antioxidants.Drinking cranberry juice is one of the best home remedies for urinary tract infection or cystitis (bladder infection). cranberry fruits are used in many problems like stomach ailments, diabetes and in the prevention of tooth decay.Cranberry also has antimicrobial properties.

Flaxseed: It increase the levels of detoxifying enzymes in the blood. Thus helpful in the prevention of many diseases.

Cat's claw: It has Diuretic properties, thus helps in the elimination of impurities.

Cilantro or coriander: It contains chlorophyll, which helps to detox the blood.

Lemon: Its juice has lot of healing properties It is very good antioxidant and blood purifier.

Lemon is rich in vitamin C,A,B1,B2,B3, carotene, citric acid, glucose, fructose and minerals. Thus it's an immune-modulator also.



Water: Drinking 10-12 glasses water per day detoxify our body and keep us away from many diseases. Know Ayurveda, Follow Ayurveda and Stay Healthy.

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

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Science in general and Physics in particular are not a subject to learn, but an area of observation and exploration by correlation, integration and analysis of repetitive nature, and then conclusion.

It is a real thrill, full of fun. But, it can't be done in dicrete manner, it has to be done patiently, like climbing

stair far a faster and purposeful journey.

This is where role of education come in; it is to streamline the process.

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The moment I have realized God sitting in the temple of every human body, the moment I stand in reverence before every human being and see God in him – that moment I am free from bondage, everything that binds vanishes, and I am free.

- Swami Vivekananda

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They are only saints or prophets who can keep forgiving evils. Anyone who supports and/or camoulfleges inactions or evils of others, on pretext of divinity or any other excuse is an accomplice in the evil. Such persons are against cause of the larger good and are opposed to the passionately committed selfless mission.

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There are two educations. One should teach us how to make a living, and the other how to live.

- John Adams

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There is No Waste

In this world when our Philosophy (Geeta) as well as Modern Science says nothing can be destroyed or its value diminished, WASTE is misnomer and a transit phenomenon, a creation of human mind and society.

Let us consider, material A is a useful thing and after use it's transformed or residual material is B for which presently we do not have any economic (also may be due to socio, religious reason) use. So in common language we call B as waste. But think a while, does its intrinsic value (of elements) lost? No. We discard B, because either we have not found any use for B or the alternative material C, for which B can also be put to use, is available at a lower cost or price. This price is the cost paid by customer for C and not the total cost incurred by society or nature in producing C. This can be illustrated by taking A and C as pure water and B as any impure water. Thus in spite of the fact that water scarcity is there, we continue to make available pure water at very low price, thus making process of purifying impure water (B) and make it comparable to A is relatively costly and never done at large scale. (Similarly, not in this context but, for example, the price paid by consumer for a kilogram of rice, wheat, sugarcane is very much less than the cost of producing if real cost of water is taken in to account). So basically nothing is waste, but it is our human society's value system that makes a useful product a waste.

However, these values and cost are Economic (demandsupply -price), Scientific (cost to change the form etc), Social (belief about use etc); they are dynamic and change with time and can be changed over time by proper policies. Take the example of Cow dung and urine, which, with more and more facts coming out about their utility and change of perception, these items have changed from a waste to important source of medicine and natural fertilizer. This has extended economic utility of cow beyond milk producing period. Let us hope in near future same will happen about all other animals, including human being's, excreta. In fact human excreta was also a source of fertilizer just a century ago, but in the name of progress and civilization we have adopted flush-mode system and a source has become a big water polluter (Sewerage reaching river and water bodies). Even today in many parts of country farmers request and pay shepherd (Gaderiya) to rest their sheep in their farm for a few days, so that farm can get organic manure. We are also witnessing once again a push to "Son Khad" (of human excreta).

Similarly, now for anything, however small may be, there is rethink and government, industry and society is pushing for reuse of waste material. Like making bio-fuel from agriculture waste, bricks from cement factory ash, roads from plastic waste and so on. New building of Supreme Court has used lot of waste building material. Further, in a bid to save Mount Everest from trash, a company conducted cleaning campaign and collected around 10,000 kg of rubbish from the region. The items were segregated, processed and recycled as raw materials for various products. From the waste collected, two tones have been recycled and sold online. RCube Charity Store in Pune is engaged in selling second hand durables received in donation. Thus apart from reusing the items it has been bridging the gap between the haves and have nots in Pune for seven years. Medals for Tokyo Olympic 2020 have been made of metal extracted from old items mostly e waste. In another example, since vear 2016 the Prof. Satish Kumar of Hyderabad has converted 50 tones of "end life" plastic (that cannot be recycled) in to fuel. At present, his company is producing 200 litre of petrol on a daily basis out of 200 kg of plastic and selling the same to local industries for Rs. 40/50 per litre. All kinds of plastics, except PVC and PET can be used without the need for segregation.

Above examples are miniscule compared to waste being generated and unfortunately, presently predominant thinking in waste management is, waste is inherent in human activities and production process and disposal is the only solution. This problem is aggravated by the fact that, many of human habits and social values are such that materials are discarded before their economic value ends. Similarly, even though technology has improved human life for better, it has contributed to generation of waste as old items are discarded quite early; add to this trick of marketing companies which for small value addition promote new product or shows earlier product, habits and values in poor light without any scientific proof. Further the generation of waste is directly proportion to prosperity of individual and community that makes many useful items (being well used earlier before prosperity) being discarded in the name of taste, liking and fashion etc. Like, discarding cars, clothes etc within short span of time, because something new has arrived or does not add to social prestige.

Even though not justifying inequality in society, it must be remembered that due to inequality many of above mentioned things are being reused and waste is being reduced by poor class of society. Similarly, many of packaging material, like bottles, plastic sheets carton etc, are being used by needy person as usable items. This list is endless and will still expand if we, by economic means (incentive /disincentive) and change of social behavior make reuse a movement. Problem is, the group which

Prakash Kale

misuses resources are looked up with admiration while, the group which uses the discarded items is looked down in society. This must be stopped and reversed. Rag pickers and Scrap dealers must be given proper social recognition.

We also need to change basics of Waste Management. Presently waste management (or waste disposal) is understood as the activities and actions required to manage waste from its inception (from the end of life for product) to its final disposal. This includes the collection. transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process. However, the aim of the waste management should be to extract the maximum practical benefits from products and to generate the minimum amount of end waste. The waste hierarchy should be represented as a pyramid because the basic premise is that policies should promote measures to prevent the generation of waste. The next step or preferred action is to seek alternative uses for the waste that has been generated i.e. by re-use. Further next is recycling which includes composting. Following this step is material recovery and waste-to-energy. The final action is disposal, in landfills or through incineration without energy recovery. This last step is the final last resort (should not be not the first) for waste which has not been prevented, diverted or recovered in spite of best effort.

To put in other words, thinking about low or nil generation of waste and treating it as intermediate product for reuse is still missing. This is stressing out the local bodies of its resources and creating hillocks of waste outside or inside city limits. Nobody is thinking why we need $\frac{1}{2}$ kg like pack for 50 gm of actual material inside it. The way advertisements are regulated it is time we regulate packaging industry also. Packaging is only one example, if we look around us we will find many of such practices which are very high on waste generation without being actually useful and needs to be phased out. Thus Waste management concept should be inbuilt the lifecycle of a product. It should begin with design, and then proceed through manufacture, distribution, and primary use and then follow through the waste hierarchy's stages of reduce, reuse and recycle. Each stage in the life-cycle offers opportunities for policy intervention (like pricing, certification etc), to rethink the need for the product, to redesign to minimize waste potential, to extend its use. Low waste generation product should be lower priced than high waste generation products. Product life-cycle analysis can be way to optimize the use of the world's limited resources by avoiding the unnecessary generation of waste.

In this respect we need to learn form Mother Nature which has her own "waste disposal" solutions in place for millions of years. Consider the tree outside our house: it

'disposes' off its leaves in autumn. In human world this is considered 'waste' and in haste sent to a landfill. Not so with Nature- the soil welcomes it's once -a- year feeding each autumn and sets breaking down the leaves nourish itself. It is really interesting to observe, how in Nature "One organism's waste is another's feast". Living bodies assemble themselves by eating, drinking and breathing in nutrients. After the death of body, disassembly is performed by organism called decomposers. Decomposers are organisms that transform the bodies of both plant and animals back into the basic constituents they were made from. Bio degradation with help of decomposers is a natural process that happens when micro organism, such as bacteria and fungi, secrets enzymes that chemically break down or degrade dead pants and animals. In other words, biodegradation means to rot or decay. It is actually nature's way getting rid of dead plants and animals or thing made from them. Thus bio-degradation is important for two reasons.

a. It causes the breakdown of the waste products and remains of dead organism so that they do not pile up.

b. It releases valuable nutrients into environment for reuse by other organism. But humans have a habit of making their environment messy.

In the animal world, we often speak of scavengers with contempt as cowardly, dishonorable creatures, who sneak up on the predators we admire and steal what they have caught. Yet they are the cleaners of the ecosystem. We need to realize that every part of nature including the scavengers and decomposers is essential for our own wellbeing.

Against nature of The Nature, which generates zero waste, as seen above Humen have a habit of making environment messy (just observe what we done to Mount Everest, within sixty five year when mankind put first foot on it, today it stands for a place full of trash and waste), deliberately or otherwise- oil, pesticides, toxic chemicals and other harmful materials ruin otherwise healthy ecosystem. Cleaning up of such wastes by conventional chemical or physical is both time consuming and expensive. Fortunately, for these also Nature has several processes in place for treating wastes and pollutant- oil spills are cleaned by microbes, which break down oil into methanol, water and carbon dioxide. There is one problem with these bacteria – what if they find their way to the oil wells? Natures also do have – toxic munching plants.

So coming back to start of article, material B which is today termed as waste is tomorrow's valuable resource. This conversion process, as described above can be manmade or natural. This tomorrow may be, one week (wet bio waste) or one million year (who knows, today's plastic waste dumped in sea may get converted in to fuel or under evolution, new species may emerge who can eat plastic and self survive and be part of nature's cycle). There is example of this in history, today's calcium, potassium etc is nothing but remains of dead animals and coal etc is nothing but transformed dead plants. Same way, a billion years ago oxygen was poisonous gas for that time's habitat but new species evolved for whom oxygen is "Life Giving" gas.

In Conclusion we should learn from Nature's cycle that forms a balance in the natural world in which there are no wastes. Everything is broken down and reused. Our planet and all life on it have survived for millions of years because natural processes recycle life. However, in recent times, human activities are changing the environment and disturbing the natural cycles (like when we put garden waste into plastic bags and ship them to a landfill instead of adding them to a compost heap). We are upsetting the fine balance that exists in nature, and the results may be DISASTROUS. Nature recycles - shouldn't we too? We can be part of it by recycling everything that can be recycled, using products made from renewable resources and avoiding the use of toxic products (pesticides, plastics etc). Government intervention and social changes can do a lot in this direction. In another context, an example of what can be achieved with policy push, is government's push for electric vehicles by way of order (to phase out other type of vehicles), and incentive (subsidy for purchase and income tax deduction on interest payment). Government needs to push similar policies for low generation of waste, reuse and recycle of waste.

Lastly we should not only learn from nature but trust her also that in ultimate analysis nature will convert all (man produced) waste in resources (time is the only factor). It is our choice how we use resources to the extent maximum for ourselves and present generation or allow waste to accumulate (a resource for posterity, human species or any other evolved species one), but it can be said for sure that, waste is human invention and transit phenomenon and in the long run there is no waste.



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IS FAILURE A DEAD END?

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D.V.S.Durga Prasad

Failures are inevitable in human life. Even the lives of the most successful people in the history are blended with many failures. Failure should not prevent the zeal of the person.

Every person who wants to be successful should not consider the failures as a preventing force. After many experiments only a scientist can prove his idea. Failures are stepping stones to success. A successful person says: If you want to succeed, double your failure rate.

This was proved in the life of Abraham Lincoln. He had failed nearly nine times and got success to become the President of the United States of America. Firstly, he happened to fail at the age of 22 and he was 52 when he reached to the high position. The eminent scientist Thomas Alwa Edison was sent away from school, as the teacher thought that he was too stupid to learn. How can we consider that Edison was a failure.

The political party which had won only two seats in the Indian Parliamentary Elections in 1984, has come into the power for the second time also. The Congress party lost elections for the first time in 1977 and later won in 1980.

The person who wants to be successful should have commitment, perseverance and confidence on him. This enables to lead him/her into the path of victory.

Every successful story is also a story of great failures. So I conclude that failure may be a detour but not a dead end.



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KNOW THY NEIGHBOUR: BHUTAN - LAND OF HAPPINESS

Charu Yeotikar

Situated in the lap of Himalayas the tiny kingdom of Bhutan lies between longitude $90^{\circ} 26'9.07''E$ and latitude 27⁰ 31'53.11" N. This tiny kingdom is called 'Druke yul' i.e. 'Land of Thunder Dragon'. The thunder dragon is a mythological creature and is national symbol of Bhutan .It is interesting to know that only Asian Buddhist countries believe in dragon and their dragons differ from each other's viz. Bhutanese dragon is different than that of Thai dragon and Japanese dragon is different than Burmese It's a buffer state between two giant Asian dragon. countries India and Tibetan China. In ancient times when Buddhism was followed in all these neighboring countries they maintained harmonious relationship but later in mid 20th century with annexation of Tibet by china the harmony which was achieved by teachings of Buddha was tattered.

Bhutan was always a close, distanced itself from the world nation. Because of its terrain it was a difficult country to conquer and had not much to offer to the European plunderers so it could always maintain its independence . The serene beauty of its territory, the lush green valleys, glasslike transparent watered rivers, the proud pine trees standing on its high mountains, the sylvan meadows, rich and diverse flora and fauna, the alpine forests make it a perfect destination for world tourists. But the country didn't open its doors for the world till 8th decade of 20th century. The highest peak of Bhutan is Gangkhar Puensum which is the highest unclimbed mountain in the world. For the safety of its environment, its religion and culture and its people, very limited outsiders are permitted to enter this little Himalayan kingdom. Once a person enters is mesmerized by the simplicity of natives, the abundance nature and calmness around.

Buddha though was born in Lumbini, Nepal but spent most of his life in India. Buddha after his enlightenment started spreading his new religion in northern India. Then his disciples spread his teachings to the neighboring countries.

The Vajyryana Buddhism is followed by Bhutan, though India is a country of origin of Buddhism. From India Buddhism travelled to Tibet and then Tibetan lamas introduced it to Bhutan, mainly the credit goes to guru Padamsambhav, which is known as second Buddha or guru Rimpoche. Padamsambhava taught tantric practices. He married to Nepali and Tibetan princess. As per the Bhutanese mythology one of Padamsambhav's consort turned into a tigress and flied to Bhutan with him. It landed at a high cliff in paro valley of Bhutan. Guru Padamsambhav confined himself in a cave and mediated for three years, three months, three days, three hours and three minutes. After achieving divine power he came out of the cave and then subdued the evil around .Then he established Buddhism in Bhutan. A big monastery is constructed on the cliff where he arrived .This place is called Taksang or Tiger's nest. This is considered the holiest shrine of Bhutan. Not only Bhutanese but most of the tourists also visit Taksang.

