RAJ KUMAR GOEL INSTITUTE OF TECHNOLOGY

udghosh

THE VOICE OF ECE DEPARTMENT

MESSAGE'S

Prof. (Dr.) R.P. Maheshwari (Director, RKGIT)

I take this opportunity to welcome all new entrants in the portals of RKGIT. RKGIT had been one of the pioneering institutes of this region in self financed technical professional education. During our long 17 years of existence we have never made any compromise with the academic quality and the fact is endorsed by the performance of our students. I am sure that the present bunch of new entrants will contribute to maintain the excellent academic performance.

I wish you all the best in your career and hope that your association with RKGIT will be healthy and cherishable.

Prof. (Dr.) Arvind Singh (Dean Academics, RKGIT)

Time runs and it does not wait. Start where you stand and work with the best of your ability with all the resources at your disposal. You will discover better tools and methods as you proceed during the path of success. The rising sun everyday ushers new hopes and opportunities. Opportunities knock at every door but once. It is your endeavors to convert it into reality.

Let us all put our foot forward together to develop and build your institution to match the world class institution across the globe.

Sharpen your skills in your domain and do that you like doing best so that you get someone to pay for it. Prepare yourself to get celebrated and not merely tolerated. If the opportunity does not knock, build a door. It is possible

only when you gain command over your domain. I welcome all our dear students of B.Tech, B.Pharma, MBA, MCA to add feathers in your professional career and to the cap of RKGIT.

I wish you all a very happy journey ahead along with all the success for your future endeavors.

Dr Dhirendra Kumar (HOD, ECE)

It's a matter of pleasure that the department of Electronics & Communication Engineering is ready to welcome our newly joined students.

We always put our sincere efforts in making their career prosperous and also guide them to be a good human being and give their service to Nation by becoming an expert technical person to make our country stronger. I congratulate to them that they have opted Electronics & Communication Engineering as carrier option.

I also welcome all our beloved of 2nd, 3rd and 4th year students for the new session 2017-18.I must remind all the students that this time the criteria of the attendance become a serious issue as we are detaining students from the end semester examination on the basis of attendance. To punish any student is painful for us equally.

Since the new students are joining our family of RKGIT, all the senior students are required not to get indulged in any kind of act which may be treated as ragging. I need your full cooperation and support in maintaining the teaching and learning environment.

I need the support of all senior students to help in making our campus ragging free.

I advise our final year students for their active involvement in doing their project under the guidance of faculty members who are experts of their field.

EDITORIAL BOARD:

WHAT'S INSIDE

SDP

A three day special training and lecture program "**Staff Development Program**"was organized by the Department of Electronics and Communication from 28.06.17 to 30.06.17. This program was focused on the departmental lab technicians and other staff members.

Day 1:

The eventstarted with the inaugural session by Shri. H.G. Garg(Dean Student Welfare),Dr. Y.K. Gupta(Dean Academics),Dr.Puneet C. Srivasatava(Dean second shift),Dr.DhirendraDwivedi (HOD ECE), Mr. Pawan Shukla(Associate head) and other faculty members.

Later in the first half Microwave Lab was explored under supervision of Dr.DhirendraDwivedi and Mr. P. C. Mishra. In this session the basic knowledge ofMicrowaveBench andIntroduction of the Antenna Length and itsapplication were discussed.

In the second half IC Lab (Integrated Circuit Lab) wastaken up in which Ms. Renu Rani along with Mr KunalLala gave basic introduction of Op-Amp along with experiments performed on Integrator and Inverting Amplifier.

Day 2:

In the first half of the second day DE Lab was taken up under the guidance of Mr. Gaurav Jain in which basic introduction of Digital Electronics like Number System , Logic Gates and K-map were discussed along with Introduction of Experimental Kit was given after which various practicals were also performed.

