



DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

Presents

THE MEMOIR

-Chronicles of EEE



Department of Electrical and Electronics Engineering

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Editorial column

This publication is the first ever edition from the department of EEE. The magazine is an initiative by the students, for the students and it is the platform for students to contribute and exhibit their works in sharing knowledge.

We would like to take this opportunity to thank our principal, **Dr.V.SREENIVASULU**, all the faculty of EEE department and our fellow students for their support throughout the development of the magazine.

Dr.V.S.VAKULA, our head of the department, who encouraged students of various years to collaborate by providing a driving force for the edition to be successful.

We would like to extend a SPECIAL THANKS to **Dr.G.SARASWATHI** and **Mrs.A.PADMAJA**, who has been source inspiration, we extend our heartfelt gratitude for their approachability and constant support.

This edition is gathering of various recent advancements in nanotechnology, 5G Technology, the future era of power transmission via solar power satellites. The general topics like brain teasing puzzles, facts and current affairs, communication techniques for students were also included.

Once again, we would like to express our considerable appreciation to all authors of articles and their willingness to make an effort to share their knowledge.

We welcome your valuable suggestions to improve the standard of our magazine.

THANK YOU
-Magazine Team

Principal's message

I am extremely happy to note that the Department of Electrical and Electronics Engineering student community is bringing out an edition of its news letter "THE MEMOIR".

In this connection, I invite the attention of the students towards the articles read in the magazine which paves the way to the world of innovation and invention. It also leads the students to get exposure about new technologies and improve their personality by knowing the life of the inspiring personalities read in the magazine.



I whole heartedly congratulate the the members of editorial board for their act in keeping their spirit at high.

I wish them all success.

HOD's MESSAGE



I am extremely delighted to note that the student community of Department of Electrical and Electronics Engineering, JNTUK UCEV in bringing out First edition of its bimonthly news letter "THE MEMOIR". I wish them all success.

In this connection, I invite the attention of students towards the successful and inspiring personalities read in the news paper. I would like to congratulate the effort put by them who contributed the technical and literary articles to the magazine.

I whole heartedly congratulate the members of editorial board for keeping and continuing the spirit at high for bringing the magazine to reality.

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MOTTO OF MAGAZINE



An ever growing population means an ever growing requirement for energy. Nowadays, enormity of energy cannot be denied. It is essential in every walk of life. Energy sources can be broadly classified as renewable and non-renewable. Knowing the dreadful fact that nonrenewable sources will eventually deplete, the importance of renewable sources cannot be underestimated.

Different types of renewable sources

- Wind energy
- Solar energy
- Geo thermal energy
- Hydro power
- Biomass

The most significant feature of renewable energy

1. It is infinite
2. These are hygienic sources of energy that have a much lesser negative environmental impact than conventional fossil energy technologies.
3. Most renewable energy investments are spent on materials and personnel to build and maintain the facilities, rather than on costly energy imports.
4. Other resources cause respiratory illnesses and death in humans, produce acid rain that devastates buildings and destroys fragile ecosystems, and deplete the ozone layer through global warming.

Hence renewable sources are eco-friendly.

Do you ever think know that energy sources are depleting and causing pollution, making our dear earth into a dry planet but drastically increase in energy usages now a days?

In this hard times it is our responsibility to save environment rather than sustaining in it.

“Our ancestors handed us pollution free environment

It’s our duty to hand same environment to our future generation too”

It is clearly a note to stop draining of non-renewable sources, it is better to save them to our future generations and start satisfying our energy requirements with renewable sources by creating efficiently new inventions. Which does not have bad impact on earth environment.

Let’s hope that the world will know value of renewable energy and beauty of life

ENERGY SAVED IS ENERGY PRODUCED.....

SAVE ENERGY.....SAVE ENVIRONMENT.....

-R.Kiranmayee
-R.Naveen Kumar
III B.TECH EEE

ABOUT A SCIENTIST

BENJAMIN FRANKLIN

Benjamin franklin – polymath of 18th century

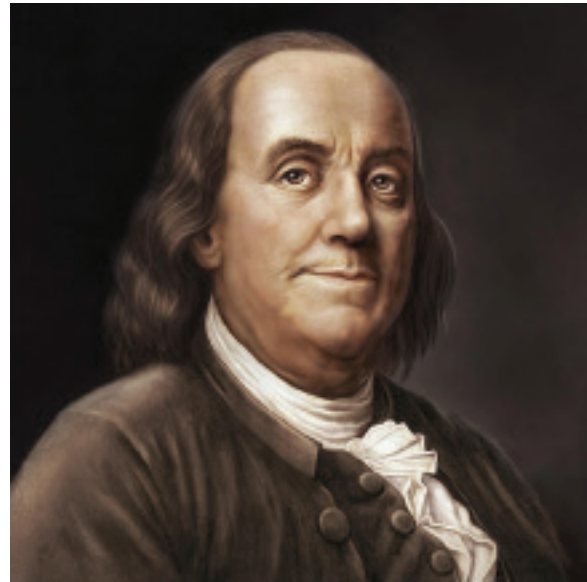
The 18th century is known for French revolution which resulted in unprecedented period of piece, economic expansion which is the bright side, while fear of losing power is another. Amidst these political and economical situations, philosophy and science increased in prominence. Let's take a look at the field of electricity, a branch of science.

The history of electricity begins with William Gilbert, a physician of England in 1600. From then electricity became an intriguing term. On 6th January 1706 in Boston, New England, a baby named Benjamin franklin was born who took electrical fluid into a new level. His father Josiah Franklin who married twice had seventeen children and Benjamin was the child of Abiah Folger. Franklin was a leading author, printer, political theorist, president, scientist, inventor and the list goes on. As an inventor is well known for the invention "The Lighting Rod"

He first explored the field of electricity in 1746. He was the first to label "resinous" and "vitreous" as negative and positive respectively where resinous and vitreous are considered as types of electrical fluid as electricity was called then. He also proposed the principle of conservation of charge and constructed electric battery in 1750. He anticipated and proved that lightning is the electricity by "kite and key" equipment.

He came across this idea while he was observing lightning striking a rod on a building. Rods are dangerous as they conduct quickly. He demonstrated his idea by the kite and key equipment. Benjamin along with his son performed this by fastening an iron spike to a silken kite and holding the end of the kite string by an iron key.

He flew the kite while a thunder storm was approaching and his theory about electrical discharge was right as a spark from the kite sprang to his wrist. He summarized that this could help protect buildings from lightning. He continued his experiments and was well known for his invention like lightning



bifocals and the most innovative Franklin stove.

Due to involvement in politics franklin was not able to develop his inventions. He passed away at an age of 84 on 17th April 1790. In honor of his name the C.G.S unit of electric charge is named after him as 1 franklin which is equal to 1 statcolumb. He was a polymath who exemplified "well done is better than well said" and projected the saying "write something worth the reading or do something worth writing". Ben in his auto biography elocutes to young minds "*As we enjoy advantages from the inventions of others we should be glad of an opportunity to serve others by any invention of others and we should do freely and generously.*"

-T.Pravallika
-P.Padmini
-A.Sudha Rani
III B.TECH EEE

ANCIENT ELECTRICITY

BABYLON BATTERY

In 1938, Dr. Wilhelm König an Austrian archaeologist rummaging through the basement of the museum, made a find that was to drastically alter all our concepts of “ancient knowledge.”

A 6-inch-high pot of bright yellow clay dating back two millennia contained a cylinder of sheet-copper 5 inches by 1.5 inches. The edge of the copper cylinder was soldered with a 60-40 lead-tin alloy comparable to today’s solder.

The bottom of the cylinder was capped with a crimped-in copper disk and sealed with bitumen or asphalt. Another insulating layer of asphalt sealed the top and also held in place an iron rod suspended into the center of the copper cylinder.

