



AMET

ACADEMY OF MARITIME EDUCATION AND TRAINING
DEEMED TO BE UNIVERSITY
(Under Section 3 of UGC Act 1956)

ELECTRIKA **2019**



ANNUAL MAGAZINE 2018-2019

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ABOUT THE UNIVERSITY

AMET is India's first Deemed to be University in Maritime Education which is ranked as 3rd among Maritime Universities of the World in the PIMET (Performance Indicators in Maritime Education and Training) Ranking of International Association of Maritime Universities (IAMU). Established during 1993, AMET's uncompromising strides of excellence in the field of maritime education and training laced with its capacity to feed the global shipping industry with an unrivalled maritime human resource secured it to have many national and international recognitions, accreditations and rankings such as NAAC, NIRF, ARIIA, DGS-CIP, PIMET etc.

AMET serves as an ocean of knowledge for over 4000 students pursuing Programmes ranging from diploma to Doctoral programs through 9 schools and 23 intensive research and training centers for marine and marine related activities. Equipped with an excellent infrastructure for research and development, co-curricular and extracurricular activities AMET secured its compliance certificate for ISO 9001:2015 QMS standards from the prestigious and globally renowned DET NORSKE VERITAS, Norway.



For over two decades AMET is remaining as the favourite destination for campus interviews by many shipping giants such as AP MOLLER MAERSK, GOODWOOD, NYK, SONANGOL, VSHIPS, WALLEMS, SHELL, CHEVRON, STENA and so goes a list of over 100 companies. Besides positions onboard, AMET Business school graduates have secured lucrative jobs in commercial shipping sectors such as chartering and ship broking. Never the less, Naval architecture, petroleum engineering, harbor engineering, marine electrical and electronics engineering graduates have successfully walked away from AMET with jobs offering sumptuous packages along with an opportunity to grow and glow in their career swiftly. Needless to say, about the entrepreneurship development activities nurtured into AMET'ians has been found rewarding by students who are chief executive officers of their own organization.

VISION AND MISION OF THE UNIVERSITY

VISION

To sustain identity as a World Class Leader in Maritime Education and empower learners with wholesome knowledge through progressive innovation in training, research and development which will render students a unique learning experience and a transformation impact on the Global Society.

MISION

AMET will strive continuously to

- ❖ Impart value-based higher education and technical knowledge with uncompromising strides of an outstanding quality.
- ❖ Emerge as a Centre of Excellence in culcating skill development in recent technologies in accordance with industrial trends.
- ❖ Create World class research capabilities on par with the finest in the world and broaden student's horizons beyond classroom education.
- ❖ Nurture talent and entrepreneurship to enable all round personality development among students.
- ❖ Empower students across socio economic strata
- ❖ Make a positive difference to society through technical education.

ABOUT THE DEPARTMENT

The Department of Electrical and Electronics Engineering is constituted and administered to provide a professional atmosphere for scholars, students, educators and engineers to enrich the discipline of Electrical, Electronics and Marine Engineering. The Department offers a well-balanced undergraduate Electrical and Electronics Engineering -Marine program and postgraduate M-E (Power Systems) program and PhD- Electrical and Electronics Engineering program of technological and scientific study designed to serve the professional needs of the baccalaureate.

The Department gives opportunity to learn marine related courses for the students and pursue studies related to the scientific concepts, technological advancements and design principles of Electrical and Electronics Engineering pertaining to Onshore and Offshore applications as well. This programme is designed to enable the Engineers coming out of the stream to work on board the ship as Electrical Engineers. Jobs with shipyards, dry docks, ship machinery manufacturers are some of the other fields they can look into.

ESTABLISHMENT:

Department of Electrical and Electronics Engineering is established in the year 2008 with the objective of imparting quality education of international standards and to produce highly innovative Marine Electrical and Electronics Engineers capable of solving global maritime challenges. Since its inception in the year 2008, the Department has grown steadily and acquired the present shape with excellent infrastructure, modern equipment for the laboratories and qualified and dedicated faculty to impart sound technical knowledge to the enthusiastic student community. As on date, the Department has successfully produced four batches of talented graduates who are serving in prestigious shipping industries and organizations.