Being a Himalayan country Bhutan is blessed with abundant nature. With changing altitude there are broad leaf forest and coniferous forests. The snow covered peaks are the source of rivers. All the rivers are full of crystal clear water. Perhaps Bhutan is the only country on the world that has not contaminated its rivers. Seeing transparent rivers is a very unique sight. The world should learn from Bhutan how to protect environment, love it , honor it and benefit from it. Because of perennial rivers Bhutan generates hydal power on large scale.

Thimpu is the capital of Bhutan. The population of Bhutan is nearly 8 lacs. 75% of the population follow Buddhism, 22% are Hindus, few follow Christianity presence of Islam is negligible. Bhutan's time is half hour ahead of Indian time. Its official language is Dzongkha. Ngultrum is the currency of Bhutan which is equivalent to Indian rupees. Tekin is the national animal and Raven is the national bird of Bhutan. The people of country enjoy free education and free health care. Officially it is a monarchy but now there is elected government.

The existence of man before the mountains is too small which teaches man to be humble .Bhutanese are very modest people. Crime rate is very low. Teachings of Buddha taught the citizen to follow simplicity, non violence and be pious.

Stupa, monestary, chorten and dzong are the places of worshiping. A stupa is a hemispherical structure containing relics; monestary is a place where monks live together; chorten is monument to a great lama and a dzong is a fortress. There are many stones erected near shrines, these prayer wheels should be turned in clockwise direction. Bhutan is a land locked country and not accessible to sea so all its export- import is through India .Bhutan has very close ties with India geographically, culturally, spiritually, militarily and financially .Large number of Bhutanese students come to India for higher education.

The present king of the land is Jigme Khesar Namgyal Wangchuke. The Wangchuke dynasty is ruling Bhutan from its unification in 1907. Bhutan has transformed from absolute monarchy to constitutional monarchy from 2008.

Bhutan parliament has two houses- national council and national assembly. For a long time Bhutan was considered a under developed country but now it is in the category of developing countries. The credit of GNH (gross national happiness) concept goes to Bhutan.

The focus of country is to preserve its culture so the citizens have to follow national dress code which is Gho for men, a knee long robe tied with a cloth belt and Kira for women which is a ankle long robe .Rice and buckwheat are staple food and chilly cheese is the most

favorite cuisine of the Bhutanese. Butter tea which is salty is a popular beverage. Bhutan has its religious folk dance drama which is performed by mask dancers. Bhutan follows matriarchy so the daughter inherit parents property. National and most popular sport is archery. Main occupation is subsistence farming, animal husbandry, weaving, and manufacture of religious art.

Bhutan is called land of mountains, monasteries, magic and mystic which can be only experienced after visiting it.



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I don't think anybody anywhere can talk about the future... without talking about education.Whoever controls the education of our children, controls our future.

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- Wilma Mankiller



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"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

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A mountain is composed of tiny grains of earth. The ocean is made up of tiny drops of water

Even so, life is but an endless series of little details, actions, speeches, and thoughts.

And the consequences whether good or bad even the least of them, are far reaching - Swami Sivananda

सामुदायिक रेडियो शिक्षा के लिए सशक्त माध्यम

डॉ चित्रांगद उपाध्याय

रेडियो सेवा का एक प्रकार है सामुदायिक रेडियो , जो वाणिज्पिक की और सार्वजनिक सेवा से परे रेडियो प्रसारण का एक तीसरा मॉडल कव प्रदान करता है। समुदाय स्टेशन भौगोलिक समुदायों और अभिरुचि के और समुदायों की सेवा कर सकते हैं सामुदायिक रेडियो स्टेशन ऐसे चेत समुदायों द्वारा परिचालित और संचालित होते हैं और उनका स्वामित्व व प्र भी उनका ही होता है जिनके लिए वे सेवा प्रदान करते हैं। सामुदायिक रेडियो लाभ कमाने के लिए नहीं होते और यह व्यक्ति विशेष , समूह और समुदायों की अपनी विविध कहानियों को कहने , अनुभवों को प्रति बांटने की प्रक्रिया को सुगम बनाते हैं और संचार माध्यम से संपन्न दुनिया में सक्रिय स्रष्टा और संचार माध्यम के सहयोगी बनते हैं।

दुनिया के कई हिस्सों में स्वयंसेवी क्षेत्र, नागरिक समाज, एजेंसियों, गैर-सरकारी संगठनों और नागरिकों के लिए सामुदायिक रेडियो विकास तथा प्रसारण उद्देश्यों के कार्य में भागीदारी के माध्यम के रूप में काम करता है।

<u>भारत</u> में, सामुदायिक रेडियो की वैधता के लिए अभियान की शुरुआत मध्य १९९० में हुई, फरवरी १९९५ में <u>भारतीय सर्वोच्च न्यायालय</u> के इस फैसले के तुरंत बाद कि "वायुतरंगें सार्वजनिक संपत्ति हैं".

१६ नवम्बर २००६ को , भारत सरकार ने नए <u>सामुदायिक रेडियो</u> <u>दिशानिर्देश</u>की अधिसूचना जारी की , जो गैर-सरकारी संगठनों और अन्य नागरिक सामाजिक संगठनों को सामुदायिक रेडियो स्टेशन का स्वामी बनने और संचालित करने की अनुमति देता है। सरकारी सूत्रों के अनुसार, भारत भर में लगभग ४,००० सामुदायिक रेडियो लाइसेंस दिए जाने हैं। ३० नवम्बर २००८ तक , भारत सरकार के सूचना व प्रसारण मंत्रालय ने सामुदायिक रेडियो लाइसेंस के लिए २९७ आवेदन पत्र प्राप्त किये , जिनमें १४१ गैर-सरकारी संगठन और नागरिक सामाजिक सगठन, शैक्षिक संस्थानों से १०५ और कृषि विश्वविद्यालयों और कृषि विस्तार केन्द्रों (कृषि विज्ञान केन्द्र) के द्वारा चलाये जाने वाले 'फ़ार्म रेडियो ' स्टेशनों के ५१ आवेदन शामिल हैं। इनमें से १०७ सामुदायिक रेडियो स्टेशनों को प्रयोजन पत्र के निर्गम के जरिए लाइसेंस के लिए मंजूरी दे दी गयी है। नई योजना के तहत लाइसेंस आवेदकों के साथ १३ ग्रांट ऑफ़ परमिशन एग्रीमेंट्स (जीओपीए) हस्ताक्षरित किये गये हैं।

३० नवम्बर २००८ तक , देश में ३८ क्रियाशील सामुदायिक रेडियो स्टेशन थे। इनमें से दो को गैर-सरकारी संगठन चलाते हैं और बाक़ी को शिक्षा संस्थान. एक गैर-सरकारी संगठन को लाइसेंस मिले

लाइसेंस के हकदार वे होते हैं जो १०० वाट (ईआरपी) रेडियो स्टेशन चलाते हैं, जिनका कार्यक्षेत्र लगभग 15 किलोमीटर की त्रिज्या में हो। ३० मीटर की अधिकतम ऐन्टेना ऊंचाई की अनुमति दी गयी है। सामुदायिक रेडियो स्टेशनों से कम से कम ५०% कार्यक्रम स्थानीय स्तर पर बनाने की अपेक्षा की जाती है और जहां तक संभव हो कार्यक्रम स्थानीय भाषा या बोली में हों. विकास कार्यक्रम पर जोर दिया गया है, हालांकि मनोरंजन पर कोई स्पष्ट प्रतिबंध नहीं है। भारत में सामुदायिक रेडियो पर समाचार कार्यक्रम प्रतिबंधित हैं, जैसा कि वाणिज्यिक एफएम रेडियो पर भी. हालांकि, सरकार ने हाल ही स्पष्ट किया है कि खबर की कुछ श्रेणियों को रेडियो पर प्रसारित करने की अनुमति है, जिनमें खेल समाचार और टिप्पणियां, यातायात और मौसम की स्थिति के बारे में जानकारी, सांस्कृतिक कार्यक्रमों और त्यौहारों के कवरेज, शैक्षिक घटनाओं के बारे में जानकारी , सार्वजनिक बिजली और पानी की आपूर्ति जैसी उपयोगिताओं से संबंधित घोषणाएं आपदा चेतावनी और स्वास्थ्य सूचना शामिल हैं।४ दिसम्बर २००९ तक, सूचना व प्रसारण मंत्रालय ने ६२ सामुदायिक रेडियो स्टेशनों के लिए 'ग्रांट ऑफ़ परमिशन एग्रीमेंट्स' (जीओपीए) जारी कर दिया था। अधिकांश जीओपीए शिक्षण संस्थानों को जारी किए गए। सामुदायिक रेडियो पर प्रति घंटे पांच मिनट के विज्ञापन की अनुमति है। केंद्र या राज्य सरकार द्वारा प्रायोजित कार्यक्रम को छोड़कर प्रायोजित कार्यक्रम की अनुमति नहीं है। ४ दिसम्बर २००९ तक , सूचना व प्रसारण मंत्रालय ने ६२ सामुदायिक रेडियो स्टेशनों के लिए 'ग्रांट ऑफ़ परमिशन एग्रीमेंट्स ' (जीओपीए) जारी कर दिया था। अधिकांश जीओपीए शिक्षण संस्थानों को जारी किए गए।

आधुनिक दिनों के सामुदायिक रेडियो स्टेशन अक्सर अपने श्रोताओं के लिए विभिन्न प्रकार की सामग्री पेश किया करते हैं, जो कि आवश्यक रूप से वाणिज्यिक रेडियो स्टेशनों द्वारा प्रदान नहीं की जाती है। सामुदायिक रेडियो केंद्र स्थानीय क्षेत्र, खासकर आप्रवासी या अल्पसंख्यक समूहों की खबरें तथा सूचना कार्यक्रम चला सकते हैं, जिन पर बड़े मीडिया केंद्रों द्वारा कम ध्यान दिया जाता है। अधिक विशिष्ट संगीत कार्यक्रम भी प्रायः कई सामुदायिक रेडियो स्टेशनों की एक विशेषता है

भारत सरकार ने वर्ष 2002 दिसंबर मे आई एम.आई.आई /टी.आई. सहित सुस्थापित शैक्षिक संस्थाओं मे सामुदायिक रेडियो स्टेशन स्थापित करने हेतु एक नीति अनुमोदित की थी जिसके अंतर्गत इस मामले पर पुनर्विचार किया गया है । सरकार ने विकास और सामाजिक परिवर्तन से जुड़े मुद्दों पर सिविल सोसायटी द्वारा और अधिक भागीदारी की अनुमति देने के उद्देश्य से सिविल सोसायटी और स्वेच्छिक संगठनो जैसे गैर लाभकारी संगठनो को अपनी सीमा क्षेत्र के अंतर्गत लाकर इस नीति को विस्तत करने का निर्णय लिया है सामुदायिक रेडियो के नाम पर एफएम को प्रोत्साहित किया जा रहा है. सामुदायिक रेडियो को स्थापित करने के लिए लाइसेंस प्रदान करने हेत् एक नीति अनुमोदित की थी. बाद में पुनर्विचार करते हुए सरकार ने अब विकास और सामाजिक परिवर्तन से संबधित मुद्दों पर और अधिक भागीदारी की अनुमति देने के उद्देश्य से सिविल सोसाइटी एवं स्वैच्छिक संगठनों को अपने सीमा क्षेत्र के अंतर्गत लाकर इस नीति को विस्तार दिया. इसमें स्पष्ट रूप से कहा गया है कि सामुदायिक रेडियो को चलाने के इच्छुक संगठन ग़ैर लाभकारी संगठन के रूप में गठित होने चाहिए. इसके अलावा सामुदायिक रेडियो चलाने के लिए सरकार मुफ्त में लाइसेंस देती है. बशर्ते इसमें करियर , व्यवसाय, महिला सशक्तिकरण, स्वास्थ्य, स्थानीय संगीत, खेल और स्थानीय मुद्दों पर आधारित कार्यक्रमों का प्रसारण किया जाए

वर्ष 1991 के आसपास जैसे ही उदारीकरण के नाम पर बाजार खुला, देश में कई माध्यमों की अवधारणाओं का अंकुर फूट पड़ा. यह वह दौर था, जब प्रिंट, इलेक्ट्रॉनिक मीडिया और सूचना का अधिकार जैसे माध्यम गांव तक बेअसर हो रहे थे. इन माध्यमों को प्रभावी बनाने के साथ-साथ बाज़ार में खड़ा करने की पुरजोर कोशिशों के बीच ही कम्युनिटी रेडियो की अवधारणा पनपी. अगर वैश्विक स्तर पर बात करें तो सामदायिक रेडियो का बीज1940 के दशक में लैटिन अमेरिका में पडा थाँ और दक्षिण एशिया में नेपाल पहला देश है 🛛 , जहां 1997 में सामुदायिक रेडियो की शुरुआत हुई. भारत में पहली बार सामुदायिक रेडिँयो की शुरुआत आकॉशवाणी के सहभागी के तौर पर भुज (गजरात) में हुई. लगभग 10 से 12 किमी तक की रेंज कवर करने वाले इस सामुदायिक रेडियो की जब नींव डाली गई थी तब इसका मकसद ग्रामीण जनता की आवश्यकता , प्राथमिकता, समस्या, सुझाव और समाधान से जुड़ा था. कुल मिलाकर जिस तबके के लोगों के सामाजिक, कॅलात्मक, रचनात्मक और आर्थिक विकास के लिए यह रेडियो शुरू किया गया था , सामुदायिक रेडियो का स्वरूप लोकतांत्रिक है, जिसमें हर व्यक्ति को बोलने , सुनने और जनहित के कार्यक्रम बनाने की पूरी आज़ादी है. इस माध्यम के ज़रिए ग्रामीणों और मलभत सविधाओं से वंचित तबकों के विकास और सशक्तिकरण की राह खुलती है. इससे जुडकर हम विकास से वंचित 💦 उपेक्षित और सताएँ हुए लोगों की मुक्ति का माध्यम बनकर समुदाय में गुणात्मक परिवर्तन ला सकते हैं, लेकिन ऐसा कितने सामुदायिक रेडियो स्टेशनों में हो रहा है, यह शोध का विषय है.

अपनी शैली का उपयोग करके अपनी खुद की आवाज में अपनी सोच को व्यक्त करने के लिए गांव की सुविधाहीन आबादी के लिए सामुदायिक रेडियो को एक वैकल्पिक व प्रभावशाली जन संचार माध्यम माना गया है।

- कार्यक्रम निर्माण में समुदाय की पैठ की सुविधा
- समुदाय में प्रशिक्षण की उपलब्धता को बढावा देना और
- चल रहे प्रशिक्षण और कार्यक्रम निर्माण में भाग लेने के इच्छुक समुदाय के लोगों को पर्यवेक्षण की सुविधा प्रदान करना.