The ancient battery in the Baghdad Museum, as well as those others which were unearthed in Iraq, are all dated from the Parthian occupation between 248 BCE and 226 BCE. However, Dr. König also found copper vases plated with silver in the Baghdad Museum, excavated from Sumerian sites in southern Iraq, dating back to at least 2500 BCE.

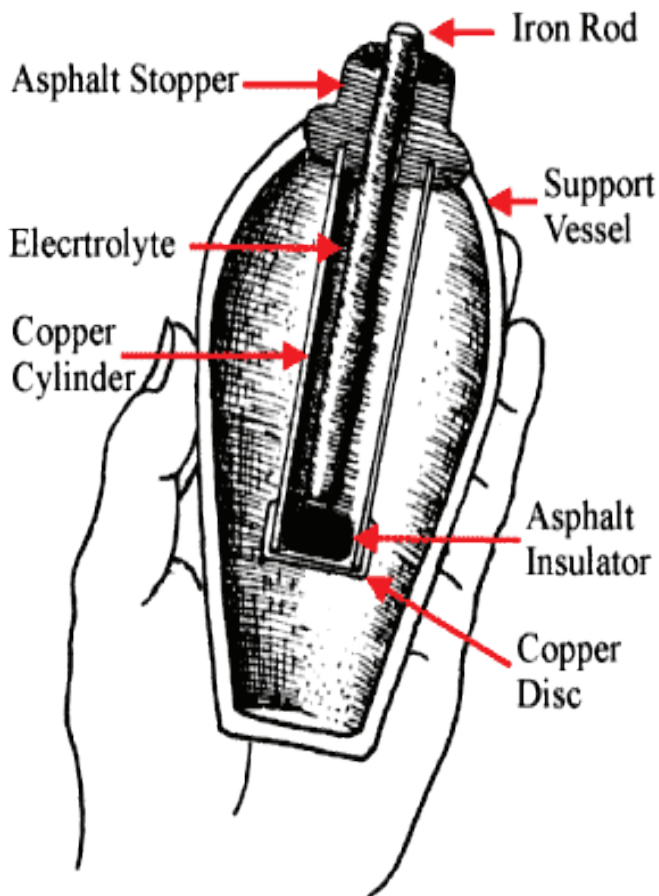
When the vases were lightly tapped, a blue patina or film separated from the surface, which is characteristic of silver electroplated onto copper base. It would appear then that the Parthians inherited their batteries from one of the earliest known civilizations.

Several years ago, a theory was proposed that electrolyte-crushed wine grapes may have been used. It was put to the test with a positive result - a replica of the Baghdad cell generated 0.87V. Several cells, in serial arrangement, were sufficient for the electroplating of small objects.

It also seems that the use of similar batteries can be safely placed into ancient Egypt, where several objects with traces of electroplated precious metals have been found at different locations. There are several anomalous finds from other regions, which suggests use of electricity on a grander scale.

One of them is the girdle from the tomb of Chinese general Chu (265-316 CE), which is made from an alloy of 85% aluminum with 10% copper and 5% manganese. The only viable method of production of aluminum from bauxite is electrolytic process, after alumina (aluminum chloride component of the ore) is dissolved in molten cryolite, patented in the middle of last century. Needless to say, the Baghdad type of batteries would not suffice, for quite a substantial dynamo-generated current is needed.

-G.Jitendra Prasad
III B.TECH EEE



STUDENT ARTICLES

ULTRA THIN SOLAR CELL

Imagine solar cells so thin, flexible, and lightweight that they could be placed on almost any material or surface, including your hat, shirt, or smartphone, or even on a sheet of paper or a helium balloon.

Three MIT researchers have demonstrated just such a technology: the thinnest, lightest solar cells ever produced. Though it may take years to develop into a commercial product. It is a new approach to making solar cells that could help power the next generation of portable electronic devices.

The MIT team made a solar cell so thin and lightweight it can be draped on a soap bubble without popping it.

The team used a common flexible polymer called parylene, a widely used plastic coating, as both the substrate and the over coating, and an organic material called DBP as the primary light-absorbing layer. The entire process takes place in a vacuum at room temperature and does not involve any solvents. (In contrast, conventional solar cell manufacturing requires high temperatures and harsh chemicals.) In this case, both the substrate and the solar cell are “grown” using established vapor deposition techniques

The result is an ultra thin solar cell that is exceptionally powerful for its weight. Whereas a typical silicon-based solar module, whose weight is dominated by a glass cover, may produce about 15 watts of power per kilogram of weight, the new cells have already demonstrated an output of six watts per gram—about 400 times higher. These photovoltaic cells are almost weightless, so it can be used in weather balloons, small planes, drones and also in space shuttles.

-K.T.V.A.Pavan Kumar varma
III B.TECH EEE

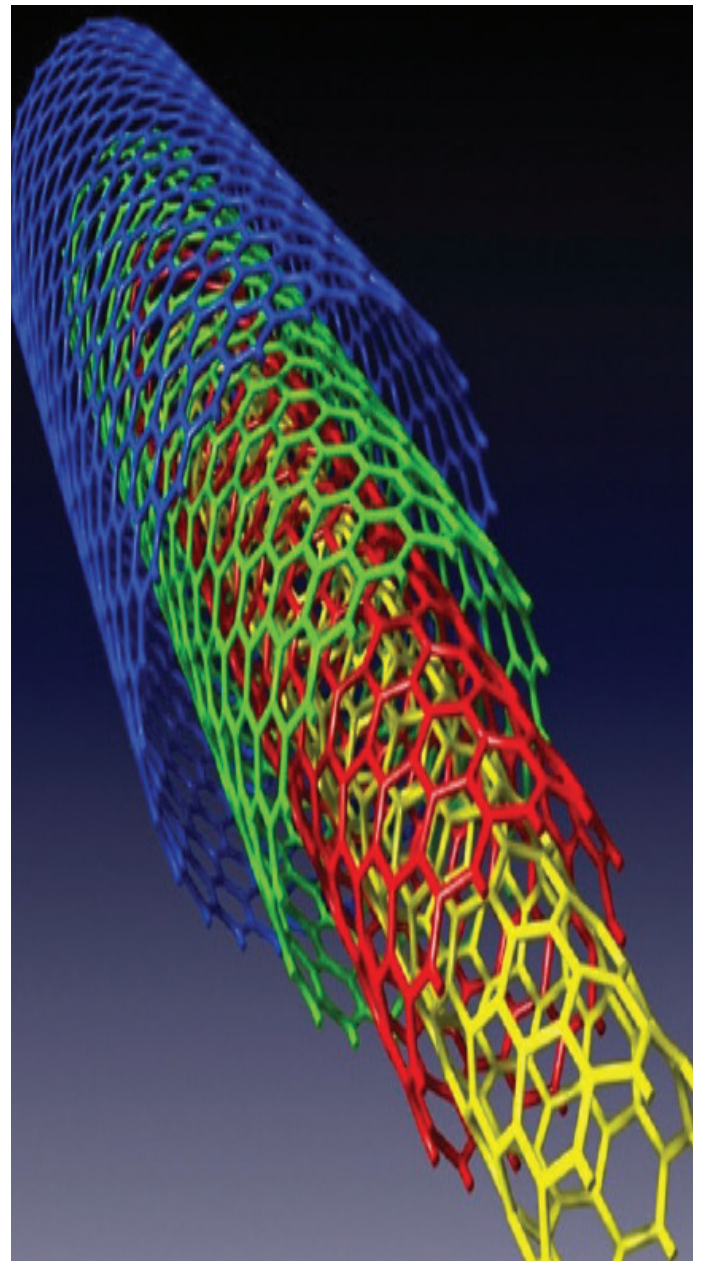
PAPER BATTERY

A paper battery is a device formed by the combination of carbon nanotubes with a conventional sheet of cellulose based paper. It acts as both a high energy battery and super capacitor. The devices are formed by combining cellulose with an infusion of aligned carbon nanotubes that are each approximately one millionth of a centimeter thick. When the paper comes into contact with ionic liquids contains no water. So there is nothing to freeze or evaporate in the extreme experimental conditions. As a result the paper batteries can function between -750c and 1500c.