The Department offers 4 years U.G program in EEE-Marine, PG program in M-E (Power Systems) and PhD in interdisciplinary Engineering domains. The Department is headed by Dr.T. Sasilatha, Professor and Dean and supported by a team of well qualified, experienced and

dedicated faculties. The Specialization of staff members span around major areas in Electrical and Electronics Engineering including Marine Automation, Power Systems, Electronic Navigation Systems, Offshore Energy Systems, Electrical machines, Energy studies, Control Systems, Power Electronics, Applied Electronics, Embedded Systems, Electrical Drives and VLSI Design.

PROGRAMS OFFERED:

- B.E - Electrical and Electronics Engineering-Marine – 4 Years
- M.E - Power Systems – 2 Years
- Ph.D – Electrical and Electronics Engineering, Interdisciplinary Domains (Full time and Part time)

VISION AND MISSION OF THE DEPARTMENT

VISION

To emerge as a Centre for higher learning and research through development of highly competent, innovative and world class Marine Electrical and Electronics Engineers while remaining sensitive to ethical, societal and environmental issues.

MISSION

- ❖ To impart quality education in order to produce highly innovative, socio- economically conscious Marine Electrical and Electronics Engineers.
- ❖ To provide knowledge and skills, that is essential to meet the local and global demands in Marine Electrical and Electronics Engineering.
- ❖ To upgrade student's technical knowledge through industry interaction activities.
- ❖ To foster strong ethics, positive attitude and transform the Department into Centre of Excellence by promoting world class research and development to meet the challenging needs of society.
- ❖ To motivate and guide students for developing entrepreneurship or pursue higher education and train them for overall personality development.

B.E. ELECTRICAL AND ELECTRONICS ENGINEERING - MARINE

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Bachelor of Electrical and Electronics Engineering - Marine program is designed to prepare the graduates will,

PEO1:

Have a successful career in Marine or other related Electrical and Electronics Engineering fields or pursue higher education and research in multidisciplinary area.

PEO2:

Apply Engineering fundamentals, technical knowledge, skills and modern tools to solve real world Electrical Engineering problems in Maritime industries.

PEO3:

Adapt to any environment and practice the ethics of their profession, consistent with a sense of social responsibility.

PEO4:

Exhibit the skills by updating the breadth of knowledge in the life-long learning process to meet the global challenges.

PROGRAM OUTCOMES (POs):

A graduate of the Electrical and Electronics Engineering - Marine Program will,

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and Team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1:

Apply the knowledge of Electrical Engineering, investigate and solve the complex Marine Electrical Engineering problems to meet the specified needs with appropriate considerations for the society.

PSO2:

Develop solutions for complex engineering problems in the broad field of power electronics and drives, power systems, high voltage engineering and Marine Engineering and control.

PSO3:

Analyze, design and integrate Electrical systems in on board ships and apply modern tools and techniques in marine industries and create passion for life-long learning and research in advanced fields.

M-E (POWER SYSTEMS)

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Master of Engineering in Power Systems program is designed to prepare the graduates will,

PEO1: Have a successful career and carryout innovative research in power system Engineering and its related disciplines.

PEO2:Provide optimum solutions to the challenging problems in power and energy sectors with ethical values and social responsibility.

PEO3: Demonstrate life-long independent and reflective learning skills in their career.

PEO4: Exhibit project management skills and ability to work in collaborative, multidisciplinary tasks in their profession.

PROGRAM OUTCOMES (POs)

Master of Technology in Power Systems program is designed to prepare the graduates will have,

PO1: An ability to independently carry out research/investigation and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report /document.

PO3: An ability to apply advanced concepts of Electrical Power Engineering to analyse, design and develop Electrical systems to put forward power systems Engineering solutions globally.

PO4: Ability to use advanced techniques, skills and modern scientific and Engineering tools for professional practice in power systems.

PO5: Ability to communicate effectively at all levels of projects and its management and demonstrate leadership qualities in a multidisciplinary scientific research team.

PO6: An ability to engage in independent, reflective, and lifelong learning for the benefits of society.