यह स्टेशनों से समुदाय की आवश्यकताओं और रूचि को प्रतिबिंबित करने वाले विविध कार्यक्रम प्रस्तुत करता है इनमें शामिल हैं:

- नयी और स्थानीय प्रतिभा द्वारा संगीत
- वाणिज्यिक स्टेशनों द्वारा आम तौर पर प्रसारित नहीं होने वाला संगीत;
- बोले जाने वाले शब्द की प्रोग्रामिंग और
- स्थानीय जानकारी.

आवेदन पत्र के लिए इच्छुक उम्मीदवारों को आवेदन पत्र डाउनलोड करना आवश्यक है। फॉर्म में भरें और आगे विचार के लिए crfc@oneworld.net पर मेल करें।

<u>Application Forms | CRFC – Community Radio Facilitation</u> <u>Centre ... https://mib.gov.in/sites/default/files/abc_0.pdf</u>



संकलन-कर्ता, कार्यकारी-निदेशक, महाराजा कॉलेज उज्जैन हैं। एम.एससी. (भौतिकी) एम.एड (स्वर्ण पदक विजेता), पीएच.डी. (शिक्षा) के पश्च्यात भारतीय शिक्षा प्रणाली पर कई पुस्तकों के विकास में राष्ट्रीय शैक्षणिक अनुसंधान और प्रशिक्षण परिषद (एनसीईआरटी) में महत्वपूर्ण भूमिका निभाई है। इन्हे एन.सी.ई.आर.टी से प्रतिष्ठित राष्ट्रीय अभिनव पुरस्कार नवाचार पर मिला था। इन्हे बिहार राज्य के लिए प्रमुख साधन व्यक्ति के रूप में प्रतिनिधित्व करने के लिए एनसीईआरटी द्वारा भी चुना गया।डॉ उपाध्याय ने छात्रिय स्कूल प्रसारण कार्यक्रम के सलाहकार के रूप में "आकाशवाणी" के साथ काम किया और छात्रों के लिए AIR पर कई शैक्षणिक कार्यक्रम प्रसारित किये।ई –मेल: <u>chitrangad@yahoo.com</u>



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यान हमारा ...

- निरंजन धुलेकर

चला चाँद पर यान मेरा , मामा से मिल कर आना,

मामी के लड्डू भी खाना माई को सब हाल सुनाना ,

भैया भाभी दोनों कैसे हैं , चाचा के घर भी हो आना

माई के मायके की मिट्टी संभाल कर वापस लाना,

नानी का चरखा चलता है, तुम कपास साथ ले जाना,

खरगोश मेरा वहाँ खेलता, करना प्यार उसे दुलराना ,

गली मोहल्ले के बच्चो को, टॉफी चोकोलेट दे आना ।

कंचे गुल्ली डंडे का खेल , उन्हें सिखलाना समझाना,

हाल बताना सब यहाँ का, उसका भी हाल तुम लेना,

साथ है सबकी शान तिरंगा, ऊंचे से पर्वत पर लहराना !



The author is retired banker, and graduate in G.B. Pant University of Agriculture and Technology, Pantnagar, and Master Degree in Sociology. He has experience of working numerous NGOs connected with micro-finanacing. He was associated programs on agriculture credit and priority sector financing. Doordahrdan and Akashjwani, Lucknow. He is a social thinker and writer. His poems, short stories and articles in various newspapers and magazines e-Mail ID:<u>pekushekhu@gmail.com</u>

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चंद्रयान-2 प्रक्षेपण (दिनांक: जुलाई 22'2019)

http://www.gyanvigyansarita.in/

डॉ. संगीता पाहजा

ऊँचे उड़ना

नि:शंक करो विचरण

तुम विस्तृत अंबर में,

कोई आशंका न रहे

उससे पहले विश्राम

तुम्हारे मन में।

जरा न लेना।

ऊँचे उडना ही पंछी की नियति है

अपने पंखों को इतना बल देना तुम,

अंबर को भी धरा बना लेना तुम।

लक्षय तुम्हारा हो सर्वोच्च को पा लेना,

एक ध्येय ले चलो सदा तुम मग में,

सदा रहे उत्साह भरा रग-रग में।

रखो यही आदर्श सामने सबके

और बनो सिरमौर हमारे सबके।

है जीवन वही जिसमें गति है।

मृणालिनी घुळे

सूर्योदय से सूर्यास्त तक

सूर्योदय से सूर्यास्त तक,दर्शन हो जाते, जीवन की सभी अवस्थाओं के।

सुबह की सुनहरी किरणे, दर्शाती निश्छल बाल्यावस्था को।

हो जाता प्रत्येक प्राणी तैयार , कुछ कर गुजरने को नया, पूर्ण उमंग और उत्साह से।

दोपहर की प्रखर किरणे, दर्शाती युवावस्था को।

ऊर्जावान हुआ प्राणी, अपने श्रम से सृष्टि को करता आह्लादित अपने श्रमदान से।

सांझबेला दर्शाती, वृद्घावस्था को। श्रमदान से ऊर्जाहीन हुआ प्राणी चाहता मां की गोद सा सुकून।

सूर्यास्त दर्शाता,त्याग करो हर बोझ का, स्वस्थ मन से समा जाओ,धरती मां की गोद में।

फिर नया सवेरा दर्शाता, पुनर्जन्म को एक स्वस्थ, निष्कपट नवजात शिशु की भांति, शुरू करो नव अध्याय को।



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 प्रकाशितहै।

ई-मेल: mrinalinighule46@gmail.com



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



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.

During growing into an expert, 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 <u>Mathematics</u>, b) <u>Physics</u>, and c) <u>Chemistry</u>. This is just a beginning in this direction. These articles are not replacement of text books and reference books. These books provide a large number of solved examples, problems and objective questions, necessary to make the concepts intuitive, a journey of educational enlightenment.

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

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Answers: Science Quiz- July'19

Kumud Bala

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

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ANSWER: CROSSWORD PUZZLE July'19: \$1 Million Global Teacher Prize Nominees

Prof. S.B. Dhar



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Students' Domain



Some of Students who pro-acted to celebrate वृक्षारोपण महोत्सव this year are

(1) Kruthika, Class 9th, (2) Hari Chandana, Class 9th, (3) Dakshita, Class 10th
 (4) Triveni, Class 10th, (5) A. Kiran, Class 9th, (6) Bhagyasri, Class 10th, (7) Sivani, Class 10th
 (8) Gayatri, Class 10th
 All these students are from Ramakrishna Mission School, Sithanagram, A.P.; a Learning Center of IOMS since 2017





Abhishek Jogi, Class 10th, GHSS, Bamhori Mala, Damoh, MP



Sensitivity For Art and Nature (Stray Efforts in **Rural Schools of** Madhya Pradesh)

Planting Tree: Collective Effort of Students, Class 10th, GHSS, Kanwan, Dhar MP





Principal with Teachers and



Madhu Dindor, Class 12th, GHSS, Kanwan, Dhar, M.P.



It's Not Just A CLOWN (Episode 3)

"Don't be scared, Nina. That wouldn't happen. We will find the real criminal as soon as possible." Archer pacified Nina as he can see that she is scared.

"We need to find this guy before he kills more." Chief said. "But remember, if Archer made any mistake, I will immediately cut you off from this case."

"I believe he won't make any mistake." Nina said

"I hope that." Chief said.

"May we? This is going to be very long complicated case." Nina asked for permission before getting out.

"What do you think? Should we go to the crime scene first?" Nina asked for Archer's idea.

"Yep. That's the first step." Archer said.

"Andy, send me a car." Nina said to Andy.

"Any color in particular?" Andy asked for Nina's preference.

"Of course, pink." Nina said as a joke.

"Are you sure?" Andy was confused

"No. I'm just kidding. Black for sure." Nina chuckles a little.

"Oh yeah, veryyy funny." Andyridiculed before call someone for a car.

Less than 10 minutes. Black Porsche was parked in front of the police office. Nina and Archer sat in the car.

"So where are we heading to" Archer asked.

"We're going to 800 Maywood Street." Nina answered.

"Okay. So... What do you think about this job?" Archer spoke up to break the silence.

"No idea, just waiting for the time to retire. You know, to be social now-a-days is really bad. I just



don't wanna mess up with all these things." Nina said. "I only want to stay peacefully in my wooden house." "I understand you." Archer said.

"Can I... like ask you something?" Nina asked.

"Feel free to ask me." Archer spoke.

"Why you fired from this job? I mean... you were really clever and never made anyone disappointed." Nina interrogated. Archer was in silence.

Chyanis Tiwari

"Let's not talk about it." Archer said.

"Why?" Nina questioned.

"Of course. They won't fire people who did something good." Archer answered.

"What do you mean by that?" Nina asked more.

"You know what? I just don't wanna' talk about it. Let's change the topic." Archer said. He thought it's not a good thing to talk about.

"As you wish. Here we are." Nina said while parking her car in front the house.

Both of them walk in the house. The house wasn't lock because it was under the police's control. They put on gloves and started the investigation. Nina walked to the walkway first. There were shelves so she checked there first. Archer walked to the victim's bedroom. They searched for clues for a long time.

"I don't think we find anything." Nina said tired.

"There must be anything." Archer said "Keep on searching."

"Oh please, Archer. This is not Hollywood movie or something. Sometimes, the killer is professional and doesn't leave any clue behind." Nina said.

"Here it is." Archer picked up the glass under the table. He guessed that it's the glass that the criminal drank something from before killing the innocent victim.

"Sometimes, professionals can also forget something really important." Archer said while passing the glass to Nina. Nina wasn't able to speak after what Archer said and did.

Author is a student of grade 9 at Thailand. She likes writing stories. Most of her stories are usually about social problems because she wants that the new generation teenagers should understand the social world. She hopes that the guys will learn about the new society from this story. E-mail: prgd2000@yahoo.com

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TREE

Trees are the green cover of the planet. Trees give us life and they really very important for human survival on the earth. Many people depend on the trees for their survival.

Trees are the source of rain on the earth as they attract clouds which ultimately bring rain. They also help in checking soil erosion and keep environment fresh by preventing from pollution. They are the home of wild life in forests.

Trees are very helpful and useful friends of humanity. They clean soil by filtering sewage, control noise pollution, reduce flash flooding etc. We should honour and save trees in order to save life from the



nature. They are green gold of the Earth. Trees are source of Natural

V.Madhuri Krishna Priya

shadow, cool air, food like fruits, vegetables etc.

Save trees, save life is not only a slogan, it is our responsibility which should be followed by each and every person living on the Earth. We should make our trees saving service volunteer so that other people may also be motivated. We should promote new planting in our surroundings.

Trees help us to combat the climate changes by refreshing air and absorbing green house gases as they are the main source of climate change. Trees play important role on the earth. Trees have been existing for 370 million years. They need water, sun shine, air, soil to grow. Trees absorbs carbon dioxide and gives us fresh air called oxygen.

Please don't make trees rare, keep them with care.

Author is a students of Class 9^{th} , at Ramakrishna Mission School, Sithanagram.

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HOW GLOBAL WARMING AFFECTS INDIA?

P. Tejaswini

Heat stress is defined as generally occurring at above 35 degree Celsius, in places where there is high humidity. Heat stress affects about all outdoor workers such as those engaged in agriculture and construction sites.

India is projected to lose 5.8 percent of working hours by 2030. It is a productivity loss equivalent to 34 million fulltime jobs, due to global warming, particularly impacting agriculture and construction sectors, a report by UN labour agency said. In 2030, 2.2% of total working hours worldwide will be loss to high temperatures a productivity loss equivalent to 80 million full-time job, the report said.

The accumulated global financial loss due



(Compiled from The Times of India)

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to heat stress is expected to reach 2,400 billion dollars by 2030.

The country most affected by heat stress is India, which lost 4.3% working hours in 1995 and is projected to lose 5.8% working hours by 2030.

National level GDP losses are projected to be substantial in 2030, with reductions in GDP of more than 5% expected to occur in Thailand, Combodia, India and Pakisthan due to heat stress. With some 940 million people are active in agriculture around the world, farmers are set to be worst hit by rising temperatures

WATER

Majeti Hari Chandana

Water ia the most important gift from the heaven. It is unimaginable human life without water. But, according the environmentalists, humans are going to face this dreadful condition in near future.

Several cities in India are facing water shortage, as water levels in various dams and water bodies have gone down significantly. The term 'Save water' urges us to save the earth's most important natural resource – water. Easy availability of water made us careless by using lavishly. Today, a normal household wastes thousands of litres of water. Water usage must be optimized to ensure its availability for future generations. It's essential for the

existance of life and maintaining ecological balance.

History repeats with wars fought between civilizations. Water scarcity has become a major issue in many parts of the world. Rain water has to be preserved in all areas. It helps to store ground water and can also be used for future purposes. Many drops of water makes bodies like pond, river and sea. So let's save every drop of water. Wastage should be checked. Water is a precious gift of God. The difficulties faced by the people in various regions due to water scarcity teach us to conserve and save water in order to protect the environment.

I conclude that "Save water, sve life and save world" should be our motto.



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THE ROLE OF FINE ARTS IN SCHOOL CURRICULUM

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A. Sai Subrahmanya Kiran Kumar

Education in arts is an integral part of the development of each human being. Arts education refers to the education in the disciplines of music, dance and virtual arts. They are the parts of cultural heritage. Fine arts are essential parts of school curriculum. They develop love for learning, improving students' creativity and make them as more-prepared citizens for the work placement for tomorrow. The arts develop natural system that produce



improve emotional balance. Today world the

benefits in motor skills to create and

is witness to the information age. Fine arts is a key component in improving learning throughout all areas. Now-a-days many countries are encouraging the children to participate and learn fine arts that are the parts of their culture. Present generation are not aware of their culture and tradition. Now, in technological world, there is a need to introduce fine arts. Many organisations are conducting worldwide seminars on introducing fine arts and the importance of fine arts in curriculum. These arts lead to the overall development of a child.

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Dream, Vision, Plan, Act and Evaluate as we grow

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Growing with Music

Dishita Joshi

I started my journey of learning music when my milk teeth began to fall. In the early years of my journey, it was like an additional burden for me apart from the my playtime and studies, which I could not escape. Honestly, when I first started practicing music, I didn't like it much. But gradually as I proceeded I started enjoying it. Now that I spend time practicing it, I realize that singing as well as listening to music helps me relax and also indirectly helps me in studying better. Classical music follows a certain discipline which relaxes our mind even though it may not sound as attractive as western music to children. Music is an art form and a cultural activity whose medium is sound. It is something that we all are touched by. Listening to music as well as singing makes one happier. Music in itself is healing. It lowers stress and improves one's health. There are raagas with different moods. Singing or listening to raagas of soothing mood helps one sleep better. It also strengthens learning and memory. Apart from that, it also keeps one's brain healthy in old age. It also helps in sooner recovery of surgery patients as it helps in reducing pain.