When two sheets are combined with cellulose sides facing inwards, a super capacitor formed that can be activated by the addition of ionic liquid. That is, electrolyte paper batteries, can be folded or otherwise shaped for different applications without any loss of efficiency. Cutting into half halves its energy and stack multiplies its power output. The advantages are flexibility, nontoxic, steady power production and ultrathin energy storage. Due to high cellulose and lack of toxic chemicals this paper batteries are biocompatible and ecofriendly especially when compared to lithium ion battery. They have potential to power the next generation electronics.

-M. Mounika
III B.Tech, EEE



MOTOR WINDINGS USING CNT's

The presently most electrically conductive nanotube yarn replaces usual copper wires in the windings. In the near future, carbon nanotubes fibers have potential to significantly enhance the performance and energy efficiency of electrical machines. The new technology may revolutionize the whole industry. Researchers are constantly searching for opportunities to upgrade the performance of electrical machines; to this end, one of the objectives is to find higher-conductivity for the windings. The best carbon nanotubes (CNTs) have demonstrated conductivities far beyond those of the best metals.

Advantages of CNTs over copper:

1. CNTs have double conductivity.
2. Reduce the joule losses in the windings to half of the present-day machine losses.
3. Light in weight and environmentally friendlier.
4. Significantly reduce the CO₂ emissions.
5. The machine dimensions and masses could be reduced.
6. Motors can be operated at higher temperatures than present ones.

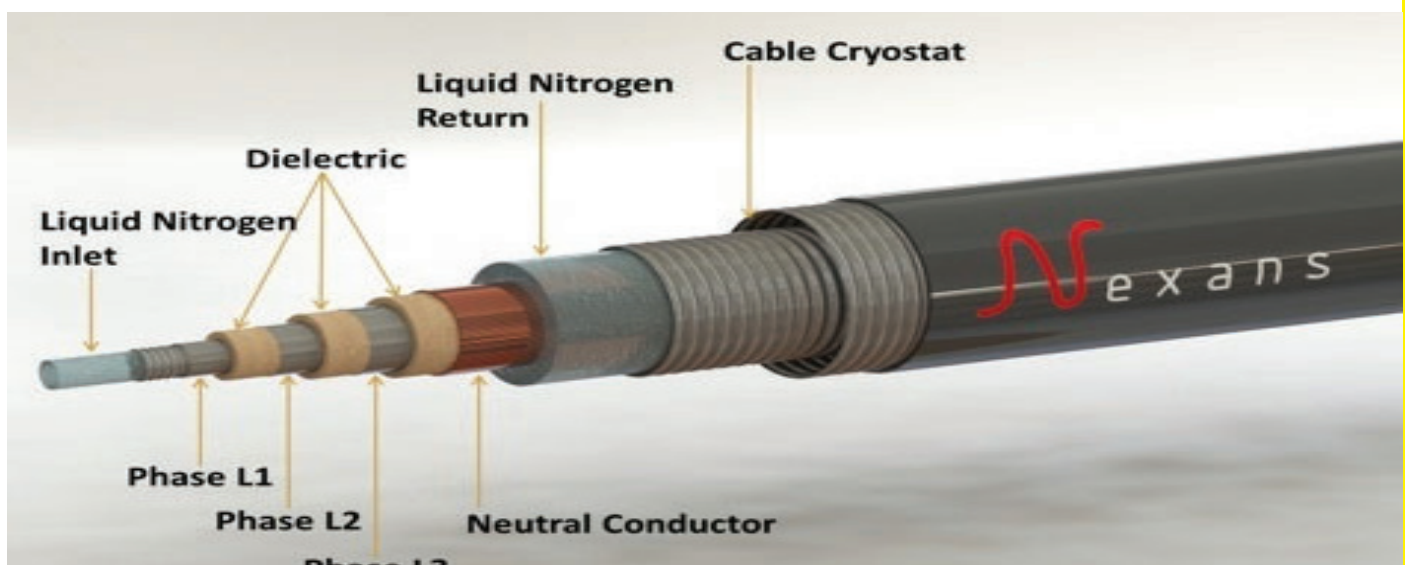
Traditionally, the winding in electrical machines are made of copper, which has the second best conductivity of metals at room temperature. There is significant improvement potential in the electrical machines, but we are now facing the limits of material physics set by traditional winding materials. Superconductivity appears not to develop to such a level that it could in general, be applied to electrical machines. Carbonic materials, however, seem to have a pole position. We expect that in the future, the conductivity of carbon nanotube yarns could be even three times the practical conductivity of copper in the electrical machines. In addition, carbon is abundant while copper needs to be mined or recycled by heavy industrial processes.

-P.S.P.Anand Kumar
III B.TECH EEE

Advancement of Superconductivity in transmission lines

Superconductivity is the phenomenon of certain materials exhibiting zero electrical resistance and expulsion of magnetic fields below a characteristic temperature (Meissner effect). It began with Dutch physicist Onnes's discovery of superconductivity in mercury in 1911. The first high temperature superconductor was discovered in 1986 by IBM researchers Georg Bednorz and K.Alex Muller who were awarded for Nobel Prize in physics in 1987 for their breakthrough in discovery of superconductivity in ceramic materials.

The city of Essen, GERMANY has just switched on world's largest superconducting cable more than a kilometer from end to end. In this project they are looking for a total capacity of 40MW for testing purpose. U.S.A electrical department is also in a plan of switching to SCT lines as its 6% of electricity generated is lost to inefficiency with OHT lines. This is a big, big deal that could save hundreds of billions of dollars in transmission losses if these superconducting cables were implemented across the world's power grids. In countries like India, which has a larger power system network SCT lines are to



In more than 100 years since its discovery, superconductivity has been successfully applied to significant number of large scale particle physics experiments like superconducting magnets, superconducting accelerator cavities and detectors. Commercial applications include NMR magnets, wind turbines, wireless receivers in communication technology, inductive metal heating systems, magnetic levitation train, fault current limiters and superconducting magnetic energy storage(SMES).

Superconducting transmission lines (SCT) have much higher capacity per size/width ratio than other transmission line option. Higher efficiency of transmission lines is being achieved as they don't have resistance losses. SCT lines generates low electromagnetic fields that could affect surrounding area. They are economical with giga watt range and for smaller electric power system networks, they are not appropriate to use due to their higher capital.

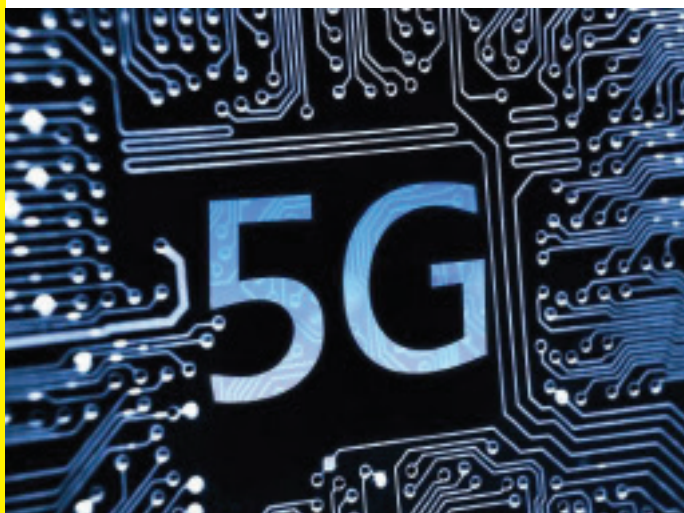
be tested and applied for increasing efficiency and also conservation of energy resources. This can also improve national prosperity.