Educationists should build the capacities of the spirit of inquiry, creativity, entrepreneurial and moral leadership among students and become their role model

A.P.J ABDUL KALAM

DEAN'S PROFILE



Dr.T. SASILATHA M.E, Ph.D.

It gives me immense pleasure to release the current issue of the Technical magazine “Electrica” for the Academic Year 2018-2019. This is a productive technical material and subsidiary skill developing tool for the students.

Engineering is a great outlet for the imagination-the perfect zone for independent thinkers. True Engineering education is not just providing ample facilities to the students, it is a platform where hidden talents /imagination are converted into the real and creative world. It helps to build teamwork and work with all kinds of people inside and outside the field, whether they are designers or architects, doctors or entrepreneurs.

Having said that, I am sure that this current issue will lighten up your spirits not only on the technical frontiers but also provide an insight of co-curricular and extracurricular activities conducted both at the international and national level as conference and faculty development programmes. Adding to the galore are the value-added seminars and workshops conducted for students at a part of the institute -industry interactions. The edition also enlists students’ achievements and their participation in the intercollegiate conference, seminars, workshops, and also in various sports meet and much more. The magazine will aptly revive fond memories of all the achievement to reminisce and to remind upon the future targets.

I am sure the magazine will be informative and resourceful. I applaud the coordinators and efforts behind the team in bringing out this issue. I wish them all success!

GLIMPSES OF THE YEAR

International Conference on Innovations and Research in Marine Electrical and Electronics Engineering- International Conference on Innovations and Research in Marine Electrical and Electronics Engineering - ICIRMEEE 2018 was held on 27.09.2018 and 28.09.2018 This conference was organized in collaboration with National Institute of Wind Energy Ministry of New and Renewable Energy, Government of India and IEEE AMET Student Branch

ICIRMEEE -2018 is an international conference dedicated to blending of Electrical, Electronics, Control systems, Power Electronics and Drives, Robotics and Marine automation and Communication and Computing to Marine applications. Experts from the International Electrical and Electronics Engineering domain have attended the conference. This conference presented an open forum for scientists, researchers and engineers to exchange the latest innovations and research advancements in the areas of next-generation Automated ships, Marine electrical and control systems, Marine Electronics and Navigation Systems and Robotics and Marine automation in the maritime industry.

A panel discussion was organized with eminent speakers from the maritime industry and Electrical and Electronics Engineering domain. They discussed the role of Electrical Engineers in Maritime sectors. They mentioned the importance of Electrical Engineers in shipping industries and other industries. They said that the Electro-Technical officers will occupy key positions in ships in future. The Keynotes from distinguished experts from worldwide and technical paper presentation sessions have been organized in the International Conference. More than 200 papers from Academicians, Researchers was received. Out of this, 72 papers got shortlisted for proceedings. In the international Conference, 44 Papers was presented.

Topics on Smart Grid Technologies and its Applications, Renewable Power Generation System, Power System Restructuring and Deregulation, Energy Management and Auditing, Finite Element Analysis of Electrical Machines under the topics of Electrical Engineering and VLSI Design and Testing, Embedded System Design, Nano Technology Wireless Communication, Big Data & Analytics, Advanced Communication Systems, Cloud Computing and Advanced Computing Technologies are some topics covered.

The chief guest was Dr K. Balaraman, Director General, National Institute of Wind Energy, MNRE, Govt. of India.

Our department Organized two days International Conference on Innovations and Research Marine Electrical and Electronics Engineering (ICIRMEE 2018). Unveiling of the international journal ICIRMEEE 2018, 27th and 28th September 2018.