In my opinion, music is a form of meditation .So, I would like to advise all to take some time out from their routine for music as really helps to relax in our day-to-day life which I have myself experienced.



Author is a student of Class 8^{th} , The Khaitan School, Sec-40, NOIDA, Apart from music her hobbies are drawing and painting, swimming and palying Tennis. She is a member of Student's Management Committee at School.

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Growing With Concepts - Mathematics

LET'S DO SOME PROBLEMS IN MATHEMATICS-XII

This article consists of the general questions of Mathematics. These questions have been taken from the Question Papers of UPSC's IAS-Preliminary Examination of different years. The Answers are not being written here as the questions are interesting and the readers are expected to try by themselves. In case of any difficulty, the answers/solutions many be requested from the Coordinator's desk.

 Study the following figure: A person goes from A to B always moving to the right or downward along the lines. How many different routes can be adopted? Select the correct answer from the codes given below:



2. Consider the following figure and answer the item that follows:



What is the total number of triangles in the above grid?

(a) 27 b)26 (c)23 (d)22

- 3. A person has only `1 and `2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is `75, then the number of `1 and `2 coins are respectively
 - (a) 15 and 35 (b) 35 and 15
 - (c) 30 and 20 (d) 25 and 25
- 4. There are 100 students in a particular class. 60% students play cricket, 30% students play football and 10% students play both the games. What is the number of students who play neither cricket nor football?

(a) 25 (b) 20 (c) 18 (d) 15

Prof. SB Dhar

- 5. Three persons start walking together and their steps measure 40cm, 42cm and 45cm respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?
 (a) 25m 20cm
 (b) 50m40cm
 (c) 75m (0cm = (d) 100m 20cm
 - (c) 75m 60cm (d) 100m 80cm
- 6. A village having a population of 400 requires 150 litres of water per head per day. It has a tank measuring 20m x 15m x 6m. The water of this tank will last for

 (a) 2 days
 (b) 3 days

	•		•
(c) 4	l days	(d) 5	days

- 7. If a bus travels 160 km in 4 hours and a train travels 320 km in 5 hours at uniform speeds, then what is the ratio of the distances travelled by them in one hour?(a) 8:5 (b) 5:8 (c)4:5 (d)1:2
- 8. A student on her first 3 tests received an average score of N points. If she exceeds her previous average score by 20 points on her fourth test, then what is the average score for the first 4 tests?
 (a) N+20 (b) N+10 (c) N+4 (d) N+5
- 9. In a group of persons, 70% of the persons are male and 30% of the persons are married. If two-sevenths of the males are married, what fraction of the females is single?
 - (a) 2/7 (b) 1/3 (c) 3/7 (d)2/3
- 10. In a queue, Mr. X is fourteenth from the front, and Mr. Y is seventeenth from the end, while Mr. Z is exactly in between Mr. X and Mr. Y and there are 48 persons in the queue, how many persons are there between Mr. X and Mr. Z?
 (a) 6 (b) 7 (c) 8 (d)9
- 11. In a class of 45 students, a boy is ranked 20th. When two boys joined, his rank was dropped by one. What is his new rank from the end?

(c)27th

(d)28th

12. A thief running at 8 km/hr is chased by a policeman whose speed is 10 km/hr. If the thief is 100m ahead of the policeman, then the time required for the policeman to catch the thief will be –
(a) 2 min (b) 3 min

(a) 2 mm	(0) 511111
(c) 4 min	(d) 6 min

 $(b)26^{th}$

(a)25th

- 13. In a rare coin collection, there is one gold coin for every three non-gold coins. 10 more gold coins are added to the collection and the ratio of gold coins to non-gold coins would be 1:2. Based on the information, the total number of coins in the collection now becomes

 (a) 90
 (b) 80
 (c) 60
 (d) 50
- 14. The tank-full petrol in Arun's motor-cycle lasts for 10 days. If he starts using 25% more every day, how many days will the tank-full petrol last?
 (a) 5 (b) 6 (c) 7 (d) 8
- 15. A gardener increased the area of his rectangular garden by increasing its length by 40% and decreasing its width by 20%. The area of the new garden
 - (a) has increased by 20%
 - (b) has increased by 12%
 - (c) has increased by 8%
 - (d) is exactly the same as the old area
- 16. If Sohan, while selling two goats at the same price, makes a profit of 10% on one goat and suffers a loss of 10% on the other
 - (a) he makes no profit and no loss
 - (b) he makes a profit of 1%
 - (c) he suffers a loss of 1%
 - (d) he suffers a loss of 2%
- 17. Out of a total of 120 musicians in a club, 5% can play all the three instruments, guitar, violin and flute. It so happens that the number of musicians who can play any two and only two of the above instruments is 30. The number of musicians who can play the guitar alone is 40. What is the total number of those who can play violin alone or flute alone?
 (a)45 (b)44 (c)38 (d)30
- 18. A straight line segment is 36cm long. Points are to be marked on the line from both the end points. From each end, the first point is at a distance of 1cm from the end, he second point is a distance of 2cm from the first point and the third point is at a distance of 3cm from the second point and so on. If the points on the ends are not counted and the common points are counted as one, what is the number of points?
 (a) 10 (b) 12 (c) 14 (d) 16
- 19. A bell rings every 18 minutes. A second bell rings every 24 minutes. A third bell rigns every 32 minutes. If all the three bells ring at the same time at 8 o'clock in the morning, at what other time will they all ring together?