- V.NAGARJUNA
III B.Tech EEE

5G TECHNOLOGY

5th generation mobile networks or wireless system, abbreviated 5G, are the proposed next telecommunications standards beyond the current 4G/IMT advanced standards. Rather than faster peak Internet connection speeds, 5G planning aims at higher capacity than current 4G, allowing higher number of mobile broadband users per area unit, and allowing consumption of higher or unlimited data quantities in gigabyte per month and user.

This would make it feasible for a large portion of the population to stream high-definition media many hours per day with their mobile devices, when out of reach of Wi-Fi hotspots. 5G research and development also aims at improved support of machine to machine communication, also known as the internet of things, aiming at lower cost, lower battery consumption and lower latency than 4G equipment.



There is currently no standard for 5G deployments. The next generation mobile network alliance defines the following requirements that a 5G standard should fulfill.

- Data rates of tens of megabits per second for tens of thousands of users
- Data rates of 100 megabits per second for metropolitan areas
- 1 Gb per second simultaneously to many workers on the same office floor
- Several hundreds of thousands of simultaneous connections for massive wireless sensor network

- Spectral efficiency significantly enhanced compared to 4G
- Coverage improved
- Signaling efficiency enhanced

-Vishesh.L
III B.TECH EEE

TESLA COIL

The Tesla coil is an electrical resonant transformer circuit designed by inventor Nikola Tesla around 1891 as a power supply for his “System of Electric Lighting”. It is used to produce high-voltage, low-current, high frequency alternating-current electricity.

Among his numerous innovations, Nikola Tesla dreamed of creating a way to supply power to the world without stringing wires across the globe. The inventor came close to accomplishing this when his “mad scientist” experiments with electricity led to his creation of the Tesla coil. Tesla experimented with a number of different configurations consisting of two, or sometimes three, coupled resonant electric circuits.



The first system that could wirelessly transmit electricity, the Tesla coil was a truly revolutionary invention. Early radio antennas and telegraphy used the invention, but variations of the coil can also do things that are just plain cool — like shoot lightning bolts, send electric currents through the body and create electron winds.

Tesla used these transformers to conduct innovative experiments in electrical lighting, phosphorescence, X-ray generation, high frequency alternating current phenomena,

electrotherapy, and the transmission of electrical energy without wires Tesla coil circuits were used commercially in spark gap radio transmitters for wireless telegraphy until the 1920s, and in medical equipment such as electrotherapy and violet ray devices. Today their main use is for entertainment and educational displays, although small coils are still used today as leak detectors for high vacuum systems.

-V.Prasanna Siva Kumar
III B.Tech EEE

SAVE ENERGY ... SAVE MONEY...

S.NO	NAME OF APPLIANCE	MIN USE OF ENERGY IN WATTS	MAX USE OF ENERGY IN WATTS	AVE. CONSUMPTION OF UNITS PER HOUR	COST OF CONSUMPTION PER HOUR
1	ELECTRICAL RAZOR	8	12	0.01	0.026
2	FLUORESCENT LAMP	15	60	0.04	0.0975
3	TABLE FAN	30	60	0.05	0.117
4	RADIO	40	150	0.10	0.247
5	SEWING MACHING	60	90	0.08	0.195
6	CEILING FAN	60	100	0.08	0.208
7	FRIDGE	150	300	0.23	0.585
8	TELEVISION	200	400	0.30	0.78
9	VACCUME CLEANER	300	600	0.45	1.17
10	WASHING MACHINE	350	550	0.45	1.17
11	AIR CONDITIONER	800	1500	1.15	2.99
12	GRINDER	750	2300	1.53	3.965
13	GEYSER	3000	5000	4.00	10.4
14	HEATER	1000	3000	2.00	5.2
15	OVENS	200	2000	1.10	2.86
16	IRON BOX	660	1100	0.88	2.288
	TOTAL	*****	*****	12.42	32.2985

-Ch. Ajay Ram,
III B.Tech EEE

THE FUTURE ERA

Wireless Power Transmission Via Solar Power Satellites

The transmission of energy from one place to another without using wires is called wireless power transmission(WPT). We know the conventional form of energy transfer using wires. But wireless transmission is gaining popularity day by day. WPT is a point-to-point power transmission.

For WPT, we had better concentrate power to receiver. The present electricity generation system is not very efficient in terms of energy transfer. About 20-30% energy is lost during the distribution of energy. Since any problem can be solved by state-of-the-art technology, the above problem also can be solved by choosing an alternative option for power transmission which could provide much higher efficiency, low transmission cost and avoid power theft. Therefore, scientists are working on the projects to improve the ultimate power supply. Wireless power transmission is such alternative. It was also proved that the power transmission efficiency can approach close to 100% using WPT.

The prediction and evidence of the radio waves in the end of 19th century was the start of WPT. During the same period, Nikola Tesla developed the most famous wireless technology known as Wardenclyff tower, also known as the Tesla tower, merely for wireless transmission of electricity.

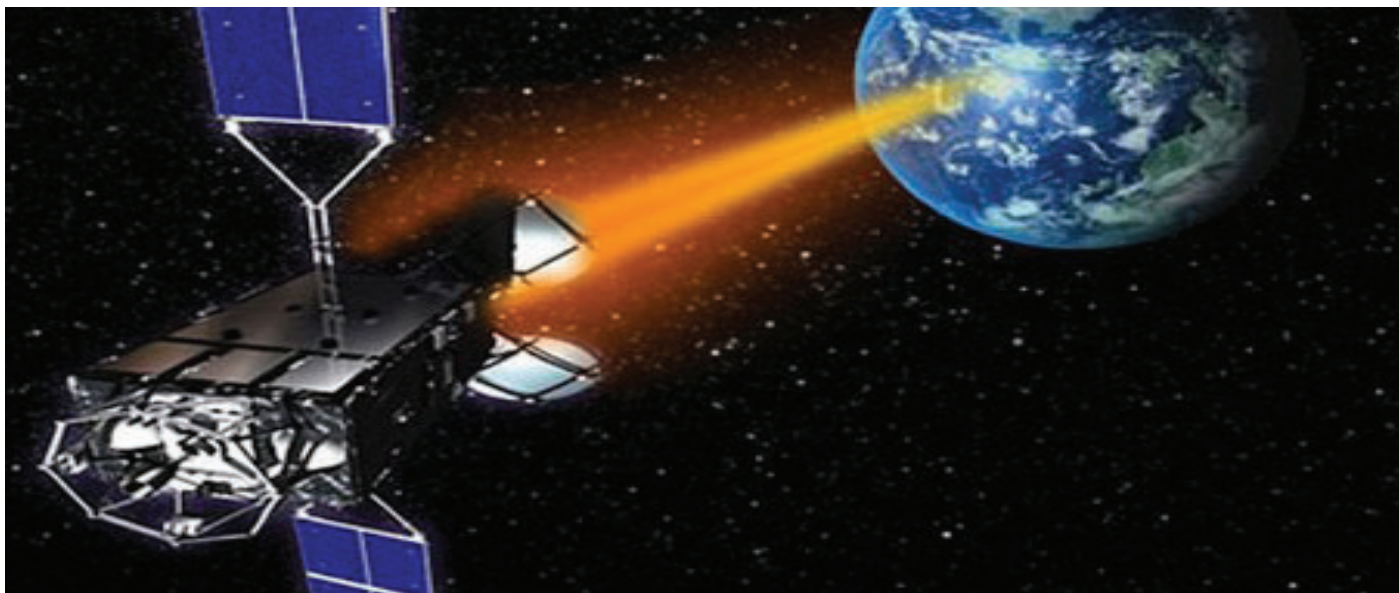
This 187feet tall tower consists of a 3feet diameter ball at its top, issued to broadcast energy. Unfortunately, it did not operate. Tesla was able to transfer energy from one coil to another. The idea of Tesla is taken in to research by a team led by Marin Soljačić from MIT. It is known as WITRICITY. Tesla is known as the father of wireless power transmission

Future suitable and largest application of WPT via microwave is Space Solar Power Satellites (SPS). Solar Power Satellite is a gigantic satellite designed as an electric power plant orbiting in the Geostationary Earth Orbit (GEO).Solar Power Satellites have proposed to collect solar energy in space and beam it down to Earth.