In the second half Electronics Lab was explored in which Ms. HashmatUsmani gave basic knowledge of Semiconductor and P-N Junction Diode along with Introduction about FET(Field Effective Transistor) and various experiments were performed using P-N Junction Diode , FET , Rectifier and etc.
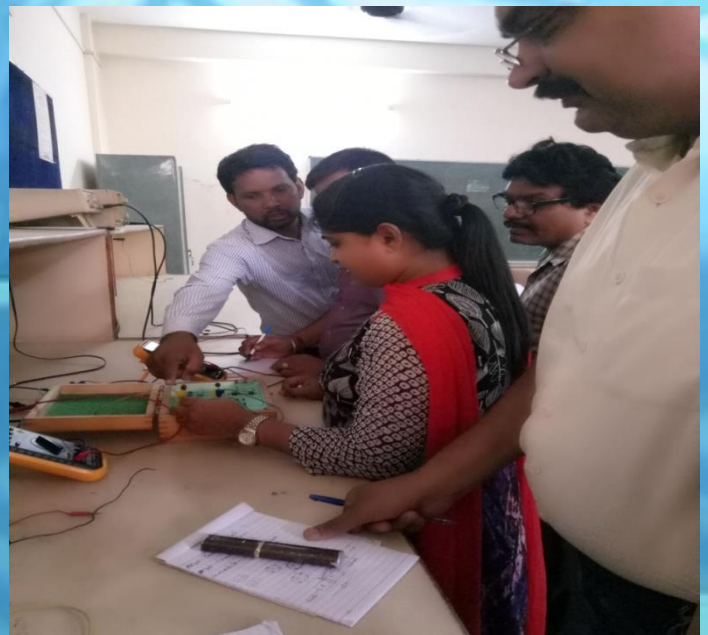
In the first half of the third day Microprocessor Lab was taken up under the guidance of Ms. Anamika Gupta in which basics of Microprocessor along with the concept of Instructions and Programming were explained after which various experiments were performed by understanding and utilization of Experimental Kits.

In the second half Communication Lab was explored under the supervision of Mr. Jagdeep Singh in which the basic principles of communication were discussed along with its barriers.

VIJNANA BHARTI

Vijnana Bharati is widely recognized as a movement for swadeshi sciences, it works for the total development of Bharat through the the science and technology in all possible areas. It is working in many different areas through autonomous institutions, independent organizations and also as project entities.

Dr. Somdev Bharadwaj, Organizing secretary of Vijnana Bharti Uttar Pradesh/Uttrakhand visited our institute on 27th July 2017 to discuss about the role of Vijnana Bharti in the present era of science & technology. He delivered a lecture the contribution of various scientists like Dr. C. V. Raman, Shri. S. Ramanujan, Dr. Abdul Kalam. He had meeting with Prof Laxman Prasad. The event was supported by Director Professor R P Maheshwari.

Dr. Somdev Bharadwaj and Dr. Dhirendra Kumar, visited few colleges like KIET & ABES in Ghaziabad for the faculty interaction. They met with Director and many faculty members of the various colleges and conveyed the importance of Vijanana Bharati, which is a national movement dedicated to the integrated development of Bharat through the intervention of science, engineering and technologyThe HOD of ECE, Dr Dhirendra Kumar coordinated an event of Vijnana Bharati which was held on 8th July 2017 at Dayal Singh College, University of Delhi, Delhi. The event was equally supported by Vibha team. About 128 professionals such as scientists, professors etc. from various labs, institute and organization participated event.

राष्ट्र निर्माण में वैज्ञानिकों की भूमिका अहम

संवाददाता, गाजियाबाद। वर्तमान समय में बिना तकनीकी उन्नति के बिना राष्ट्र का आगे बढ़ना सम्भव नहीं है। आज राष्ट्र निर्माण में आवश्यकता है कि वैज्ञानिक सोच प्रत्येक छात्र एवं नागरिक के मन में उत्पन्न हो, तभी हम विश्व के मानचित्र पर भारत को मजबूती से स्थापित कर सकते हैं।