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(a) 12:40 hrs
(c) 12:56 hrs
(d) 13:04 hrs
```

- 20. A worker reaches his factory 3 minutes late if his speed from his house to the factory is 5 km/hr. If he walks at a speed of 6 km/hr, then he reaches the factory 7 minutes early. The distance of the factory from his house is

 (a) 3km
 (b) 4km
 (c) 5km
 (d) 6km
- 21. Two cars start towards each other, from two places A and B which are at distance of 160 km. they start at the same time 08:10AM. If the speed of the cars are 50 km and 30 km per hour respectively, they will meet each other at –

 (a) 10:10AM
 (b) 10:30AM
 (c) 11:10AM
 (d) 11:20AM
- 22. In a test, a candidate attempted only 8 questions and secured 50% marks in each of the questions. If he obtained a total of 40% in the test and all questions in the test carried equal marks, how many questions were there in the test?
 - (a) 8 (b) 10 (c) 15 (d) 16
- 23. A father is nine times as old as his son and the mother is eight times as old as the son. The sum of the father's and the mother's age is 51 years. What is the age of the son?
 (a) 7 years
 (b) 5 years
 (c) 4 years
 (d) 3 years
- 24. Each of A,B, C and D has `100. A pays `20 to B, who pays `10 to C, who gets `30 from D. In this context, which one of the following statements is not correct?
 - (a) C is the richest
 - (b) D is the poorest
 - (c) C has more than what A and D have together
 - (d) B is richer than D
- 25. Shahid and Rohit start from the same point in opposite directions. After each 1 km, Shahid always turns left and Rohit always turns right. Which of the following stateents is corect?
 - (a) after both have travelled 2 km, the distanced between them is 4 km
 - (b) they meet after each has travelled 3 km
 - (c) they meet for the first time after each has travelled 4 km
 - (d) they go on without ever meeting again
- 26. In a 500 metres race, B starts 45 metres ahead of A, but A wins the race while B is still 35 metes behind. What is the ratio of the speed of A to B assuming that both start at the same time? (a) 25:21 (b) 25:20 (c) 5:3 (d) 5:7

- 27. Two equal glasses of same type are respectively 1/3 and ¼ full of milk. They are then filled up with water and the contents are mixed in a pot. What is the ratio of milk and water in the pot?
 (a) 7:17 (b) 1:3 (c) 9:21 (d) 11:23
- 28. In a parking area, the total number of wheels of all the cars (four-wheelers) and scooters/motorbikes (two-wheelers) is 100 more than twice the number of parked vehicles. The number of cars paked is (a)35 (b)45 (c)50 (d) 55
- 29. Between 6 PM and 7 PM the minute hand of a clock will be ahead of the hour hand by 3 minutes at (a) 6:15PM
 (b) 6:18PM
 (c) 6:36PM
 (d) 6:48PM
- 30. The monthly income of Peter and Paul are in the ratio of 4:3. Their expenses are in the ratio of 3:2. If each saves `6000 at the end of the month, their monthly incomes respectively are (`)
 (a) 24000 and 18000
 - (b) 28000 and 21000
 - (c) 32000 and 24000
 - (d) 34000 and 26000
- 31. Consider the following three-dimensional figure:



- How many triangles does the above figure have? (a) 18 (b) 20 (c) 22 (d) 24
- 32. Consider the following sum: *+1*+2*+*3+*1=21*In the above sum, * stands for (a) 4 (b) 5 (c) 6 (d) 8
- 33. A train 200 metres long is moving at the rate of 40kmph. In how many seconds will it cross a man standing near the railway line?
 - (a) 12 (b) 15 (c) 16 (d) 18
- 34. A number consists of three digits of which the middle one is zero and their sum is 4. If the number formed by interchanging the fist and the last digits is greater than the number itself by 198, then the difference between the first and the last digits is
 - (a) 1 (b) 2 (c) 3 (d) 4

- 35. A solid cube of 3 cm side, painted on all its faces, is cut up into small cubes of 1 cm side. How many of the small cubes will have exactly two painted faces?
 (a) 12 (b)8 (c)6 (d)4
- 36. While writing all the numbers from 700 to 1000, how many numbers occur in which the digit at hundred's place is greater than the digit at ten's place, and the digit at ten's place is greater than the digits at unit's place?(a) 61 (b) 64 (c) 85 (d) 91
- 37. A bookseller sold "a" number of Geography textbooks at the rate of 'x per book, (a+2) number of History textbooks at rate of (x+2) per book and (a-2) number of Mathematics textbooks at the rate of (x-2) per book. What is his total sale in `? (a) 3x+3a(b) 3ax + 8(d) $x^3 a^3$ (b) 9ax
- 38. A student has to get 40% marks to pass in an examination. Suppose he gets 30 marks and fails by 30 marks, then what are the maximum marks in the examination?
 - (a) 100 (b) 120 (c) 150 (d) 300
- 39. 19 boys turn out for playing hockey. Of these, 11 are wearing hockey shirts and 14 are wearing hockey pants. There are no boys without shirts and/or pants. What is the number of boys wearing full uniform?
 (a) 3 (b) 5 (c) 6 (d) 8
- 40. A bag contains 15 red balls and 20 black balls. Each ball is numbered either 1 or 2 or 3. 20% of the red balls are numbered 1 and 40% of them are numbered 3. Similarly, among the black balls, 45% are numbered 2 and 30% are numbered 3. A boy picks a ball at random. He wins if it the ball is red and numbered 3 or if it is black and numbered 1 or 2. What are the chances of his winning?
 - (a) 1/2 (b) 4/7 (c) 5/9 (d) 12/13
- 41. Two persons, A and B are running on a circular track. At the start, B is ahead of A and their positions make an angle of 30^{0} at the centre of the circle. When A reaches the point diametrically opposite to his starting point, he meets B. what is the ratio of speeds of A and B, if they are running with uniform speeds? (a) 6:5 (b) 4:3 (c) 6:1 (d) 4:2
- 42. A shopkeeper sells an article at ` 40 and gets x% profit. However, when he sells it at `20, he faces same percentage of loss. What is the original cost of the article?
 - (a) `10 (b) `20 (c) `30 (d) ` 40

- 43. There are 24 equally spaced points lying on the circumference of a circle. What is the maximum number of equilateral triangles that can be drawn by taking set of three points as the vertices? (a)
 4 (b) 6 (c) 8 (d) 12
- 44. Consider the sequence given below:

4/12/95, 1/1/96, 29/1/96, 26/2/96,....

What is the next term of the series? (a) 24/3/96 (b) 25/3/96 (c) 26/3/96 (d) 27/3/96

- 45. Twelve equal squares are placed to fit a rectangle of diagonal 5 cm. There are three rows containing four squares each. No gaps are left between adjacent squares. What is the area of each square?
 (a) 5/7 sq.cm
 (b) 7/5sq.cm
 (c) 25/12 sq.cm
- 46. A person bought a refrigerator worth `22800 with 12.5% interest compounded yearly. At the end of first year he paid `8650 and at the end of second year `9125. How muchwill hehave to pay at the end of third year to clear the debt?
 (a) `9990 (b)`10000
 (c) `10590 (d) `11250
- 47. A lift has the capacity of 18 adults or 30 children how many children can board the lift with 12 adults?
 (a)6 (b)10 (c)12 (d)15
- 48. If x-y=8, then which of the following must be true?1.both x and y must be positive for any value of x and y.
 - 2. if x is positive, y must be negative for any value of x and y.
 - 3. if x is negative, y must be positive for any value of x and y.
 - Select the correct answer using the code given below:
 - (a) 1 only
 - (b) 2 only
 - (c) both 1 and 2
 - (d) Neithe 1 nor 2 nor 3
- 49. A and B are two heavy steel blocks. If B is placed on the top of A, the weight increases by 60%. How much weight will reduce with respect to the total weight of A and B, if B is removed from the top of A?
 (a)60% (b)45.5% (c)40% (d)37.5%

- 50. Mr. X has three Children. The birthday of the first child falls on the 5th Monday of April, that of the second one falls on the 5th Thursday of November. On which day is the birthday of his third child, which falls on 20th December?
 - (a) Monday (b) Thursday
 - (c) Saturday (d) Sunday
- 51. When a runner was crossing the 12 km mark, she was informed that she had completed only 80% of the race. How many kilometers was the runner supposed to run in this event?
 - (a) 14 (b) 15 (c) 16 (d) 16.5
- 52. The number of parallelograms that can be formed from a set of four parallel lines intersecting another set of four parallel lines.(a)18 (b)24 c)32 (d)36
- 53. In 2002, Meenu's age was one-third of the age of Meera, whereas in 2010, Meenu's age was half of the age of Meera. What is Meenu's year of birth? (a) 1992 (b) 1994 (c) 1996 (d) 1998
- 54. Rakesh and Rajesh together bought 10 balls and 10 rackets. Rakesh spent `1800 and Rajesh spent `1500. If each racket cost three times a ball does, then what is the price of a racket? (a) `70 (b)`90 (c) `210 (d) `240
- 55. P, Q and R are three towns. The distance between P and Q is 60 km, whereas the distance between P and R is 80 km. Q is in the West of P and R is in the South of P. What is the distance between Q and R?
 (a) 140km
 (b) 130km
 (c) 110km
 (d) 100km
- 56. Seeta and Geeta go for a swim after a gap of every 2 days and every 3 days respectively. If on 1st January both of them went for a swim together, when will they go together next?
 - (a) 7th January (b) 8th January (c) 12th January (d) 13th January
- 57. The ratio of a two-digit natural number to a number formed by reversing its digits is 4:7. The number of such pairs is –
 (a) 5 (b) 4 (c) 3 (d) 2
- 58. If x is greater than or equal to 25 and y is less than or equal to 40, then which one of the following is always correct?
 - (a) x is greater than y
 - (b) (y-x) is greater than 15
 - (c) (y-x) is less than or equal to 15
 - (d) (x+y) is greater than or equal to 65

- 59. In an examination, A has scored 20 marks more than B. If B has scored 5% less marks than A, how much has B scored?
 (a) 360 (b) 380 (c) 400 (d) 420
- 60. Ena was born 4 years after her parents' marriage. Her mother is three years younger than her father and 24 years older than Ena, who is 13 years old. At what age did Ena's father get married?

(a) 22 years	(b) 23 years
(c) 24 years	(d) 25 years

- 61. The average marks of 100 students are given to be 40. It was found later that marks of one student were 53 which were misread as 83. The corected mean marks are(a) 39 (b) 39.7 (c) 40 (d) 40.3
- 62. What is X in the sequence 132, 129, 124, 117, 106, 93, X?
 (a) 74
 (b) 75
 (c) 76
 (d) 77
- 63. A wall clock moves 10 minutes fast in every 24 hours. The clock was set right to show the correct time at 8:00 a.m on Monday. When the clock shows the time 6:00 p.m on Wednesday, what is the correct time?
 (a) 5:36p.m
 (b) 5:30p.m
 (c) 5:2 p.m
 (d) 5:18 p.m
- 64. A printer numbers the pages of a book starting with 1 and uses 3089 digits in all. How many pages does the book have?

(b) 1040 (b) 1048 (c) 1049 (d) 1050



The author, is **Editor of this Quartrerly 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. **e-Mail ID:** <u>maths.iitk@gmail.com</u>

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Mathematics is mother of all sciences

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65. If the nuerator and denominator of a proper fraction are increased by the same positive quantity which is greater than zero, the resulting fraction is – (a)always less than the original fraction

- (b) always greater than the original fraction
- (c) always equal to the original fraction
- (d) such that nothing can be claimed definitely
- 66. A family has two children along with their parents. The average of the weights of the children and their mother is 50kg. the average of the weights of the children and their father is 52kg if the weight of the father is 60kg, then what is weight of the mother?
 (a) 48kg
 (b) 50kg
 (c) 52kg
 (d) 54kg
- 67. Suppose you have sufficient amount of rupee currnecy in three denominations: `1, `10 and `50. In how many different ways can you pay a bill of `107?
 (a) 16 (b) 17 (c) 18 (d) 19
- 68. Which year has the same calendar as that of 2009? (a) 2018 (b) 2017 (c) 2016 (d) 2015
- 69. Number 136 is added to 5B7 and the sum obtained is 7A3, whereas A and B are integers. It is given that 7A3 is exactly divisible by 3. The only possible value of B is
 (a) 2 (b) 5 (c) 7 (d) 8
- 70. How many triplets (x,y,z) satisfy the equation x+y+z=6, where x,y, and z are natural numbers?
 (a) 4 (b) 5 (c) 9 (d) 10

CROSSWORD PUZZLE August'19 : World Humanitarian Day

Prof. SB Dhar



Acro	DSS	Dow	n
4	UN Secratry General	1	UN Head Quarter
6	Nationality of Serigo Vieira de Mello	2	Theme of WHD 2018
8	Number of years UN GA adopted resolution to observe WHD	3	Number of persons who died in Baghdad on 19 Aug'2003
9	Name of Hotel where Bomb exploded in Baghdad in2003	5	Number of official languages of UN
10	Number of observer states in UN	6	Campaign of WHD 2012

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

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

- John F. Kennedy

-00-

Growing with Concepts : Physics

Understanding Transfer of Heat

Transfer of Heat is a phenomenon which one experience many time in daily life.. This section is next step in integration of es concepts of heat learnt so far and is last in the series. Thus it is a necessary drill into the integrated assimilation of the subject matter. Accordingly, in this set of questions, problems are taken up with their illustrations from the Chapter 27, Vol II, Concepts of Physics, a book by Prof. H.C. Verma. Moreover, solving numerical help to visialize quantum of heat involved in any process. Having covered question on Heat in a graded manner our endeavour is to supplement the questions from problems in various examinations. This would will be done at an appropriate time.

Any understanding of theory is useful in problem solving only when it is followed by rigorous practice in solving problems of verities involving various concepts. In this connection there are various test books and question banks available at book stores. Yet books by Resnick-Halliday-&-Krane and H.C. Verma are placed at first choice for a systematic growth of excellence. This choice is not by any other consideration except that the authors have formulated problems so nicely that taking any of two books would give a good spectrum of problems that are graded with increasing complexity, as one proceeds with them. They involve different concepts on the chapter and integration of concepts studied earlier. As against this questions from various examination and competitions are abrupt and aimed at filtering excellence. It is, therefore, appropriate to auestions from different sources only when practice problems from such text books have been practiced.

It may not be out of context to place on record that *solving any toughest problem is simpler than formulating a problem.* In light of this efforts of the authors in writing book and supplementing it with question bank is highly revered. In view of this, in the supplement to Mentors' Manual initial preference is given to the by H.C. Verma. It covers Objective Questions (both SCQ and MCQ) together with exercises. Going forward this is to be supplemented with questions from other sources also.

It is a common experience that a rich web resource is available on a wide spectrum. It is just a matter of posing a problem and solution is available either free or some on price. Here, it is pertinent to emphasize that web resource is meant to reach students who are not able to connect the solution provider. While, students from deprived section of society may find it difficult to make a sense with the available web solution. Moreover, there are multiple solutions, videos and/or choices are made available to each quarry on web. This makes it difficult for students to choose what to bank upon in his pursuit of learning. In view of this question banks for the students that we target are supplemented with illustrations. The illustrations start from first principle, to the possible extent, with special note wherever necessary. This is expected to be useful to those students who never had an opportunity to learn from passionate mentors. Since each illustration is handled as an independent difficulty of a student or user repetition of steps is unavoidable. In illustrations figures wherever necessary for elaborations have been used, else student is supposed to use figure given in the problem supposed to be readily available with him while referring to the illustration.

Students are advised to revise basics before attempting question bank under examination conditions. It will help to gain proficiency in terms of accuracy and speed. In case of mismatch of answers, students are advised to retry problems after revisiting concepts. Despite, if difficulty exists, the illustrations may be referred and again the problem may be attempted independently. After successfully attempting question bank, students may like to refer to illustrations for appreciating nuances of concepts.