It consists of mainly three segments; solar energy collector to convert solar energy into DC(direct current)electricity, DC-to-microwave converter and a large antenna array to beam down the microwave power to ground. Since there is no air in space, the satellite would receive somewhat more intense sunlight, unaffected by weather.

Also, the microwave frequency of transmission is around (2.45-5.8) GHz, such a high frequency of transmission cannot be appreciably affected by atmospheric conditions, thereby favoring reliable power supply. This concept is simpler and does not use up valuable surface area of Earth. Also, solar radiation can be more efficiently collected in space. The transmission of this solar energy up to the receiver for consumption involves four steps.



Step 1. Capture solar energy in space and convert it into electricity (DC current). These solar collectors can be either photovoltaic cells or solar thermal turbine

Step 2. Transform the electricity to radio frequency and transmit it to Earth using antenna array. The DC-to-microwave converter can be either microwave tube system and /or semi-conductor system. The transmitting antenna is provided with amplitude taper in order to increase the beam collection efficiency and to decrease side lobe level in almost all SPS designs.

Step 3. Receive the radio frequency energy on earth using receiving antenna (rectenna) and convert it back to electricity

Step 4. Provide the electricity to the utility power grid



RECTENNA

It is gaining popularity day by day due to following reasons which serves as its advantages : It completely eliminates the existing high-tension power transmission cables, towers and sub stations between generating station and consumers and facilitates the inter connection of electrical generation plants on global scale, more freedom of choice for both receiver and transmitter, cost of transmission and distribution of energy will be reduced, unlimited energy resource, energy can be delivered anywhere in the world, power failure due to short circuit and fault of cables would never exist, zero fuel cost and CO2 emission, minimum long-range environmental impact.

Though it has many advantages, it is not completely implemented practically. Scientists are still doing research work in this field. It is because of its launching costs, requirement of hundreds of satellites, the size of antennas and rectennas are not usual and their interference with communication satellites. Heat reduction is most important problem in space. All lost power converts into heat, thus, requires special heat reduction system.

So, if we try to reduce these disadvantages, we would have a scope of unlimited energy sufficient for whole world and is expected to be realized by 2030. So, let us also work for it and contribute ourselves for this emerging technology.

-N.Divya

-Ch. Subba Lakshmi

-P.L.Anitha

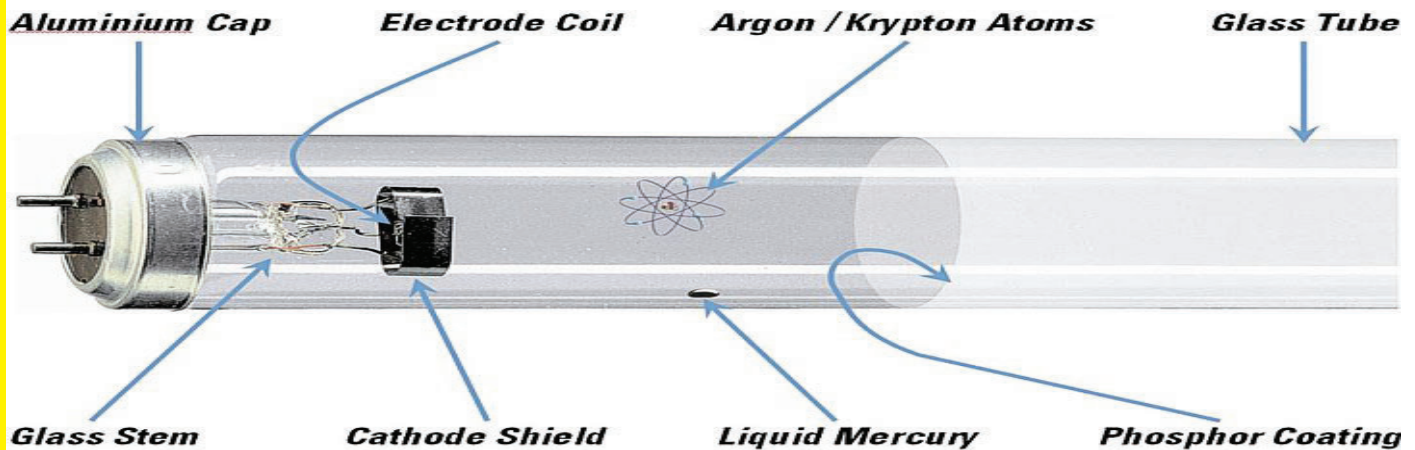
III B.Tech EEE

HOW IT IS MADE

FLOURESCENT TUBE

World is lighted by incandescent bulb in the year 1802 by the famous scientist sir Humphrey Davy. The lumens developed by the incandescent bulb is not enough to give brightness to a large space and also working hours of bulb is limited to 1000 hours only. The brightness of the light is not fair. The generation of fluorescent bulb coming into the world to overcome these disadvantages with working hours approximately equal to 35,000 hours.

A fluorescent lamp or a fluorescent tube is a low pressure mercury-vapor gas-discharge lamp that uses fluorescence to produce visible light. An electric current in the gas excites mercury vapor which produces short-wave ultraviolet light that then causes a phosphor coating on the inside of the lamp to glow



Now you see the how the fluorescent bulb is manufactured. The process of manufacturing of fluorescent bulb is done mainly in two different stages. One of the stage is making of ball which is tube structure and another one making of amount which are holders, to hold the electrodes.

The heart of a tube light called ball is made initially from red hot blow pipe stream air and forms hallow continuous glass tube at a high temperature of 10000 c. Air suspension conveyors are used to carry the glass tube to next stage and also blowing the air to cool down the temperature up to 6000 c. This long glass tube is cutting into required lengths by using crack off cold stone with water. The principle behind this process is thermal shock. This tubes spent over a ribbon, a fire to heat the ends of tubes. Wet ceramic wheel is used to cutting these tubes uniformly.

A forming machine is used to round and narrow the ends of the tube to insert the holders. Once the ends are formed the chemical coating is coated to interior surface of the glass. Before assembling the lamps the balls are need to go through the coding line to clean the dirt and dust, which is done with the help of position shifting conveyors and nozzles.

Now come to the amount, amount is an electrical cord it is done with funnel shape piece of glass called flare. At the head of flare, capsule is filled with mercury of 1.7 mg which is less than a pin point is inserted. Two electrodes made up of copper or silver are inserted to supply the current inside the tube.

Here coming to assembling process two major machines called Healer and Bumper are used

to join the ball and amount. Healer heats up the ball and joints with the ball where as Bumper pumps the tubes and filled with organ gas or mixture of organ and krypton gas after the sealing of aluminum caps. A fluorescent film coating is coated to the interior surface of bulb to convert ultra violet radiation into visible light.

The outcome of this process is likely a finished bulb but for working of lamps they have to be spend through a high voltage chamber around 25 KV to break mercury capsules, why because to coming into current conduction mercury should be in the form of ionized particles.

-B.Satyanarayana
 -G. Naga Sai Sree
 -K.Devi
 III B.TECH EEE

TEMPERORY LIGHTNING IN SUBMARINES

Now days, HSL (Hindustan Shipyard Limited -Visakhapatnam) used a special scheme of lighting for submarines, ships, cargo ships, dugs, etc....under the construction and repairs processes. This scheme of lighting is called temporary lighting. The main scenario of temporary lighting scheme is creates a high safety environment around the working indoor areas in dugs, submarines, ships, cargo ship, etc.