ऐसे विचार डा० सोमदेव भारद्वाज संगठन सचिव उत्तर प्रदेश/उत्तराखण्ड विज्ञान भारती द्वारा विज्ञान भारती के गठन के पच्चीसवें वर्ष के तत्वाधान में अपने दो दिवसीय प्रवास के अवसर पर गाजियाबाद के प्रमुख इस्टीट्यूट आर.के.जी.आई.टी., के.आई.ई.टी. और ए.बी.ई.एस. इन्जी. कालेज में व्यक्त किये। उन्होंने कहा कि सत्तर वर्ष स्वतन्त्रता के बाद भी हमारे आत्म विश्वास में मजबूती नहीं आयी। देश में वैज्ञानिक उपलब्धियों को हम साधारणतया अपनी उपलब्धि नहीं मानते, हम हमेशा पश्चिमी देशों के ही अनुसरण करने में गौरवान्वित महसूस करते हैं। उन्होंने भारत की वैज्ञानिक प्राचीन परम्पराओं को उदाहरण देते हुये विस्तार से कहा कि भारत का क्लोनिंग पाँच हजार वर्ष पूर्व महाभारत काल से प्रारम्भ हुआ। भारत में नाट्यशास्त्र, संगीत, चित्रकला, कृषि, शल्य चिकित्सा आदि के क्षेत्र में सर्वश्रेष्ठ व अग्रसर रहा है। उन्होंने इस बात को गंभीरता से कहा कि अब समय आ गया है कि हम सब मिलकर स्वंय से निश्चय करें कि राष्ट्र निर्माण में हम अपने आपको कहाँ रख सकते हैं। छात्र विज्ञान के क्षेत्र में श्रेष्ठता को प्राप्त करते हुवे धन के लालच से हटकर अनुसंधान के क्षेत्र में अग्रसर हों तो निश्चित ही भारत पुनः अपना स्थान विश्व में स्थापित कर लेगा। वर्तमान में भी देश के वैज्ञानिकों ने ऐसे अनेक कार्य किये हैं जिनके माध्यम से हमारी पहचान वैज्ञानिक समुदाय में हुयी है। कार्यक्रम का आयोजन आर.के.जी.आई.टी. के डायरेक्टर डा० आर.पी. माहेश्वरी, कृष्णा इंस्टीट्यूट ऑफ टेक्नोलॉजी के डायरेक्टर डा० जे.पी. गुप्ता एवं ए.बी.ई.एस. इन्जी कॉलेज के डायरेक्टर डा० एन.के. झा के सहयोग से सम्पन्न हुआ।

'वैज्ञानिकों की भूमिका अहम'

■ एनबीटी न्यूज, गाजियाबादः तकनीकी उन्नति के बिना कोई राष्ट्र आगे नहीं बढ़ सकता, इसीलिए राष्ट्र निर्माण में वैज्ञानिकों की भूमिका अहम होती है। वैज्ञानिक सोच ही भारत को विश्व में मजबूत स्थान दिला सकती है। यह बात विज्ञान भारती के उत्तर प्रदेश/उत्तराखण्ड संगठन सचिव डॉ. सोमदेव भारद्वाज ने कही। वह शुक्रवार को विज्ञान भारती के 25वें स्थापना दिवस पर आयोजित कार्यक्रम के दौरान आरकेजीआईटी इंस्टिट्यूट में मौजूद थे। इस दौरान आर. पी. माहेश्वरी व डॉ. एन. के. झा आदि का योगदान रहा।

INDUSTRY INTERACTION

The ECE Department organized an Industry Interaction on 30th July 2017. A Noida based Electronics Company Mankiran Electronics Pvt. Ltd. interacted with the students of third year and gave an insight on industry working and functioning which was a great learning experience for the students.

Explanation was given on real application of electronics engineering to industry which acted as an eye opener for all students and they got to know what actually is needed and expected by an engineer.

A demonstration of electronic devices used in industry was also given. The students participated enthusiastically and gave great response.

Mankiran Electronics Pvt. Ltd. is a products manufacturer and supplier of devices and equipments like fork lift golf cart controller, power regulators, PID controllers etc.

Adaptive Neuro Fuzzy Inference System(ANFIS)

By: Vartika Anand

ANFIS is a class of adaptive network, which are functionally equivalent to Fuzzy Inference Systems. It uses a hybrid-learning algorithm to identify the membership function parameters of single-output, Sugeno type fuzzy inference systems (FIS). A combination of least-squares and back propagation gradient descent methods are used for training FIS membership function parameters to model a given set of input/ output data.