SOME IMPORTANT MEMORIES

DIPLOMA IN FISHERIES ENGINEERING- DIPLOMA DISTRIBUTION FUNCTION

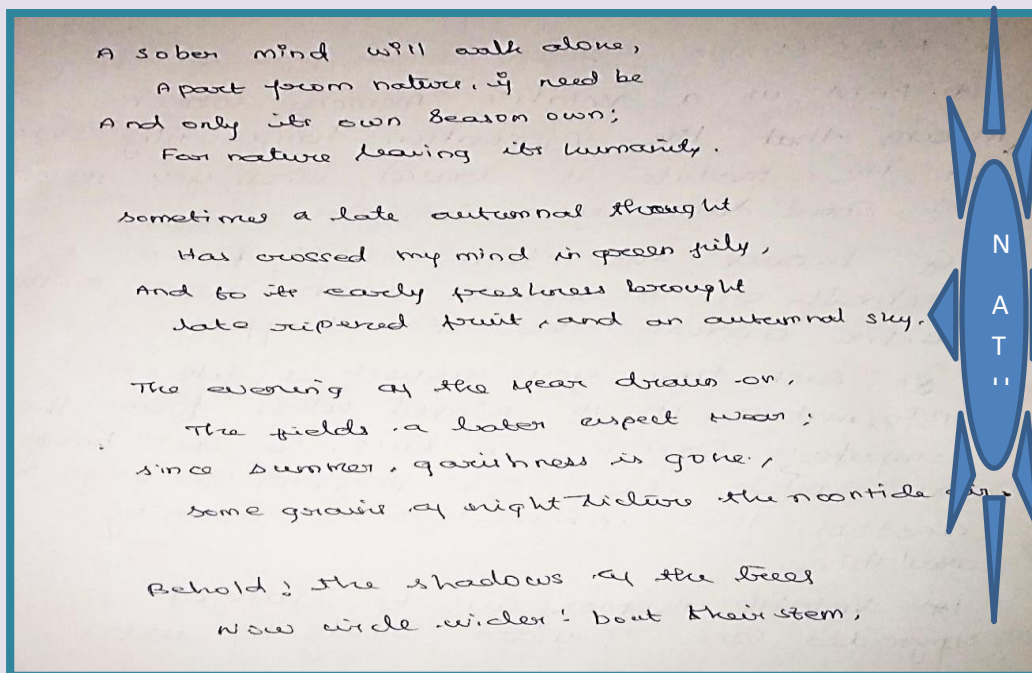
Our Department organized Diploma in Fisheries Engineering for the youth of Kanathur community in collaboration with Indian National Centre for Ocean Information Services and after successful completion of the program, the certificates were awarded in the Diploma distribution function: Diploma in Fisheries Engineering on 19.11.2018



Some Highlights of 2018-2019

- The department organized one day National Seminar on Hybrid and Electric Hybrid Vehicle 30.03.2019
- Community Development activity titled “Awareness Program on Wash, Sanitation and Hygienic” conducted on 06.02.2019
- Organized a Cultural Meet (CALIDA FESTA-2K19) on 25.01.2019
- Pongal was celebrated in AMET Campus on 11.01.2019

STUDENTS CORNER



M.BALAJI/IYR EEEM

DOING THE RIGHT THING __ Cheryl Conklin, 2006

On Christmas eve, Santa left his warm bed and went right into the kitchen to see Mrs Claus. There she stood, right in front of the stove. “Ummm,” he thought, wasn’t that right where I left her last night? He was sure it was. He wondered if everything was right with her. She never stood right in front of the stove, all night. It appeared that she was frozen, right in front of the stove. Santa ran for the cell phone to call Rudolph. Unfortunately, he couldn’t remember where he left it. He ran down the hall and turned right no phone, he ran down to the next hall and turned right again no phone. Suddenly he remembered where he had left it. He called Rudolph and said if he could come now Mrs.Claus is frozen in front of the stove. Now Rudolph had an idea. He turned on the front burner both left and right. Soon Mrs.Claus began to thaw. As a smile came across her face, Santa thank Rudolph for doing the right thing and had saved the day. After all, it would not have been right for Santa to be left with a frozen wife.

A. BALAJI/I YR EEEM

E-WASTE MANAGEMENT IN INDIA: CHALLENGES AND OPPORTUNITIES

Growth in the IT and communication sectors has enhanced the usage of the electronic equipment exponentially. Faster up-gradation of electronic product is forcing consumers to discard old electronic products very quickly, which, in turn, adds to e-waste to the solid waste stream. The growing problem of e-waste calls for greater emphasis on recycling e-waste and better e-waste management.