In the scheme of operating voltage is reduced from 3 phase, 440V, AC supply to 3 phase, 24V, AC supply. Then split into single phase, 24V, AC supply by connecting R-N, Y-N, B-N combinations of it, Then used for lighting the working areas. This is shown in figure.

may drop body resistance to 1,000 ohms, adding that high voltage (over about 600V) electrical energy quickly breaks down human skin, reducing the human body's resistance to 500 ohms. Human can feel electrocution when current through body is 1 mA (rms) at single phase, 60 Hz, AC supply and it varies for DC supply is 5 mA. Human can resists around 10 mA.

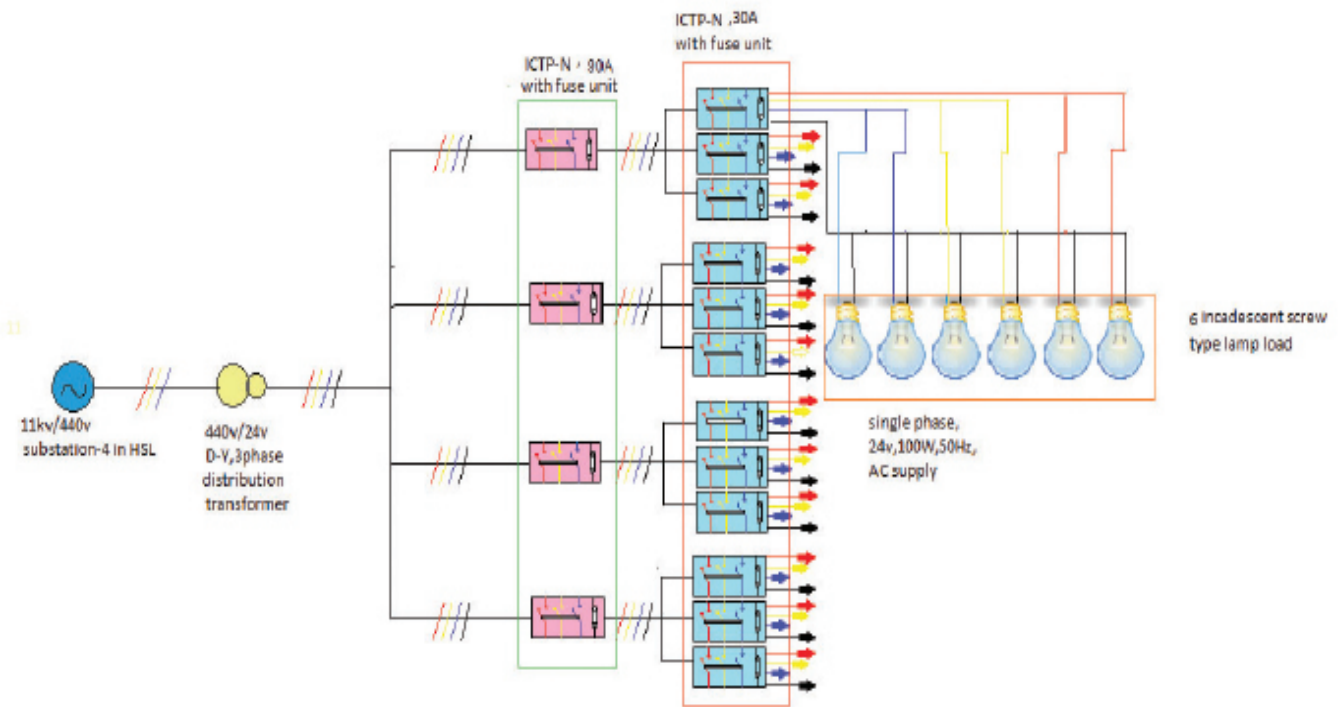
According to ohms law:

$$I = V / R$$

$$I = (24 V) / (100000)$$

$$I = 0.24 \text{ mA}$$

From the above knowledge we conclude that current through human body is 0.24 mA (less than 10 mA), so low voltage conception gives more options



The main scenario of temporary lighting scheme is to reduce the electrocution (electrical shock) in working areas. The voltage necessary for electrocution depends on the current through the body and the duration of the current. Ohms law states that the current drawn depends on the resistance of the body. The resistance of human skin varies from person to person and fluctuates between different times of the day. In conditions, the resistance offered by the human body may be as high as 100,000 ohms. Wet or broken skin

1. Low voltage lighting allows for using smaller light fixtures, which increase the life of lamps.
2. It allows for use of a smaller filament, which means you can use small light bulbs.
3. It saves energy, have longer life.
4. More overlay it create a high safety.

-N.Chinna Rao
III B.Tech EEE

INSPIRING MINDS

FROM DISABLED..... TO THE FUTURE DESTINY

STEPHEN HAWKING, who was a well-known physicist and scientist who worked on physics and cosmology made science accessible to everyone. He was born on 8th January 1942 which was the 300th anniversary of death of Galileo – long a source of pride for the noted scientist at oxford in England. His parents were highly educated and were in respectable position in society.

At early age, he showed passion for science and sky. At the age of 21 he was diagnosed with lateral sclerosis (ALS) which effects brain to lose control over muscles. And he was paralyzed completely but his brain was not lost his hunger towards acquiring knowledge. He says

“Although I can’t move I have to speak through a computer, in my mind I’m free.”

In 1970 he published a paper on big bang theory – “the evolution of universe”

He also explained general relativity also the quantum theory, though he is facing lot of abuse from all over the world. He didn’t close his mind when his body fail. Today at the age of 74, who was declared by doctors then that he will not live up to 25 years of age was working like a super human who cannot move and stand making whole world to stand and bow their heads at him. He when asked about his death, he said that,

“I’m not afraid of death, but I’m in no hurry to die”

In 1974, he proposed that universe consists of black hole which were the dead star and also the theory of general relativity. He explains That “universe will not allow perfection”

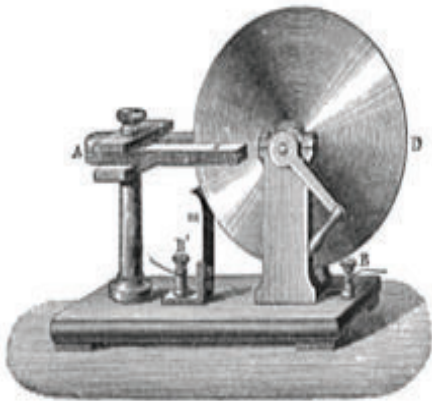
In his thesis of properties of expanding universe. He received many notable awards such as Albert Einstein award (1978), RAS gold medal (1985), fundamental physics prize (2012) and etc., and finally he is true inspiration of the world



“The victim should have the right to end his life, if he wants. But I think how bad life may seem, there is always something you can do and succeed at. Where there is life there is hope”

-Ch. Ajay Ram
-P.Manju Sree
III B.TECH EEE

FIRST INVENTION MODEL



ELECTRIC GENERATOR
1831 BY BRISH MICHAEL
FARADAY



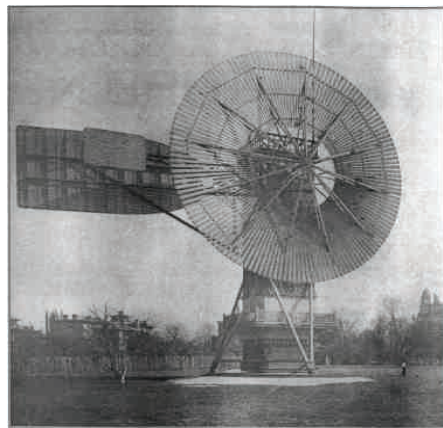
TRANSFORMER
(1886)