In ANFIS, neural networks exploit their structures with abundant theorems and efficient numerical training algorithms. They embed several input-output mappings on a black-box network of connection weights. During the training process, a neural network is trained with a sequence of randomly selected input samples, and values of connection weights are adjusted in accordance with the training algorithm. On the other hand, fuzzy systems can directly encode structured knowledge. Fuzzy systems may invariably store a series of common-sense rules linguistically articulated by an expert, or a fuzzy system may adaptively reason and change its fuzzy rules from representative symbols as well as numerical samples. Fuzzy systems and neural networks naturally combine. The combination generates an adaptive

system in that the neural networks embed in an overall fuzzy architecture, generating and refining fuzzy rules from training data.

The basic structure of a fuzzy inference system maps input characteristics to input membership functions (mf), input mf to rules, rules to a set of output characteristics, output characteristics to output mf, and the output mf to a single-valued output or a decision associated with the output. In a conventional fuzzy inference system, an expert who is familiar with the target system to be modeled determines the number of rules. In cases where there are no experts available, the number of mf assigned to each input is chosen empirically. Also, the fuzzy inference system is applied to modeling systems whose rule structure is essentially predetermined by the user's interpretation of the characteristics of the variables in the model. Here, the shape of the membership functions depends on parameters, and changing these parameters will change the shape of the mf. Instead of just looking at the data to choose the mf parameters, it can be chosen automatically using ANFIS.

The objective of the research work is to determine whether ANFIS can be used to remove noise generated by nonlinear models, and what are its advantages and disadvantages.

Faculty Achievement Corner

- **Dr. Dhirendra Kumar guided Waseem Ashraf in achieving his degree of Masters of Philosophy in Electronics by mentoring him on his project on "Design and Investigation of Compact Planar Antennas for Portable UWB MIMO Terminals".**

- **Dr. Saurabh Kumaris an Assistant Professor of Electronics and Communication Engineering successfully completed his Ph.D viva on"Miniaturization of Microstrip Patch Antenna with Optimal Performance"from PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur (India) in June 2017.**

INTERACTION WITH OUTSIDE WORLD

Maneesh Kumar Srivastava attended a 1 week FDP program on Analog and Embedded Systems at ABESIT Gzb. from 17/7/17 to 22/7/17.

Student Technical Corner

HI-TECH NANOMESH

BY: Rohan Sharma

A hypoallergenic electronic sensor can be worn on the skin continuously for a week without discomfort, and is so light and thin that users forget they even have it on, say scientists. The elastic electrode constructed of breathable nanoscale meshes holds promise for the development of noninvasive e-skin devices that can monitor a person's health continuously over a long period.

In the current research, the group developed an electrode constructed from nanoscale meshes containing a water soluble polymer, polyvinyl alcohol (PVA), and a gold layer materials considered safe and biologically compatible with the body. The device can be applied by spraying a tiny amount of water, which dissolves the PVA nanofibers and allows it to stick easily to the skin , it conformed seamlessly to curvilinear surfaces of human skin, such as sweat pores and the ridges of an index finger's fingerprint pattern.

Furthermore, the scientists proved the device's mechanical durability through repeated bending and stretching, exceeding 10,000 times, of a conductor attached on the forefinger; they also established its reliability as an electrode for electromyogram recordings when its readings of the electrical activity of muscles were comparable to those obtained through conventional gel electrodes.

PLACEMENT DATA

The placements that took place from MAY to JULY 2017, in ECE DEPARTMENT are as shown.