Yet students are advised to start with it. Gradually as students attain proficiency in applying concepts and handling long calculations, crisp steps and calculations will evolve automatically without being conscious of it. As regards brilliant students, teachers and professionals may like to pick up random illustrations or those of problems encountered with mismatch of answers. They might find the approach in illustrations worth refreshing the concepts for themselves. In case they wish to add value to illustrations by pointing out ambiguities and typographical errors, they are gratefully welcome.

Practicing of problems at times involves numerical skills and handling of data in different system of units. This requires care and clarity of variables and their units for correctness and speed; it is a necessity for success in examination. It is also advised that during solution, students stick to one system of units, preferably SI, and convert the given data into it wherever necessary. It facilitates burden of remembering standard values in different system of units. This approach may take some extra efforts, yet it would certainly avert possibility of errors and loss due to negative marking.

A small group of passionate persons are engaged in this initiative to mentor unprivileged children so as to groom competence to compete among them. This is driven with a sense of Personal Social Responsibility (PSR). It is a nonorganizational, non-remunerative, non-commercial and non-political manner. Teachers, mentors, students and professionals who can collectively complement the efforts to the extent it is possible and it suits to their passion, experience, expertise and convenience, are gratefully welcomed.

Typical problems and illustrations are brought below for a ready reference, while a question bank with answers and illustrations is being uploaded on our website separately.

ILLUSTRATIONS OF TYPICAL QUESTIONS : Transfer of Heat (Set 5, on *Chapter 2: Heat and Thermodynamics, Mentors' Manual*)

Question 1: Two bodies A and B having equal surface area are maintained at temperatures 10° C and 20° C respectively. The thermal radiation emitted in a given time by A and B are in the ratio

(a) 1:1.15 (b) 1:2 (c) 1:4 (d) 1:16

Illustration: As per As per Stefan and Boltzmann's Law rate of radiation is $\Delta u = e\sigma AT^4 \Rightarrow \frac{\Delta u_2}{\Delta u_1} = \frac{T_2^4}{T_1^4}$. Accordingly

the ratio is $=\left(\frac{T_2}{T_1}\right)^4 = \left(\frac{273 + 20}{273 + 10}\right)^4 = (1.04)^4 = 1.15 \Rightarrow u_1 : u_2 :::1:1.15$. It is to essential to remember that in this law

temperature are on Thermodynamic scale. Hence answer is option (a).

N.B.: Difference in values given in the options is discretely large and without actually calculating a mathematical judgment can be made that $(1.04)^4 = 1.15$, and accordingly question can be answered.

Question 2: A body cools down from 65° C to 60° C in 5 minutes. It will cool down from 60° C to 55° C in

- (a) 5 minutes
- (b) Less than 5 minutes
- (c) More than 5 minutes
- (d) Less than or more than 5 minutes depending on whether its mass is more than or less than 1 kg.

Illustration: As per Newton's law of cooling $\frac{\Delta\theta}{\Delta t} = b(T - T_a)$, here coefficient $b = \frac{(b_1 + b_2)A}{ms}$ where $b_1 = 4e\sigma AT^3$

and b_2 is arbitrary constant regulated by convection process while constituents of *ms* are parameters of the body. Thus occurrence of T^3 in the coefficient would reduce rate of cooling with fall of temperature from 65° C to 60° C to 60° C to 55° C, despite $\Delta T = 65 - 60 = 60 - 55 = 5^{\circ}$ C=5K. Hence, answer is option (c).

N.B.: Qualitatively the above analysis is correct. But quantitatively analysis would require to take in Kelvin scale. As regards the factor ΔT it is same both in Celsius and Kelvin, and hence would not influence results either quantitatively or qualitatively.

Question 3: One end of a metal rod is dipped in boiling water and the other is dipped in melting ice-

- (a) All parts of the rod are in thermal equilibrium with each other
- (b) We can assign a temperature to the rod
- (c) We can assign a temperature to the rod after steady state is reached
- (d) The state of the rod does not change after steady state is reached

Illustration: The process of heat transfer is defined by equation $\Delta Q = \frac{kA\Delta\theta}{l}\Delta t$. At the start i.e. at time $t = 0^-$ the rod is

in equilibrium with ambient temperature. As soon as the two ends dipped at different temperature, hear transfer takes starts as a transient process, which disturbs initial equilibrium until a new equilibrium is established with temperature of the two ends are as defined. In this context each of the opition is being analyzed -

Option (a): From the above initial equilibrium will move into in-equilibrium, due to transient conditions, until new equilibrium is established **Thus this option is incorrect.**

- **Option (b):** With ends of the rod at discretely different temperatures a temperature gradient would be established along the length of the rod due to heat transfer. Hence, specific temperature cannot be assigned to the rod. **Thus this option is incorrect.**
- **Option (c):** Taking forward the analysis at option (b) even after attaining specific temperature cannot be assigned to the rod. **Thus this option is incorrect.**
- **Option (d):** Once steady state is reached, by its nomenclature its state would continue to be so unless conditions of the rod are changed. **Thus this option is correct.**

Hence answer is option (d).

Question 4: A heated body emits radiation which has maximum intensity near the frequency v_0 . The emissivity of the material is 0.5. If the absolute temperature of the body is doubled

- (a) The maximum intensity of radiation will be near the frequency $2v_0$
- (b) The maximum intensity of radiation will be near the frequency $\frac{v_0}{2}$
- (c) The total energy emitted will increase by a factor of 16
- (d) The total energy emitted will increase by a factor of 8

Illustration: Highest intensity of radiation vis-à-vis its wavelength as per Wien's Displacement Law is

$$\lambda_m T = b = \text{Const. Therefore}, \ \lambda_{m-1} T_1 = \lambda_{m-2} T_2 \Longrightarrow \frac{T_2}{T_1} = \frac{\lambda_{m-1}}{\lambda_{m-2}} = \frac{\upsilon_{m-2}}{\upsilon_{m-1}} \bigg|_{\nu = \frac{c}{\lambda}} \Longrightarrow T \propto \upsilon.$$

Option (a): From the proportionality $T \propto v$ when temperature is doubled, frequency of maximum intensity of radiation would also double. **Thus option (a) is correct**.

Option (b): Analysis at option (a) is reverse of the statement at option (b). Hence option (b) is incorrect.

Option (c): As per Stefan and Boltzmann Law $u = e\sigma AT^4 \Rightarrow \frac{u_2}{u_1} = \left(\frac{T_2}{T_1}\right)^4 \Rightarrow \frac{u_2}{u_1} = (2)^4 \Big|_{T_2 = 2T_1} = 16$. This answer is

supported by option (c) and hence Option (c) is correct.

Option (d): In this option answer is given to be 8 which in contradiction to the answer already proved at (c). **Hence this option is incorrect.**

Thus correct answer is option (a) and (c).

N.B.: Stefan-Boltzmann Law specifies relationship between λ_m and T while in answer is asked on relationship between

 v_m and T. This requires conversion of the equation with the relationship $v = \frac{c}{\lambda}$.

Question 5: A liquid-nitrogen container is made of 1 cm thick Styrofoam sheet having thermal conductivity 0.025 J.s^{-1} .m⁻¹.⁰C⁻¹. Liquid nitrogen at 80 K is kept in it. A total area of 0,80 m² is in contact with the liquid nitrogen. The atmospheric temperature is 300 K. Calculate the rate of heat flow from the temperature to the liquid nitrogen.

Illustration: Given that $k = 0.025 \text{ J.s}^{-1} \cdot \text{m}^{-1} \cdot \text{C}^{-1}$, thickness of heat insulator l = 0.1 m, area of the heat insulator is $A = 0.80 \text{ m}^2$. And temperature difference liquid-nitrogen and atmosphere is $\Delta T = 300 - 80 = 220 \text{ K} = 220^{\circ} \text{C}$. Since



atmosphere is at higher temperature and hence rate heat flowing into liquid nitrogen is $\frac{\Delta Q}{\Delta t} = \frac{kA\Delta T}{l} = \frac{0.025 \times 0.80 \times 220}{0.01} = 440 \text{ W}. \text{ Hence, ans wer is } 440 \text{ W}.$

N.B.: Unit of heat energy is Joule, but rate of flow of heat is power i.e. J.s⁻¹ which is equivalent to Watt

Question 6: An icebox almost completely filled with ice at 0^{0} C is dipped into a large volume of water at 20^{0} C. The box has walls of surface area 2400 cm², thickness 2.0 mm and thermal conductivity = 0.06 W.m⁻¹.⁰C⁻¹. Calculate the rate at which the ice melts in the box. Latent heat of fusion of ice is = 3.4×10^{5} J.kg⁻¹.

Illustrsation: Icebox is dipped in water at 20[°]C whose parameters are given, Therefore, transfer of heat by conduction from water to ice. Accordingly, $\frac{\Delta Q}{\Delta t} = \frac{kA\Delta T}{l}$...(1) and this is responsible for melting of ice such that $\frac{\Delta Q}{\Delta t} = mL$...(2) Here, *m* rate of melting of ice per second. Combining equations (1 & 2) and using the given data $\frac{0.06 \times (2400 \times 10^{-4}) \times (20-0)}{2.0 \times 10^{-3}} = m \times (3.4 \times 10^5) \Rightarrow m = \frac{0.12 \times 2.4}{6.8} \times 10^{-5} = 4.2 \times 10^{-4}$. Kg.s⁻¹. This is equivalent to $m = (4.2 \times 10^{-4}) \times 3600 = 1.5$ kg.Hr⁻¹. Hence, answer is 1.5 kg.h⁻¹

N.B.: Since, this quantity of melting of ice is too small to be measurable from the scale of the given data. Therefore answer needs to be represented in measurable unit keeping into consideration significant digits. Accordingly, though in question nothing is stated about unit of time while asking rate of melting of ice, it converted from $Kg.s^{-1}$ into $kg.Hr^{-1}$.

Question 7: Water at 50^oC is filled in a closed cylindrical vessel of height 10 cm and cross-sectional area 10 cm². The walls of the vessel are adiabatic but the flat parts are made of 1 mm thick aluminum $(k = 200 \text{ J.s}^{-1} \cdot \text{m}^{-1} \cdot \text{O} \text{ C}^{-1})$. Assume that the outside temperature is 20^oC. The density of water is 1000 kg.m⁻³ and the specific heat capacity of water = 4200

 $J.kg^{-1.0}C^{-1}$. Estimate the time taken for the temperature to fall by $1.0^{\circ}C$. Make any simplifying assumption you need, but specify them.

Illustration: The system is of the cylindrical vessel having adiabatic walls and flat bottom of aluminum is shown in the figure. **Assume** that - (1) transfer of heat from water to the ambient is taking place through its flat bottom having outside temperature to be 20^{0} C, (2) no heat transfer is taking from top surface of water through convection to the ambient, and (3) temperature of water is approximately constant at 50^{0} C.

Thus rate of transfer of heat through flat bottom and identical top by conduction is

 $\frac{\Delta Q}{\Delta t} = \frac{k \times 2A \times \Delta T}{l}, \text{ using the given data } \frac{\Delta Q}{\Delta t} = \frac{200 \times 2 \times (10 \times 10^{-4}) \times (50 - 20)}{1 \times 10^{-3}} = 12000 \text{ J.s}^{-1}.$ Further, for fall of temperature by 1°C the amount of heat lost by water is

$$\Delta Q = ms\Delta T = (A \times h \times \sigma) \times s \times (50 - 49) \Longrightarrow \Delta Q = (0.10 \times (10 \times 10^{-4}) \times 1000) \times 4200 \times 1 = 4.2 \times 10^{2}, \text{ using the given}$$

data. Accordingly, time taken for fall of temperature by 1°C is $t = \frac{\Delta Q}{\frac{\Delta Q}{\Delta t}} = \frac{4.2 \times 10^2}{12000} = 0.035 \text{ s.}$

N.B.: Based on assumptions answer would change, therefore, whenever any assumption is made it must be specified. Such questions can be expected as a part of subjective tests.



Question 8 : The ends of a meter stick are maintained at 100° C and 0° C. One end of another rod is maintained at 25° C. Where should its other end be touched on the meter stick so that there is no heat current in the rod in steady state?

Illustration: If another rod with one end at 250C touches the rod having heat transfer at point where temperature is 250C there will not be any heat flow from the another rod.

Given system as shown in figure is having constant heat transfer from source to sink at the equilibrium condition. Applying the form of equation of a line for which coordinates of two points on it are known. In the instant these two points are (0,100) and (100,0). Accordingly, equation of line is $\theta_x - \theta_1 = \frac{T_2 - T_1}{l} (x - x_1) \Rightarrow 25 - 100 = \frac{0 - 100}{100} (x - 0) \Rightarrow x = 75$. This is

the distance from the hot end. Therefore distance from the cold end is l-x = 100-75 = 25 cm. Hence answer is 25 cm.



Question 9: On a winter day when atmospheric temperature drops to -10° C, ice forms on the surface of a lake,

- (a) Calculate the rate of increase of thickness of the ice when 10 cm of ice is already formed,
- (b) Calculate the total time taken in forming 10 cm of ice.

Assume that the temperature of the entire water reaches 0^{0} C before the ice starts forming. Density of water =1000 kg.m⁻³, latent heat of fusion of ice = 3.36×10^{5} J.kg⁻¹ and thermal conductivity of ice =1.7 W.m^{-1.0}C⁻¹. Neglect the expansion of water on freezing.

Illustration: In this problem rate of transfer of heat by conduction $\frac{dQ}{dt} = \frac{kA\Delta T}{l}$ through ice layer of thickness

l = 0.10 m has to be equal to rate of solidification of ice where $\frac{dQ}{dt} = L \frac{dM}{dt} = \frac{L(\sigma A dl)}{dt}$. Equating the two, with the

given data we get, $\frac{1.7 \times 1 \times (0 - (-10))}{10 \times 10^{-2}} = \left(\frac{1 \times dl \times 1000}{dt}\right) \times (3.36 \times 10^5) \Rightarrow \frac{dl}{dt} = \frac{1.7 \times 10^2}{3.36 \times 10^8} = 0.5 \,\mu \,\mathrm{m.s^{-1}}.$ Therefore answer of part (a) is $5.0 \times 10^{-7} \,\mathrm{m.s^{-1}}.$

Combining the two equation of $\frac{dQ}{dt}$ we get $\frac{kA\Delta T}{l} = \frac{L(\sigma Adl)}{dt} \Rightarrow dt = \frac{L\sigma}{k\Delta T} ldl$. To determine time taken to form a layer of ice of 10 cm thickness on integration we get $\int_{0}^{t} dt = \frac{L\sigma}{k\Delta T} \int_{0}^{0.1} ldl \Rightarrow t = \frac{L\sigma}{k\Delta T} \left[\frac{l^2}{2} \right]_{0}^{0.1} = \frac{(3.36 \times 10^5) \times 1000}{1.7 \times 10 \times 2} \times (1 \times 10^{-2}) = 1 \times 10^5 \text{ s} = \frac{1 \times 10^5}{60 \times 60} = 27.5 \text{ Hrs.}$

Therefore answer of part (b) is 27.5 Hrs.

Question 10: A hollow tube has a length l, inner radius R_1 and outer radius R_2 and the material of the tube has thermal conductivity k. Find the heat flowing through the walls of the tube if –

- (a) The flat ends are maintained at temperature T_1 and T_2 such that $T_2 > T_1$
- (b) The inside of the tube is maintained at temperature T_1 and outside is maintained at temperature T_2

Illustrations: This is the problem of conduction of heat through a tube involving

basic equation as per Fourier's Law is $\frac{dQ}{dt} = -kA\frac{d\theta}{dl}$, and is being appled to different geometrical configurations given in the problem.

Part (a): It is a case of axial Conduction. As shown in the figure an element of pipe of thickness Δx is taken a distance x from the end whose cross-section is at temperature T_1 . Let cross-section of pipe having area $A = \pi \left(r_2^2 - r_1^2\right)$. Thus heat

flow through the cross-sectional element of tube of thickness Δx is, $\frac{dQ}{dt} = -k\pi (r_2^2 - r_1^2) \frac{d\theta}{dx} = K$ this is constant since in steady state there is no absorption of heat and therefore constant temperature of each cross-section. $Kdx = -k\pi (r_2^2 - r_1^2) d\theta \Rightarrow \int_{0}^{t} Kdx = -\int_{T_1}^{T_2} k\pi (r_2^2 - r_1^2) d\theta \Rightarrow Kl = -k\pi (r_2^2 - r_1^2) (T_2 - T_1) = k\pi (r_2^2 - r_1^2) (T_1 - T_2).$ This

resolves into
$$K = \frac{dQ}{dt} = \frac{k\pi (r_2^2 - r_1^2)(T_1 - T_2)}{l}$$
. Hence answer of part (a) is $\frac{k\pi (R_2^2 - R_1^2)(T_2 - T_1)}{l}$