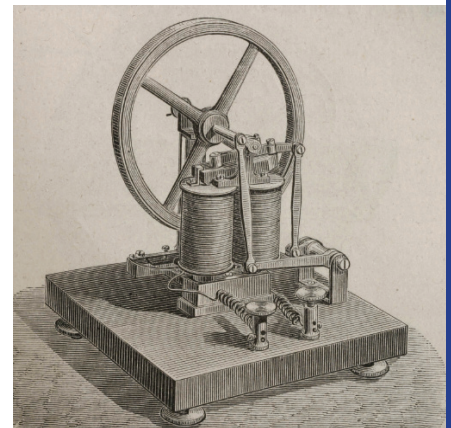
TRANSMISSION LINES
1902 NYAGARA POWER
CORPORATION(11KV)



POWER PLANT
1882 PEARL STREET STATION



WIND TURBINE
1887 BY S COTTISH ACAEMAL



ELECTRIC MOTOR
1845 BY AUL GUSTAVE
FROMENT



OBNINSK NUCEAR POWER
PLANT,RUSSIA
1954 JUNE27



THOMAS ALVA EDISON BULB
(OCT 14 1878)

-M.Priyanka
III B.TECH EEE

FACTS:

1. The first power plant - owned by Thomas Edison - opened in New York City in 1882.
2. Electricity travels at the speed of light - more than 186,000 miles per second!
3. A spark of static electricity can measure up to three thousand (3,000) volts.
4. A bolt of lightning can measure up to three million (3,000,000) volts, and it lasts less than one 1 sec.
5. The first street in the world to be lit by electric light bulbs was Mosley Street, Newcastle upon Tyne in 1879.
6. Only 10% of energy is used by a traditional light bulb and the other 90% of energy generates heat.
7. The electrical EEL can deliver shocks of up to 600V. It's not an EEL, but type of knife fish.
8. The first thermal power plant established in India is Bokaro thermal power plant in the year 1952.
9. On September 30, 1882, the world's first hydroelectric power plant began operation on the Fox River in Appleton, Wisconsin.
10. Iceland is the only the country to produce energy only through renewable sources

-M.Maheshwari
III B.TECH EEE

CURRENT AFFAIRS :

1. Google launched "Digitally safe consumer" campaign in India.
2. The 2016 National Children science Congress (NCSC) has started in Pune city.
3. Viral Acharya was appointed as the new deputy governor of RBI.
4. India won the Asian Cricket Council under-19 Asia cup title.
5. Bipin Rawat is the new Chief Of the Staff of Indian Army.
6. India team won the 2016 men's junior hockey world cup tournament.
7. Ratan Tata has been conferred with the ICFA's 2016 Global Agriculture Leadership award.
8. "Resourcesat-2A" remote sensing satellite has been launched by PSLV-C36 launch vehicle.
9. Jagdish Singh Khehar has been appointed as new chief justice of India.
10. Vinod Vashisht is the newly appointed director general of National Cadet Corps.
11. India's first and Asia's longest cycle high way has been opened in UP.
12. Andhra Pradesh government has launched the "smart water distribution monitoring" with web interface.
13. Andhra Pradesh has been ranked number one in world banks 'energy efficiency implementation readiness'.
14. China has launched the world's longest super secure quantum communication lines.
15. Telangana government has signed a MOU with the Microsoft India for digital initiatives.
16. Indo-China joint military exercise "Hand In Hand 2016" has started in Maharashtra.
17. Vishwanand Anand has won the 2016 champion showdown.
18. India recently signed an agreement with Israel country in the field of water resourcing management and agriculture.
19. Rahul Dravid has become the brand ambassador for 2017 blind T20 Blind Cricket World Cup.
20. Maharashtra will be the first Indian state to launch cyber police stations in all districts.

- M. Sindhuja
III B.TECH EEE

KNOW YOUR EXAM

GAIL

Gas Authority Of India Limited, state owned enterprise public company founded in year 1984 and its headquarters is located at New Delhi, India.

The following are business segments:

Natural gas,

Liquid hydrocarbons LPG and electricity generation

Gail was conferred with the maharatna status on 1st feb 2013 by government of India .
“engaging our employees for superior results.

SELECTION PROCESS:

The recruitment in executive cadre (E2 Grade) in general is carried out through two methods.

1. OPEN RECRUITMENT:

The openings are advertised pan india which is followed by all india written test & interview

2. CAMPUS SELECTION:

GAIL visits reputed engineering colleges & management institutions across county to hire.

One of the job details in GAIL:

Name of the post - Foreman

Age limit - 32 years

Scale of pay - Rupees 14,500/- to 36000/-

Qualification - Graduate in Electrical engineering with minimum 60% marks. Through GATE Caste wise cut off percentages General-72.67, OBC-68, SC- 54, ST-49

Experian's - Minimum 2 years post qualification

Duration of exam - 2 hours

No of bits - 150

Exam fee - 200/- (exception for SC/ST/PHD candidates)

Payment method - Net banking of national/private bank, card payment of any national /private bank and preaknowledge form through SBI branch.

Application - Online

SYLLABUS:

- Reasoning & general intelligence
- General awareness
- Aptitude
- English
- Technical subjects

REFERENCE BOOKS:

- Quantitative aptitude - R.S. Agarwal
- Guide NTPC electronics engineering - G.K. Publishers

TECHNICAL:

- NTPC/NHPC/IOO/HP CIVIL ENGG GUIDE BY RPH Editorial Board

-M.Surya Teja
III B.TECH EEE

INTERVIEW TIPS

DO YOUR RESEARCH :

Researching the company before the interview and learning as much as possible about its services, products, customers and competition will give an edge in understanding and addressing the company's needs. The more you know about the company and what it stands for the better chance you have of selling yourself in the interview.

2. LOOK SHARP:

Select what to wear to the interview. Depending on the industry and position, get out your best interview clothes and check them over for spots and wrinkles. Once appearance depicts once self-confidence.

3. BE ON TIME:

Never arrive late to an interview. Allow extra time to arrive early in the vicinity, allowing for factors like getting lost. Enter the building 10 to 15 minutes before the interview.

4. SHOW ENTHUSIASM:

A firm handshake and plenty of eye contact demonstrate confidence. Speak distinctly in a confident voice, even though you may feel shaky.

5. LISTEN:

One of the most neglected interview skills is listening. Make sure you are not only listening, but also reading between the lines sometimes what is not said is just as important as what is said.

6. ANSWER QUESTION ASKED:

Candidates often don't think about whether they are actually answering the questions their interviewers ask.

7. GIVE SPECIFIC EXAMPLES:

Give examples that highlight your successes and uniqueness. Your past behavior can indicate your future performance.

8. ASK QUESTIONS:

Many interviewees don't ask questions and miss the opportunity to find out valuable information. The questions you ask indicate your interest in the company or job.

-N. Parvateesam
III B.Tech, EEE

Job Interview Tips



WORD COMMUNICATION

As growing competitive world needs tactful skills in communicating with others, tough situations require lot of usage of dual tone. One must possess magical abilities to deliver hard news in a soft way to the receiver. Especially in the fields of management most of companies require its managers to possess certain good qualities/soft skills to withstand ups& downs of economy& production in times of recessions. Important and few of word communications are listed below.

Beginning a conference call...

"Are we all on?"

"Can I ask that we all state our names please?"

Signal phrases for when you have a question....

"Am I to understand that..."

"So, what we're saying is..."

Agreeing with people.....

"Okay, I think we are all on the same page here..."

"Yes, I get what you're saying..."

Disagreeing with people.....

"From our perspective, it's a little different. Let me explain?"

"Well, yes and no -can I tell you how we see it?"

Negotiating people successfully.....

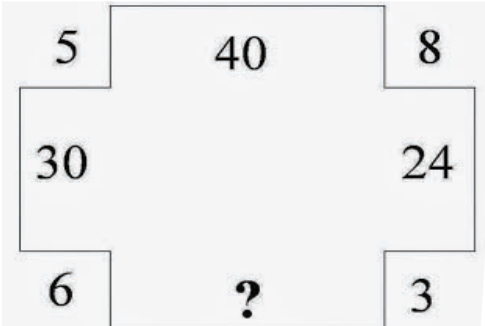
"I hear what you're saying, but our bottom line is very clear on this one"

"This is the deal breaker for us, we can't budge."