S. No.	ROLL NO.	Name Of The Students	Branch	Name of company	Month
1	1303331095	Vaibhav Gupta	ECE	Digicall Teleservices Pvt.Ltd	May
2	1303331030	BrijendraPratap Singh	ECE	Digicall Teleservices Pvt.Ltd	May
3	1303313028	PranshuDwivedi	ECE	Digicall Teleservices Pvt.Ltd	May
4	1303331851	Swatantra Singh	ECE	Digicall Teleservices Pvt.Ltd	May
5	1303331052	Megha Gupta	ECE	Digicall Teleservices Pvt.Ltd	May
6	1303331071	PriyamTripathi	ECE	Digicall Teleservices Pvt.Ltd	May
7	1303331071	PriyamTripathi	ECE	BhilwaraInfotechnology Ltd.	June
8	1303331025	Ashutosh Pandey	ECE	Choice ChemtechPvt. Ltd.	June
9	1303331096	Vijay Kanoujia	ECE	Experis IT	June
10	1303313028	PranshuDwivedi	ECE	S Mobile Devices Ltd.	June
11	1303331835	RajenderRautela	ECE	Paytm	June
12	1303331845	Sharad Tripathi	ECE	Maintec Technologies Pvt. Ltd.	June
13	1303331803	Amit Kaushal	ECE	Icon Controls Pvt Ltd.	July
14	1303331845	Sharad Tripathi	ECE	JBM India	July
15	1303331845	Sharad Tripathi	ECE	Authbridge Research Services	July
16	1303331851	Swatantra Singh	ECE	Authbridge Research Services	July
17	1303331027	Ayush Gupta	ECE	Eminence Softech	July
18	1303331063	Pankaj Gupta	ECE	Eminence Softech	July

ALUMINI SPEAK

Name-SHYAM NARAYAN GUPTA

Batch- 2013-2017 Batch B.Tech (ECE)

Current Profile job-(Business Analyst Trainee)
Altametrics, Inc. (altametrics.com)

Faculty and the stature of study in RKGIT?

Faculty members of RKGIT are quite capable for inspiring the young engineer's .Besides this; I would say gratitude comes for those who sacrifice their time to make your life better. All the faculties that I have been through never denied for any guidance that I needed, I venerate them. The course of study followed is well up to the marand also you are motivated for various technical competitive exams too.

Any Particular Faculty which had left a deep impact on you?

Each one of them been distinctly special in some way or the other for their love and support in all walks of my college life. I have learnt Various things from the entire faculty Members. Dhirendra Sir,Ankit Tripathi Sir,VKC Sir & Anamika Ma'am(My mentor & Project Guide) has always been few of the most inspirational teachers of my life. I cannot define in words about my gratitude for their nobility & support.

What was the highlight of your college experience??Is there something that will stand you out; something that you will always remember?

These 4 years were the golden years of my life...I grew up as an individual, got amazing friends for life and learned to work under pressure and I believe these are the key factors for success in today's world. There was a great role of **AECE & UDGHOSH** to developing my management skills. I got the chance to work for Underpreveliged students via a NGO ie. **Light de literacy.** Apart from studies I have enjoyed a lot like B'day parties at Nescafe etc, fest nights etc.

About your hostel life/any incident from your hostel life-

Hostel life would always be the unforgettable days. These are the very special moments which you miss throughout your life. There are many moments which you cannot forget and also can't describe in words, all those late night group chats, party, eating Maggie and one night study just before the exam makes you more confident. Playing Badminton, late night birthday celebrations and most important were" Friends Turns into Family". In the end I would like to say that I miss my college days and hostel too.

About your friends from RKGIT-

Friends are the one more reason to loving this place.I got the some amazing people without life can't be complete. My Batchmates Specially my classmates, my lovely juniors, Team AECE, Team Udghosh, Literary Council gave me the gems of my life. Due to long list of such people it's not possible to put all the names.

What do you like the most about RKGIT-

Supportive Faculty members,Various extra co-curricular activities & yes the best part is Central Libarary,where I have spent most of the time in my last year of engineering. Dept of ECE has a great role to improving my skills & providing me various opportunities with a learning environment.

One thing which RKGIT taught you-

RKGIT has been the place where we got to dramatically reinvent ourselves time and again until we finally landed on the winning version. Being a part of various college events, I learned to wiggle room to budget my time to multiple things at a time.

How the course you studied helps you presently in your today's work place-

Ways of implementation may vary, but the basic concepts of the course study are of great help everywhere. But I think I there should be addition of latest technology in the syllabus by which we can easily correlate the ongoing technology with our curriculum.

Any message for you juniors-

College days are the best days in life so enjoy it because these are never-ever goanna come back. I only suggest you; stay focused on your studies means both Practical and Theoretical Knowledge. . At the end I would like to wish all of you ALL THE BEST for your Bright future. "Study Hard so you can Party Harder"

COROLLARY

Banana jack-The female half of a two-part quick connector combination. Splicing of a circuit is completed by inserting a BANANA PLUG into this jack.