Part (b) : This is a case of radial conduction. As per Fourier's Law heat transfer by conduction through a small element, as shown in the figure, is $\frac{dQ}{dt} = -\frac{k(2\pi rd)\Delta\theta}{dr} = K$, having radius r and outer radius $r + \Delta r$ maintained at temperatures T_1 and T_2 respectively. The rate of heat transfer in steady state remains constant all through every infinitesimal element, without temp buildup along thickness of the tube. Hence, $\int_{T_1}^{T_2} d\theta = -\frac{K}{2k\pi d} \cdot \int_{r_1}^{r_2} \frac{dr}{r} \Rightarrow T_2 - T_1 = -\frac{K}{2k\pi d} [\ln r]_{r_1}^{r_2} \Rightarrow T_1 - T_2 = \frac{K}{2k\pi d} \cdot \ln \frac{r_2}{r_1}$. It leads to rate of heat $K = \frac{dQ}{dt} = (T_1 - T_2) \cdot \frac{2k\pi d}{\ln \frac{r_2}{r_1}}$ Hence answer is $\frac{2\pi kd(T_1 - T_2)}{\ln \left(\frac{r_2}{r_1}\right)}$

Question 11: Consider the situation shown in the figure. The frame is made of the same material and uniform cross-section everywhere. Calculate the amount of heat flowing per second through a cross-section of the bent part if total heat taken out per second from the end at 0^{0} C is 130 J.

Illustration: Let temperature at points B and C are T_B and T_C respectively. The cross-sectional area of each part of the frame be A and thermal conductivity of the material be K. Heat transfer through conduction is $\frac{dQ}{dt} = \frac{KA\Delta\theta}{l}$. The system can be $0^{\circ}C \stackrel{A}{\longrightarrow} 5_{\text{cm}} \stackrel{B}{\longrightarrow} F_{\text{cm}} \stackrel{D}{\longrightarrow} 100^{\circ}C$ visualized as shown in the figure and accordingly heat flowing in



section AB is
$$\frac{dQ_{AB}}{dt} = \frac{KA(T_B - 0)}{0.20} = \frac{KAT_B}{0.20}$$
; in section B-C it is $\frac{dQ_{BC}}{dt} = \frac{KA(T_C - T_B)}{0.60}$; in section B-E-F-C it is
 $\frac{dQ_{BEFC}}{dt} = \frac{KA(T_C - T_B)}{0.05 + 0.60 + 0.05} = \frac{KA(T_C - T_B)}{0.70}$ and in section C-D it is $\frac{dQ_{CD}}{dt} = \frac{KA(100 - T_C)}{0.20}$. When system is in
equilibrium $\frac{dQ_{AB}}{dt} = \frac{dQ_{CD}}{dt} = 170 \text{ J.s}^{-1}$. Accordingly, in section A-B, $\frac{KAT_B}{0.20} = 170 \Rightarrow T_B = \frac{34}{KA}$ and in section C-D it is
 $\frac{KA(100 - T_C)}{0.20} = 170 \Rightarrow 100 - T_C = \frac{34}{KA} \Rightarrow T_C = 100 - \frac{34}{KA}$. Therefore, heat
in section B-C is $\frac{dQ_{BC}}{dt} = \frac{KA(T_C - T_B)}{0.60}$; substituting the intermediate
temperatures derived above $\frac{dQ_{BC}}{dt} = \frac{KA(\left(100 - \frac{34}{KA}\right) - \frac{34}{KA}\right)}{0.60} = \frac{100KA - 68}{0.60}$ and
 $\frac{dQ_{BEFC}}{dt} = \frac{KA\left(\left(100 - \frac{34}{KA}\right) - \frac{34}{KA}\right)}{0.70} = \frac{100KA - 68}{0.70}$. It leads to Since $\frac{dQ_{BC}}{dt} = \frac{100KA - 68}{0.70} \Rightarrow \frac{dQ_{BEC}}{dt} = \frac{0.7}{0.6}$. Applying
componendo, $\frac{dQ_{AB}}{dt} = \frac{1.3}{0.6} \Rightarrow \frac{dQ_{BEFC}}{dt} = 130 \times \frac{0.6}{0.7} = 60$. Thus answer is 60 J.

N.B.: This is an example of simplification using compnendo of algebra in simplifying the calculations

Question 12: A room has a window fitted with a single $1.0 \text{ m} \times 2.0 \text{ m}$ glass of thickness 2mm.

- (a) Calculate the rate of heat flow through the closed window when the temperature inside room is 32° C and that outside is 40° C.
- (b) The glass is now replaced by two glass panes, each having a thickness of 1mm and separated by a distance of 1mm. Calculate the rate of heat flow under the same conditions of temperature.

Thermal conductivity of window glass is 1.0 J.s⁻¹.m⁻¹.⁰C⁻¹ and that of air is 0.025 J.s⁻¹.m⁻¹.⁰C⁻¹.

Illustration: Heat transfer through conduction is $\frac{dQ}{dt} = \frac{KA\Delta\theta}{l} = \frac{\Delta\theta}{R}$, here $R = \frac{l}{KA}$ is thermal resistance of the heat conduction medium. The problem is solved part-wise.

Part (a): In case of heat conduction through window $R_g = \frac{2 \times 10^{-3}}{1 \times (1 \times 2)} = 1 \times 10^{-3}$ hence $\frac{dQ_g}{dt} = \frac{(40 - 32)}{1 \times 10^{-3}} = 8000$ J.s⁻¹.

This is answer of Part (a)

Part (b): In this case air film of 1mm thickness is sandwiched between two glass panes each of thickness 1 mm it forms a series combinations of resistances with effective resistance such that

$$R'_{g} = \frac{1 \times 10^{-3}}{1 \times (1 \times 2)} = 5 \times 10^{-4} \text{ and } R_{a} = \frac{1 \times 10^{-3}}{0.025 \times (1 \times 2)} = 2 \times 10^{-2}$$
. Thus in this case effective

thermal resistance $R = R'_g + R_a + R'_g = 2 \times 5 \times 10^{-4} + 2 \times 10^{-2} = 21 \times 10^{-3}$. Hence, net rate of conduction of heat is conductivity would be $\frac{dQ_g}{dt} = \frac{(40-32)}{21 \times 10^{-3}} = 381$ J.s⁻¹. This is answer of Part (b).

Hence answers are (a) 8000 $J.s^{-1}$ (b) 381 $J.s^{-1}$

Question 13: Two bodies of masses m_1 and m_2 and specific heat capacities s_1 and s_2 are connected to a rod of length L, area of cross-section A and thermal conductivity K and negligible heat capacity. The whole system is thermally insulated, At a time t = 0, the temperature of the first body is T_1 and temperature of the second body is T_2 ($T_2 > T_1$). Find the temperature difference between the two bodies at time t.

Illustration: Let temperature of mass m_1 and m_2 are initially at temperatures T_1 and T_2 such that $T_2 > T_1$. Rate of heat conduction is $\frac{dQ}{dt} = \frac{KA\Delta T}{L}$...(1) As heat is conducted from mass m_2 to m_1 and, temperature of mass m_2 falls $\frac{dQ}{dt} = m_2 s_2 \frac{dT}{dt}$ and likewise temperature of mass m_1 rises. Therefore, combining the two equations for mass m_2 , during an infinitesimal time it would be -

$$\frac{dQ}{dt} = \frac{m_2 s_2 \left(T_2 - T_2'\right)}{dt} = \frac{KA \left(T_2' - T_1'\right)}{L} \Longrightarrow T_2' = T_2 - \frac{KA}{m_2 s_2 L} \left(T_2' - T_1'\right) dt \dots (1)$$

Likewise for mass m_1 , it would be-

$$\frac{dQ}{dt} = \frac{m_1 s_1 \left(T_1' - T_1\right)}{dt} = \frac{KA \left(T_2' - T_1'\right)}{L} \Longrightarrow T_1' = T_1 + \frac{KA}{m_1 s_1 L} \left(T_2' - T_1'\right) dt \dots (2)$$

Subtracting Eqn (2) from Eqn (1) we get $T_2' - T_1' = T_2 - T_1 - \frac{KA}{m_2 s_2 L} (T_2' - T_1') dt - \frac{KA}{m_1 s_1 L} (T_2' - T_1') dt$. It leads to $T_2' - T_1' = T_2 - T_1 - \frac{KA}{L} \left(\frac{1}{m_2 s_2} + \frac{1}{m_1 s_1} \right) (T_2' - T_1') dt \Rightarrow \Delta T' = T_2 - T_1 - \frac{KA}{L} \left(\frac{m_1 s_1 + m_2 s_2}{m_1 m_2 s_1 s_2} \right) \Delta T' dt$, here temperature difference between the two masses at any instant t is $\Delta T' = T_2' - T_1'$.

Differentiating this equation w.r.t. t we get $\frac{d\Delta T'}{dt} = -\frac{KA}{L} \left(\frac{m_1 s_1 + m_2 s_2}{m_1 m_2 s_1 s_2} \right) \Delta T' \Longrightarrow \frac{d\Delta T'}{dt} = -\lambda \Delta T'$, here

$$\lambda = \frac{KA}{L} \left(\frac{m_1 s_1 + m_2 s_2}{m_1 m_2 s_1 s_2} \right)$$
 On separating the variables $\frac{d\Delta T'}{\Delta T'} = -\lambda dt$. Here, ΔT which is driving the forward process of

heat transfer while $\Delta T = (T_2 - T_1)$ becomes pre-transfer constant and hence $\frac{d(T_2 - T_1)}{dt} = 0$. Accordingly, on integration of the equation in its final form we get



$$\int_{T_2-T_1}^{T_{2t}-T_{1t}} \frac{d\Delta T'}{\Delta T'} = -\lambda \int_0^t dt \Rightarrow \left[\ln \Delta T' \right]_{T_2-T_1}^{T_{2t}-T_{1t}} = -\lambda t \Rightarrow \ln \frac{T_{2t}-T_{1t}}{T_2-T_1} = -\lambda t \Rightarrow T_{2t} - T_{1t} = \left(T_2 - T_1\right) e^{-\lambda t}.$$
 Hence answer is $(T_2 - T_1) e^{-\lambda t} \mathbf{C}$, here $\lambda = \frac{KA}{L} \left(\frac{m_1 s_1 + m_2 s_2}{m_1 m_2 s_1 s_2} \right)$

N.B.: In this case choice between ΔT and ΔT 'as discussed above is important as it changes the characteristic of the equation

Question 14: An amount n (in moles) of a monatomic gas at an initial temperature T_0 is enclosed in a cylindrical vessel fitted with a light piston. The surrounding air has a temperature $T_{\theta}(>T_0)$ and the atmospheric pressure is p_{θ} . Heat may be conducted between the surrounding and the gas through the bottom of the cylinder. The bottom has a surface area A, thickness x and thermal conductivity K. Assuming all changes to be slow, find the distance moved by the piston in time t.

Illustration: Rate of heat transfer through conducting surface and , using given data is , at any instant when temperature

of gas in cylinder is T, then $\frac{dQ}{dt} = \frac{KA\Delta\theta}{l} \Rightarrow \frac{dQ}{dt} = \frac{KA(T_{\theta} - T)}{r} \dots (1)$ Pe is monatomic and hence, $U = n \frac{3}{2} RT$, therefore Since gas $\frac{dU}{dt} = n \left(\frac{3}{2}R\right) \frac{dT}{dt} \Longrightarrow \frac{dU}{dt} = nC_V \left.\frac{dT}{dt}\right|_{C_V = \frac{3}{-R}}$. Since pressure in the gas is balanced by atmospheric pressure p_{θ} , therefore heat transfer from conducting base shall utilized in constant A, K -Area and Conductivity pressure process therefore $\frac{dQ}{dr} = nC_p \frac{dT}{dt} \dots (2)$ of conducting surface Further $C_p = C_V + R = \frac{3}{2}R + R = \frac{5}{2}R$. Accordingly combining eqn (1) and (2) alongwith value of $C_p = \frac{5}{2}R$ the equation is rewritten $\frac{dQ}{dr} = nC_p \frac{dT}{dt} \Rightarrow \frac{KA(T_{\theta} - T)}{x} = \frac{5}{2}nR\frac{dT}{dt} \Rightarrow \frac{dT}{(T_{\theta} - T)} = \frac{2KA}{5nRx}dt.$ On integrating the equation get $\int_{T_{\theta}-T_{0}}^{T_{\theta}-T} \frac{dT}{\left(T_{\theta}-T\right)} = \frac{2KA}{5nRx} \int_{0}^{t} dt \Rightarrow \left[\ln\left(T_{\theta}-T\right)\right]_{T_{\theta}-T_{0}}^{T_{\theta}-T} = -\frac{2KA}{5nRx}t \Rightarrow \ln\left(\frac{T_{\theta}-T}{\left(T_{\theta}-T_{0}\right)}\right) = -\frac{2KA}{5nRx}t \Rightarrow \frac{\left(T_{\theta}-T\right)}{\left(T_{\theta}-T_{0}\right)} = e^{-\frac{2KA}{5nRx}t}.$ This leads to $T = T_{\theta} - (T_{\theta} - T_0)e^{-\frac{2\Lambda A}{5nRx}t}$. Further as per Ideal Gas Equation $pV = nRT \Rightarrow p\Delta V = nR\Delta T$. Thus in the given case of gas enclosed in combining IGL and temperature isobaric process an $p_{\theta}A\Delta l = nR(T - T_0) \Longrightarrow \Delta l = \frac{nR}{p_{\theta}A} \left(\left(T_{\theta} - \left(T_{\theta} - T_0 \right) e^{-\frac{2KA}{5nRx}t} \right) - T_0 \right) \Longrightarrow \Delta l = \frac{nR}{p_{\theta}A} \left(T_{\theta} - T_0 \right) \left(1 - e^{-\frac{2KA}{5nRx}t} \right).$ Thus answer is $\frac{nR}{P_{d}}(T_{\theta}-T_{0})\left(1-e^{-\frac{2kAt}{5Rnx}}\right)$

N.B.: This is again a case of integration of concepts.

Question 15: A spherical tungsten piece of radius 1.0 cm is suspended in an evacuated chamber maintained at 300 K. The piece is maintained at 1000 K by heating it electrically. Find the rate at which the electrical energy must be supplied. The emissivity of tungsten is 0.30 and the Stefan constant is $\sigma = 6.0 \times 10^{-8}$ W.m^{-1.0}K⁻¹.

Illustration: In the problem radius of spherical tungsten piece is 1 cm and hence its surface area $A = 4\pi r^2 = 4 \times 3.14 \times (1 \times 10^{-2})^2 = 12.56 \times 10^{-4}$. As per Stefan's law $\frac{dQ_{\text{ems}}}{dt} = Ae\sigma T^4$. Thus with the given data $\frac{dQ_{\text{ems}}}{dt} = (12.56 \times 10^{-4}) \times 0.30 \times (6.0 \times 10^{-8}) (10^3)^4 = 22.6 \text{ W}.$ At the same time haet absorbed by the spherical piece as per Stefan's law is $\frac{dQ_{abs}}{dt} = A\sigma T^4 = (12.56 \times 10^{-4}) \times (6.0 \times 10^{-8}) (3.0 \times 10^2)^4 = 0.02 \text{ p.}$ Therefore, heat required to maintain temperature of the ball at 1000 K is $\frac{dQ}{dt} = \frac{dQ_{\text{ems}}}{dt} - \frac{dQ_{\text{abs}}}{dt} \Rightarrow \frac{dQ}{dt} = 22.6 - 0.02 = 22.58 \text{ W}$. This as per SD is 22 W. Hence answer is 22 W.

हमारा पंचवर्षीय प्रवास







Start: June-2012

पारम्परिक शैक्षणिक मार्दर्शन से प्रारम्भ कर आज हम तकनीकी-विकास के सहारे मूलभूत प्रासंगिकता को आगे बढने में संलग्न हैं.. यह प्रयास अपने सामाजिक कर्त्तव्य के प्रति सहजविनीत आग्रह है; कृपया इस पर विचार करें.

-00—

Growing with Concepts: Chemistry

THE PERIODIC TABLE

Kumud Bala

How to learn periodic table: Periodic table may be defined as the arrangement of the known elements according to their properties in a tabular form. Elements are arranged horizontally in ascending order of their proton numbers from 1 to 116 in the periodic table.



The long form of the periodic table consists of horizontal rows called periods and vertical columns called groups. **Periods:** each horizontal row of elements in the periodic table is known as a period. There are seven horizontal rows of elements in the periodic table known as period 1, period 2, until period 7. Periods 1 to 3 are short periods while periods 4 to 7 are long periods. Period 1 contains 2 elements. Periods 2 and 3 contain 8 elements respectively. Periods 4 and 5 contain 18 elements respectively. Period 6 contains 32 elements. Period 7 contains 27 elements. Although period 6 contains 32 elements is called lanthanides. Similarly, elements with atomic numbers 89 to 103 in the period 7 are arranged separately at the bottom of the periodic table. This series of elements at the bottom of the periodic table. This series of elements at the bottom of the periodic table. This series of elements at the bottom of the periodic table. This series of elements at the bottom of the periodic table. This series of elements are arranged separately at the bottom of the periodic table. This series of elements are arranged separately at the bottom of the periodic table. This series of elements is called lanthanides. Similarly, elements with atomic numbers 89 to 103 in the period 7 are arranged separately at the bottom of the periodic table. This series of elements is called lanthanides.

Groups: each vertical column of elements in the periodic table is known as a group. Elements with the same number of valence electrons are arranged in the same group. There are 18 vertical columns of elements in the periodic table known as group 1, group 2, until group 18. Group 1 elements are known as alkali metals. Group 2 elements are known as alkaline earth metals. Group 3 to 12 elements are known as transition elements. Group 17 elements are known as halogens. Group 18 elements are known as noble gases.

Metallic and non-metallic properties: elements in group 1, 2 and 13 are metals. Transition elements in group 3 to 12 are also metals. Elements in group 15, 16, 17, and 18 are non-metals. In group 14, carbon and silicon are non-metals. Germanium is a metalloid (semi-metal). Tin and lead are metals.

1. Relationship between the electron arrangement and the position of the elements in the periodic table.

1 H																	2 He
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg											13 AI	14 Si	15 P	16 S	17 CI	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	³⁴ Se	35 Br	³⁶ Кг

Figure shows the electron arrangements of the elements with atomic number 1 to 36 in the periodic table.

2. Relationship between the electron arrangement and the group number of an element: Based on above figure, the group number of an element is determined by the number of valence electron in an atom of the element. Table shows the relationship between the number of valence electron and the group number of an element.

Number of valence electron	1	2	3	4	5	6	7	8 except helium
Group	1	2	13	14	15	16	17	18

For elements with 1or 2 valence electrons, Group number of that element = number of valence electrons

For elements with 3 to 8 valence electrons, Group number of that element = number of valence electrons plus 10

Note:- Helium with an electron arrangement of 2 is placed in group 18. This is an exception. This is because helium has similar inert properties as the other noble gases in group 18.

Example:- Element Q has a mass number 27. An atom of element Q contains 14 neutrons. In which group is element Q located in the periodic table?

Solution:- number of electrons in an atom = number of protons = 27-14=13, electron arrangement of atom Q = 2, 8, 3 number of valence electrons= 3 \therefore group number = 3+10=13, hence element is located in group 13 of the periodic table.

3. Relationship between the electron arrangement and the period number of an element: Based on above figure, the period number of an element is determined by the number of shells occupied with electrons in an atom of that element. Table shows the relationship between the number of shells occupied with electrons and the period number of an element.

Number of	1	2	3	4	5	6	7
shells occupied							
with electrons							
Period	1	2	3	4	5	6	7

Hence, period number of an element = number of shells occupied with electrons in an atom of that element.

Example- element T has a proton number of 19 and a nucleon number of 39. In which period is element T located in the periodic table?