-Y.Divya Teja,
III B.Tech, EEE

BRAIN TEASERS

1. A heavy tree trunk can be sawed into a 12 feet long piece in one minute. How long will it take to saw it into twelve equal pieces?
2. Fifty minutes ago it was four times as many minutes as past 3'o clock, how many minutes is it to 6'o clock?
3. Supposing a clock takes 7 seconds to strike 7,how long will the same clock takes to strike 10?
4. Which would you say is heavier, a pound of cotton or a pound of gold?
5. Find a number which is three times the sum of its digits?
6. There are 25 stations in a line. At each of the stations, the passengers can get tickets for any other 4 stations. How many different types of tickets do you think the booking clerk has to keep?
7. What is the temperature that shows the same reading on both the Centigrade & Fahrenheit scale?
8. There is a number, whose second digit is smaller than its first digit by 4 and if the number was divided by the digit's sum the quotient would be 7?
9. Can you write 31 using only digit 3 five times?
10. Write nothing by using six lines?(iiiiii)

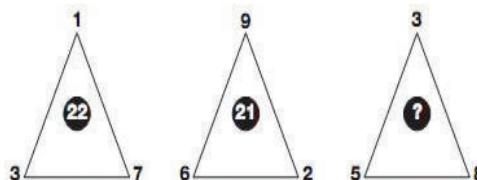
11. 

12. **99.9% have failed to solve this**

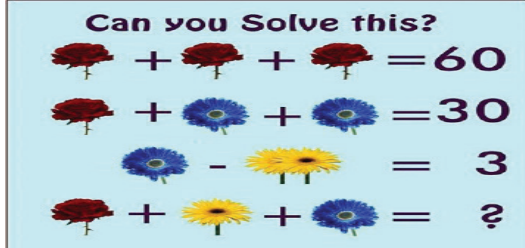
If $3 = 18$
 $4 = 32$
 $5 = 50$
 $6 = 72$
 $7 = 98$

Then,
 $10 = ?$

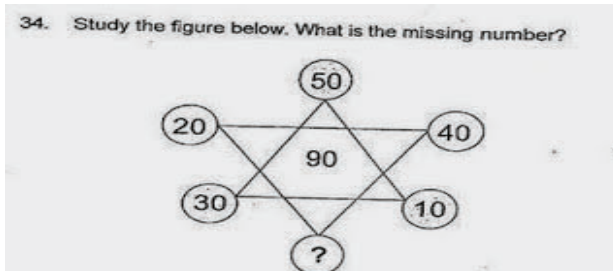
13. Which number replaces the question mark?



14. **Can you Solve this?**



15. 34. Study the figure below. What is the missing number?



Answers:

1. 11 min, 2. 26min, 3. 7/6 min, 4. a pound cotton is heavier than gold (because cotton is weight by avoirdupois pound=16 ounces, where as gold is precious metal is weight by the troy pound=12ounce[5760grs]) 5. 27, 6. 600=25*24, 7. 40degrees centigrade, 8. 84, 9. 3cube+3+(3/3) 10. NIL, 11. 18, 12. 200, 13. 43, 14. 27, 15. 30

-D.Sai Lakshmi
 - Ch.Triveni
 III B.TECH EEE

Student skills & achievements

T. Rajesh -Selected for Kabaddi university team (JNTUK)

K. Hari Krishna – Runner – Volley Ball – Annual Day Celebrations 2016

D.R.B.N.D.Vara Prasad - Runner – Volley Ball – Annual Day Celebrations 2016

B. Satya Narayana - Runner – Volley Ball – Annual Day Celebrations 2016

Sk. Shahul – Winner – Cricket – EENADU Trophy District Level

B.Rakesh – Winner – Cricket – EENADU Trophy District Level

V. Prasanna Siva Kumar – 1st Prize – Quiz Competition – FARADAY Memorial

P.L.Anitha Rao – Certificate of Merit – I B.Tech – JNTUK – UCEV

P.L.Anitha Rao- Certificate of merit – Zodiac (Event) – Technozion NIT WARANGAL

Ch.Subba Lakshmi - Certificate of Merit – Zodiac (event) – Technozion NIT WARANGAL

Ch.Subba Lakshmi – JAM – Runner- women’s day celebrations

M.Mounika – 2nd Prize – PPT Presentation –FARADAY MEMORIAL

M.Mounika – 2nd Prize – Quiz Competition – FARADAY MEMORIAL

M.Sri Surya Teja - 2nd Prize – PPT Presentation – FARADAY MEMORIAL

G.Vamsi Priya – IEEE Presentation- IEI institute of engineering Pune, India

N.Divya – JAM – 1st Prize – FARADAY MEMORIAL

N.Divya - certificate of merit – Zodiac (Event) – Technozion NIT WARANGAL

V.Ramya – Chess – 1st Prize – Inter Collegiate Tournament of Central Zone Games

M.Sindhuja – 2nd Prize – Debate- Dr.B.R.Ambedkar Jayanthi- JNTUV

K.Devi – Bronze Medal – Long Jump – Annual Day Games 2k16 – JNTUV

K. Bhavya – 1st Prize - Quiz Competition – FARADAY MEMORIAL

K. Bhavya – 1st Prize - JAM – Women’s Day Celebrations

S. Thanusha – 2nd Prize – Long Jump – annual day celebrations - JNTUV

S. Thanusha – 2nd Prize – High Jump – annual day celebrations – JNTUV

S. Thanusha – 2nd Prize – Discuss Throw– annual day celebrations – JNTUV

S. Thanusha – 2nd Prize – Elecution – Engineer’s day 2k15 – JNTUV

S. Thanusha – 1st Prize – High Jump –JNTUK Inter College Athletics meet

S. Thanusha – 1st Prize – 4 *100m Relay –JNTUK Inter College Athletics meet

Md. Shahira Begum - Technical Quiz (1st Prize) - FARADAY MEMORIAL

M.Mounica - Technical Quiz (2nd Prize) – FARADAY MEMORIAL

A.Apoorva - Technical Quiz (2nd Prize) – FARADAY MEMORIAL

Y.V.M. Swathi – Rangoli – 2nd prize – Women’s Day Celebrations

Ch.Harsha Vardhini – 2nd prize – Women’s Day Celebrations

A.Deepthi – 2nd prize – Women’s Day Celebrations

song

PALLAVI:
Yenaadu leni roopu
Ennallu yekkada undo.....(2)
Maa urini chuttumutti
Aahladam tho anandaalanu vedajallindhi
||yenadu||

CHARANAM 1:
Kokilammatho gonthu kalipi ne pataapadanaa..pataapadanaa..
Thummedalatho janta katti ne aatalaadanaa..aatalaadanaa.. (2)
Kanulaku theliyani maimarupedho..
Naa manasuni thana dhosita patti..
Chugurince ee anandamlo..
Naa aashanu aa thalapulu vintamaa..!
||yenadu||

CHARANAM 2:
Pavuralatho janta cheri ne natyamadana.. natyamadana..
jabilammalaa punnami vannenai ne kanthule virajalana... (2)
maatalakerugani mounamu yedho..
naa madhi thalupulanu mellaga thatti..
aa gudi gantalu moginchi..
naa aashalu anni meetanga..!
||yenadu||

-A.V.V.N.S.Satya Sree
III B.Tech, EEE



DURING THE INAUGURATION OF ECLECTIQUE-2K16



LAUNCHING OF WALL MAGAZINE BY PRINCIPAL OF JNTUK -UCCEV



Get Ready for
Eclectique 2k17
March 3rd & 4th

Save Energy
Save Money
Save The Earth



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