Banana plug-The male half of a two-part quick Connector combination, with sides usually composed of flat springs that ensure contact with the female BANANA JACK into which it is inserted.

Bistable multivibrator -A multivibrator, the operation of which exhibits two stable states. More commonly known as a FLIP-FLOP. These circuit sare abundant in digital electronic equipment.
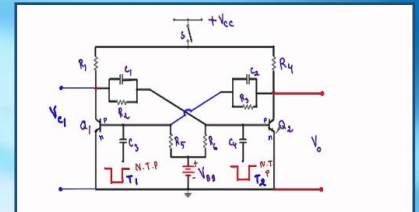
Bayonet Neill Concelman-A type of coaxial connector that can be quickly connected and disconnected. It is commonly used with test equipment.

Bridged-tee oscillator -A low distortion oscillator circuit whose frequency is determined by abridged-tee null network inserted into the negative-feedback path of the circuit.
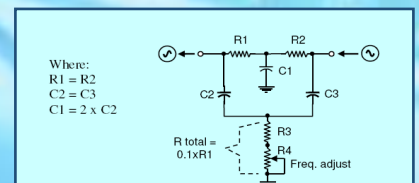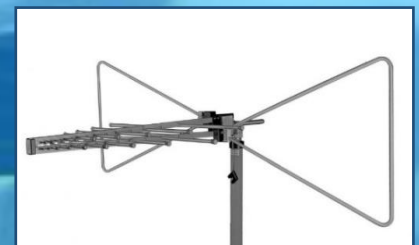

Fig.2. The basic Twin-T circuit design values to oscillate at desired frequency. Note that the feedback signal is inverted.

Broadband antenna-An antenna that operates satisfactorily over a comparatively wide band of frequencies without requiring retuning at individual frequencies. Examples are the log-periodic and discone antennas.

Noble Personalities

1. **Anil Dhirubhai Ambani**, is the chairperson of one of the nation's largest private conglomerates. He heads the reliance group of industries which came into existence in 2005, after demerging from reliance industries limited. He's also betting heavily on the defence sector; his Reliance Defence has inked several joint ventures of late including with Israel's Rafael Advanced Defense Systems and France's Dassault Aviation.

2. **Kumar Mangalam Birla** took over as chairman of the Aditya Birla Group in 1995, at the age of 28. During his tenure as chairman, the group's annual turnover has expanded from US$3.33 Billion in 1995 to US$41 billion in 2015.

   Birla has received several accolades, including "CEO of the Year Award" in 2016; the "Global Leadership Award" in 2014; Economic Times "Business Leader Award" in 2003 and 2013; Forbes India Leadership Award – Flagship Award "Entrepreneur of the Year 2012.

   An educationist, Birla is the Chancellor of Birla Institute of Technology & Science (BITS). He is Chairman of IIT Delhi, IIM Ahmedabad and Chairman of Rhodes India Scholarship Committee for Oxford University. He serves on London Business School's Asia Pacific Advisory Board and is an Honorary Fellow of the London Business School.

3. **Azim Hashim Premji** is an Indian business tycoonn, investor, and philanthropist, who is the chairman of Wipro Limited. He is informally known as the C zar of the Indian IT Industry, In 2010, he was voted among the 20 most powerful men in the world by Asia week. He has twice been listed among the 100 most influential people by TIME Magazine.
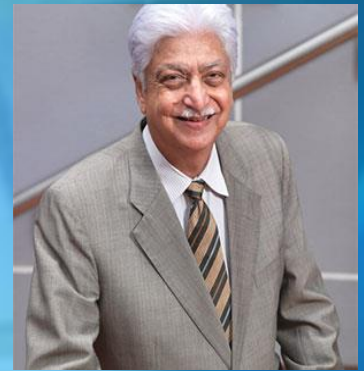
He is currently the second richest person in India with an estimated net worth of US$16.1 billion as of April 2017.Premji started with a $2.2 billion donation to the Azim Premji.