Solution:- Number of electron in atom T = number of proton in atom T = 19 \therefore electron arrangement of atom T = 2,8,8,1 Atom T has 4 shells occupied with electrons. Hence, element T is located in period 4 of the periodic table.

Example- element R is located in group 15 and period of the periodic table. What is the electron arrangement of an atom of element R?

Solution:- atom R has 5 valence electrons because it in is group 15. Atom R has 3 shells occupied with electrons because it is in period 3. Electron arrangement of atom R = 2, 8, 5

Elements with the same number of valence electrons will exhibit similar chemical properties.

For example- atom A with an electron arrangement of 2, 8, 2 and atom B with an electron arrangement of 2, 8, 8, 2 exhibit similar chemical properties. This is because both the atoms of A and B have same number of valence electrons (2). The long form of the periodic table can be divided into four main blocks. These are s, p, d and f- blocks. This division of elements is based upon the electronic configuration of the atoms. In this division the element which involve the filling of a particular orbital (i.e., s, p, d and f) are grouped together.

Periodic table mnemonics: Mnemonics are words or sentences used to help remember rules or names that are difficult to learn. In this article, we will find Hindi mnemonics- one each for one group- to learn the periodic table. The periodic table provides the name, atomic number, symbols and atomic weights of known elements. It serves as a great tool for solving chemistry problems. A periodic table is divided into groups, where elements show similarities with each other while bonding with other elements and periods, where elements in one period have same number of electron shells. Here are some fun, interesting and naughty mnemonics in Hindi used by the students to memorize elements along each group or period.

Key to reading these mnemonics or Hindi sentence:

(i) these sentences contain letters denoting symbols of elements in the same order as they occur in a group.

(ii) The symbols have been highlighted as bold letters in the sentence. However, at the places where the complete symbol could not be included in the sentence, the first letters have been strung together and the second letter is shown in brackets. While reading the sentence we don't have to read the letters in bracket. Just keep them in mind.

(iii) At some places, phonetics have been used to denote a symbol such as 'c' could be replaced by 'k', 'g' with 'j', 'I' with 'ea' and 'o' with 'u' to make the sentence easier to remember.

s-block elements: The elements in which the last electron enters the s-orbitals of their outermost energy level are called s-block elements. It contains first two groups. Group 1 is known as alkali metals. It includes lithium (Li), sodium (Na), potassium (K), rubidium (Ru), cesium (Cs) and francium (Fr) Mnemonic for group 1: LiNa Ki Ruby Cse Friendship hai.

Group 2 is known as alkaline earth metals. It includes beryllium (Be) magnesium (Mg), calcium (Ca), strontium (Sr), barium (Ba) and radium (Ra). Mnemonic for group 2: Beta Mange Car Scooter Baap rone pe Raazi

p-block elements: The elements in which the last electron enters the p-orbital of their outermost energy level are called p-block elements. This block contains last six groups of the periodic table (group 13 to 18). They include metals, non-metals and semi-metals.

Group 13 is known as boron group. It includes boron (B), aluminium (Al), gallium (Ga), indium (In) and thallium (Tl). Mnemonic for group 13: B A G I T

Group 14 is known as carbon group or the group of crystallogens or tetragens.it includes carbon (C), silicon ((Si), germanium (Ge), tin (Sn) and lead (Pb). Mnemonic for group 14: Chemistry Sir Gives Sanki Problems.

Group 15 is known as nitrogen group or pnictogens. It includes nitrogen (N), phosphorus (P), arsenic (As), antimony (Sb), and bismuth (Bi). Mnemonic for group 15: Nahi Pasand Aise Sab Bhai.

Group 16 is known as oxygen group or chalcogens. It includes oxygen (O), sulphur (S), selenium (Se), tellurium (Te), and the radioactive element polonium (Po). Mnemonic for group 16: Oh! Style Se Tel Polish.

Group 17 is known as halogens. It includes fluorine (F), chlorine (Cl), bromine (Br), iodine (I) and astatine (At). Mnemonic for group 17: Fir Call kar Bahaar Aagi Aunty.

Group 18 is known as noble gases or inert gases because these gases exhibit very low chemical reactivity. The group includes helium (He), neon (Ne), argon (Ar), krpton (Kr), Xenon (Xe) and the radioactive element radon (Rn). Mnemonic for group 18: **He Never Arrived**; Kara Xero Run pe out.

d-block elements- the elements in which the last electron enters the d-orbital of their last but one (called penultimate) energy level constitute d-block elements. This block consists of the elements lying between s and p-blocks starting from fourth period and onwards. They constitute groups 3 to 12 in the periodic table. These elements are called transition elements. D-block elements show considerable similarities across the period too. We can memorize these elements across the periods. Period 4 elements: 3d-orbitals are gradually filled. They are quite stable and many of them are very common in earth's crust or core or both. 4th period includes scandium (sc), titanium (Ti), vanadium (V), chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu) and zinc (Zn). Mnemonic for period 4: **Sc**ience

Ti(ea)cher Vineeta Criplani ManFenko(FeCo) Ni kyun (Cu) Zaan hai. Read as: Science teacher Vineeta Kriplani mankenko ni kyun zaan hai.

Period 5 elements: 4d-orbitals are gradually filled. It includes yttrium (Y), zirconium (Zr), niobium (Nb), molybdenum (Mo), technetium (Tc), ruthenium(Ru), rhodium (Rh), palladium (Pd), silver (Ag) and cadmium (Cd). Mnemonic for period 5: Yeh Zarra Nabi bana Mohabaat mein T(c)eri, R(u)o R(h)o P(d)ukarogi Aaj(g) ise Chandni. Read as: Yeh Zarra Nabi bana mohabaat mein teri, ro ro pukarogi aaj ise chandni.

Period 6 elements: 5d-orbitals are gradually filled. It includes lanthanum (La), hafnium (Hf), tantalum (Ta),tungsten (W), Rhenium (Re), osmium (Os), iridium (Ir), platinum (Pt), gold (Au) and mercury (Hg). Mnemonic for period 6: La Hafta Warna Reh Us (Os) Irritating Popat ke saath Aur Hoj(g)a pagal. Read as: La hafta warna reh us irritating popat ke saath aur hoja pagal.

Period 7 elements: 6d- orbitals are gradually filled. It contains actinium (Ac), rutherfordium (Rf), dubnium (Db), seaborgium (Sg), bohrium (Bh), hassium (Hs), meitnerium (Mt) and darmstadtium (Ds). Mnemonic for period 7: Ak(c)e R(f) D(b) S(g)harma ki B(h)ook mein H(s)ain Maths ke Difficult sawaal. Read as: Akele R. D. Sharma ki book main hain maths ke difficult sawaal.

f-block elements: The elements in which the last electron enters the f-orbitals of their atoms are called f-block elements. In these elements, the last electron is added to the third to the outer most (called antepenultimate) energy level (n-2) f. These consist of two series of elements placed at the bottom of the periodic table. The first series follows lanthanum (La) (z=57) and the elements present in this series are called lanthanides. These are also called rare earth elements. The second series follows actinium (Ac) (Z=89) and the elements present in this series are called actinides. These are of radioactive nature.

The elements included in these two series are called inner transition elements because they form transition series within the transition elements of d-block. Lanthanides include cerium (Ce), praseodymium (Pr), neodymium (Nd), Promethium (Pm), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), yetterbium (Yb) and lutetium (Lu). We can learn all these in three parts:

1. Cerium (Ce), Praseodymium (Pr), Neodymium (Nd), Promethium(Pm) and Samarium (Sm) Mnemonic for lanthanides part1: Ce lina aur Preety Ne dande se Pammy aur Simmy ko mara.

2. Europium (Eu), Gadolinium (Gd), Terbium (Tb), Dysprosium (Dy) and Holmium (Ho) Mnemonic for lanthanides part2: Europe G(d) aya to TB(b) aur Di(y) arrahoea Ho gaya.

3. Erbium (Er), Thulium (Tm), Ytterbium (Yb) and Lutetium (Lu). Mnemonic for lanthanides part 3: Ere dekh Tamatar Yellow aur **bLue** hai Actinides include thorium, protactinium, uranium, neptunium, plutonium, americium, curium, berkelium californium, einsteinium, fermium, mendelevium, nobelium and lawrencium.

We can learn these in three parts too. 1. Thorium (Th), Protactinium (Pa), Uranium (U), Neptunium (Np) Mnemonic for actinides part1: Thode Pehelwan hai Unse Niptengey. 2. Plutonium (Pu), Americium (Am), Curium (Cm), Berkelium (Bk). Mnemonic for acticides part2: Purane Aam k(C)am Bike ge 3. Californium (Cf), Einsteinium (Es), Fermium (Fm), mendelevium (Md), Nobelium (No) and Lawrencium (Lr). Mnemonic for actinides part3: Café ki Etnis i Family aMdani mein No Ladki rajee

Assignment

- 1. The maximum number of elements in 3^{rd} period is...
- (A) 8 (B) 18 (C) 32 (D) between 8 and 18
- Which one of the following elements belongs to the family of elements that includes the element chlorine? (A) Astatine (B) Rubidium (C) Tungsten (D) Cerium
- 3. Which one of the following is not a transition metal?
- (A) silver (B) lead (C) tungsten (D) manganese
- 4. The recently discovered element, Meitnerium (Z= 109) belongs to...
 (A) s-block (B) p-block (C) d-block (D) f-block
- 5. The fourth period of the p-block elements contains
 (A) 6 elements (B) 8 elements (C) 10 elements (D) 18 elements
- 6. Which pair of atomic number represents s-block elements? (A) 7,15 (B) 6,12 (C) 9, 17 (D) 3,12
- 7. The elements with atomic number 9,17,35,53 and 85 are all.....

(A) noble gases (B) halogens (C) heavy metals (D) light metals.

8. Lanthanides are

- (A) 14 elements in the sixth period (Z = 90 to 103) that are filling 4f-sub level.
- (B) 14 elements in the seventh period (Z=90 to 103) that are filling 5f-sub level.
- (C) 14 elements in the sixth period (Z=58 to 71) that are filling 4f-sub level.
- (D) 14 elements in the seventh period Z=58 to 71) that are filling 4f-sublevel.
- 9. The group of elements in which the differentiating electron enters the antepenultimate shell of atoms is called.......
 (A) f-block elements
 (B) p-block elements
 (C) s-block elements
 (D) d-block elements.
- **10.** Which one of the following is a d-block element? (A) Gd (B) Hs (C) Es (D) Cs

10. (B)	(A) .e	(C) 8.	7. (B)	(D) .0	(A) .č	4' (C)	3. (B)	2. (A)	(A) .1
SVANEKS									



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



Take care of your thoughts, For they are formed and moulded by our thoughts. Those whose minds are shaped by selfless thoughts, Give joy when they speak or act. Joy follows them like a shad, that never leaves them.

Gautama Buddha



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

(Albert Einstein)

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SCIENCE QUIZ : August-2019

- Which of the following is not a metal?
 (A) Copper
 (B) Sulphur
 (C) Aluminum
 (D) Iron

-					-	_
(0	C) Piece	e of coal	(I))	Zinc granul	e

3. Materials which can be drawn into wires are called ductile. Which of the following is not a ductile material?

(A) Silver(B) Copper(C) Sulphur(D) Aluminum

- 4. Metals are generally hard. Which of the following metals is an exception and can be cut with a knife?
 (A) Iron (B) Sodium
 (C) Gold (D) Magnesium
- 5. Which of the following metals is in the liquid state at room temperature?

(A) Mercury (B) Silver (C) Aluminum (D) Sodium

6. Metals generally react with dilute acids to produce hydrogen gas. Which one of following metals does not react with dilute hydrochloric acid?

(A) Magnesium	(B) Aluminum
(C) Iron	(D) Copper

7. Which of the following reacts with cold water vigorously?

(A) Carbon	(B) Soaium
(C) Magnesium	(D) Sulphur

8. The metal which produces hydrogen gas on reaction with dilute hydrochloric acids as well as sodium hydroxide solution is

(A) Copper(B) Iron(C) Aluminum(D) Sodium

9. Which of the following non-metals reacts and catches fire on exposure to air?

(A) Phosphorus	(B) Nitrogen
(C) Sulphur	(D) Hydrogen

10. Generally metallic oxides are basic and non-metallic oxides are acidic in nature. Solution of which of the following oxides in water will change the colour of blue litmus to red?

(A) Sulphur dioxide	(B) Iron oxide
(C) Magnesium oxide	(D) Copper oxide.

11. Which of the following property is not responsible for copper to be used as electrical conduction wires?(A) Ductility(B) Colour

Kumud Bala

- (C) Good conductor of electricity (D) It is solid
- **12.** A purple colored non-metal forms a brown solution in alcohol which is applied on wounds as an antiseptic. Name the non-metal.
 - (A) Iodine (B) Bromine
 - (C) Carbon (D) Sulphur
- 13. Zinc sulphate forms a colorless solution in water. Will you observe any color on adding copper turning in it?
 - (A) Blue solution(B) Brown solution(C) Red solution(D) No color change
 - (C) Ked solution (D) No color change
- **14.** Which statement is true from the following statement?
 - (A) The property of metals by virtue of which they can be drawn into wires is called ductility.
 - (B) Metals are good conductors of electricity but poor conductors of heat.
 - (C) Oxides of non-metals and metals are acidic in nature.
 - (D) A less reactive metal displaces a more reactive metal from its salt solution in water.
- **15.** Which of the following properties is generally not shown by metals?

(A) Ductility	(B) Sonorous
(C) Dullness	(D) Electrical conduction.

16. The ability of metals to be beaten into thin sheets is known as

(A) Ductility(B) Conductivity(C) Malleability(D) Sonorous

- **17.** Alloys are homogeneous mixtures of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents?
 - (A) Amalgam (B) Brass (C) Bronze (D) Steel
- 18. Select from the following a set which comprises of one element, one compound and one mixture.(A) Hydrogen, carbon dioxide, air
 - (B) Soil, water and oxygen
 - (C) Silver, gold and methane
 - (D) Air, water and sulphuric acid
- **19.** Which one of the following is a group of ores from which iron can be conveniently and profitably

extracted?

(A) Galena and magnetite

(B) Cinnabar and hematite

(C) Bauxite and galena

(D) Magnetite and hematite

20. Metallurgical processes involve following steps- (1) extracting (2) refining (3) crushing and grinding (4) concentration. The exact order of these steps is......
(A) 3.1.2.4 (B) 3.4.1.2

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	(C)	3	,1	,4,2	((D)) 1	,4	,2	,3

21. Select from the following a group of elements only – (A) Air, water, hydrogen and gold

(B) Silver, oxygen, iodine and nitrogen

(C) Copper, brass, calcium and methane

(D) Aluminum, bronze, steam and bauxite.

22. The most common form in which aluminium occurs in nature is

(A) Carbonate	(B) Halide
(C) Oxide	(D) Sulphide

23. Which of the following is a group of metals that occur in nature in the form of carbonates?

- (A) Calcium and zinc
- (B) Calcium and sodium
- (C) Aluminum and magnesium
 - (D) Sodium and copper
- 24. Which of the following groups of metals is found native in nature?
 - (A) Silver and magnesium
 - (B) Copper and iron
 - (C) Gold and aluminum
 - (D) Mercury and silver
- **25.** Two substance P and Q were made to react to form a third substance P_2Q . According to the following reaction $2P + Q \rightarrow P_2Q$. Select the correct statement about the product P_2Q

(A) the product so form is an element

- (B) the product P_2Q cannot be classified as a compound
- (C) the product P_2Q will show the properties of both P and Q
- (D) the product so formed will always have fixed composition

(Answers to this Science Quiz shall be provided inMonthly e-Bulletin) —00—

Education is not the answer to the question. Education is the means to the answer to all questions. - William Allin

-00-

Education is not job training; the function of education is to instill an appreciation

of our place in the flow of time and space,to expand our intellectual and empathetic understandingof nature and people. -Jonathan Lockwood Huie

—00—

Theme Song:

<u>PREMISE:We are pleased to adopt a song</u>" इतनी शक्ति हमें देना दाता....."from a old Hindi MovieDo 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 nonorganizational 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 he 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 बराई 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 ||

Every end, so also end of this e-Bulletin, is a pause for a review, before Resuming of the journey far beyond ...

Together Each Achieves More (TEAM)