4. **J.R.D. Tata** was the son of notable businessman Ratanji Dadabhoy Tata and Suzanne Brière, the first woman in India to drive a car. Muhammad Ali Jinnah, the founder of Pakistan, was married to Tata's niece, Rattanbai Petit. Tata became the first licensed pilot in India, in 1929. He is best known for being the founder of several industries under the Tata Group, including Tata Consultancy Services, Tata Motors, Titan Industries, Tata Tea, Voltas and Air India. In 1983, he was awarded the French Legion of Honour and, in 1992 and 1955, two of India's highest civilian awards, the Bharat Ratna and Padma Vibhushan, were bestowed to him for his contributions to Indian industry.
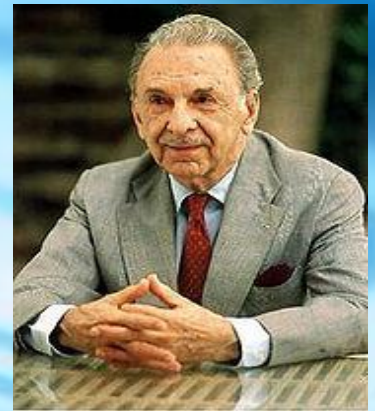
5. **Lakshmi Niwas Mittal** is the chairman and CEO of ArcelorMittal, the world's largest steel making company . In 2005 ,Forbes, ranked mittal as the third richest man of the world. He was ranked sixth richest man in the world by Forbes in 2011. His daughter Vanisha Mittal's marriage is the second most expensive marriage till date.

BRAIN QUIZ

01) The feedback factor of a Wien bridge oscillator using Op-Amp is
- ○ 1/3
- ○ 1/4
- ○ 1/2
- ○ 1

02) Speed of data transmission in 4-G network of telecom is
- ○ 386 kbps ~ 2 mbps.
- ○ 2 mbps.
- ○ 2 mbps ~ 1 gbps.
- ○ 100 mbps ~ 1 gbps.

03) If the excitation is critical, the power factor of the alternator is
- ○ unity power factor
- ○ leading power factor
- ○ lagging power factor
- ○ none of the above

04) If 1 A current flows in a circuit, the number of electrons flowing through this circuit is
- ○ 0.625×10^{19}
- ○ 1.6×10^{19}
- ○ 1.6×10^{-19}
- ○ 0.625×10^{-19}

05) If all the elements in a particular network are linear, then the superposition theorem would hold, when the excitation is
- ○ DC only
- ○ AC only
- ○ Either AC or DC
- ○ An Impulse

06) In balanced bridge, if the positions of detector and source are interchanged, the bridge will still remain balanced. This can be explained from which theoem
- ○ Reciprocity theorem
- ○ Thevinin's theorem
- ○ Norton's theorem
- ○ Compensation theorem

07) In the cauer-2 form of LC network----------is series element and --------is shunt element respectively?
- ○ L and C
- ○ C and L
- ○ L and L
- ○ C and C

1. At the resonant frequency, the feedback factor (R_2/R_1) of a Wien bridge oscillator using Op-Amp, is 1/2. Hence, the amplifier gain must be greater than 2 to maintain sustained oscillations.

2. Speed of data transmission in 4G network of telecom is from 100 mbps to 1 gbps.

3. Reactive power is given by the equation, $Q = \frac{V}{X} \times (E\cos\theta - V)$ From the above equation, the reactive power generated or delivered is significantly depends on excitation. When excitation is rated or critical, $E\cos\theta = V$, which means $Q = 0$, the generator neither supplies nor draws any reactive power and operates at unity power factor.

4. The charge of one electron is 1.6×10^{-19} coulomb. Again 1 A current means transferring of 1 coulomb charge per one second. $1\,A = \frac{1}{1.6 \times 10^{-19}} = 0.625 \times 10^{19}$

5. Superposition theorem can be applied for both AC as well DC excitation to calculate the voltage or current calculations. It holds for both DC and AC excitation, if the circuit is linear. But superposition theorem is not applicable for power calculations.

6. When response to excitation is constant even though we interchange the excitation and responses then the reciprocity theorem is verified for the given network.

7. In the cauer-2 form of single port LC filter network anlysis C is series element and L is shunt element respectively.

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ecemagazine.rkgit@gmail.com

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