India is the third-largest electronic waste generator in the world after China and the USA and these three countries together contributed 38% of the total of 53.6 million tonnes (Mt) of e-waste, generated worldwide in 2019. E-waste typically consists of metals, plastics, cathode ray tubes (CRTs), printed circuit boards, cables, and so on. Valuable metals such as copper, silver, gold, and platinum could be recovered from e-wastes if they are scientifically processed. The presence of toxic substances such as liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chrome, cobalt, copper, and lead, makes it very hazardous if e-waste is dismantled and processed crudely with rudimentary techniques.

E-waste poses a huge risk to humans, animals, and the environment. The presence of heavy metals and highly toxic substances such as mercury, lead, beryllium, and cadmium pose a significant threat to the environment even in minute quantities.

E-waste management is a great challenge for governments of many developing countries such as India. This is becoming a huge public health issue and is exponentially increasing by the day. To separately collect, effectively treat, and dispose of e-waste, as well as divert it from conventional landfills and open burning, it is essential to integrate the informal sector with the formal sector. The competent authorities in developing and transition countries need to establish mechanisms for handling and treatment of e-waste in a safe and sustainable manner.

Increasing information campaigns, capacity building, and awareness are

critical to promoting environment-friendly e-waste management programmes. Increasing efforts are urgently required on the improvement of the current practices such as collection schemes and management practices to reduce the illegal trade of e-waste. Reducing the number of hazardous substances in e-products will also have a positive effect in dealing with the specific e-waste streams since it will support the prevention process.

-JAIN JAMES /I YR EEEM

10 AMAZING FACTS

Augustus Caesar Was the Wealthiest Man to Ever Live in History



Nephew and heir of Julius Caesar, Roman Emperor Augustus had an estimated networth of \$.46 trillion when counting for inflation. Some say that Mansa Musa, king of Timbuktu, was the world's wealthiest man as his wealth was too great to count. However, Augustus's staggering wealth could be measured.

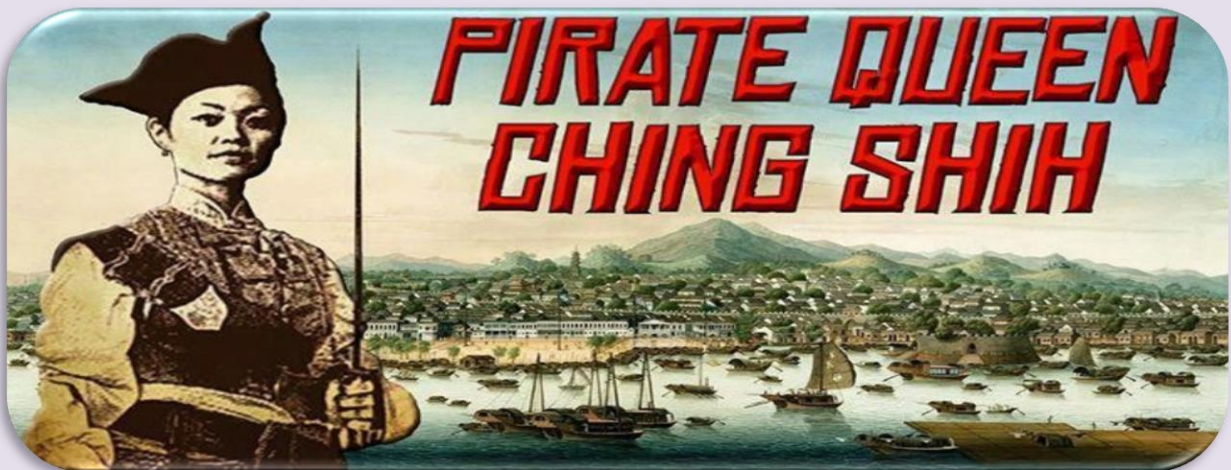
Alexander the Great Was Buried Alive... Accidentally



At age 32 when he died, Alexander the Great had conquered and created the largest land-based empire the world has ever seen. It stretched from the Balkans to Pakistan. In 323 BC, Alexander fell ill and, after 12 days of excruciating pain, he seemingly passed away.

However, his corpse didn't show any signs of rot or decomposition for a whole six days. Modern-day scientists believe Alexander suffered from the neurological disorder Guillain-Barré Syndrome. They believe that when he "died" he was just paralyzed and mentally aware. He was horrifically buried alive

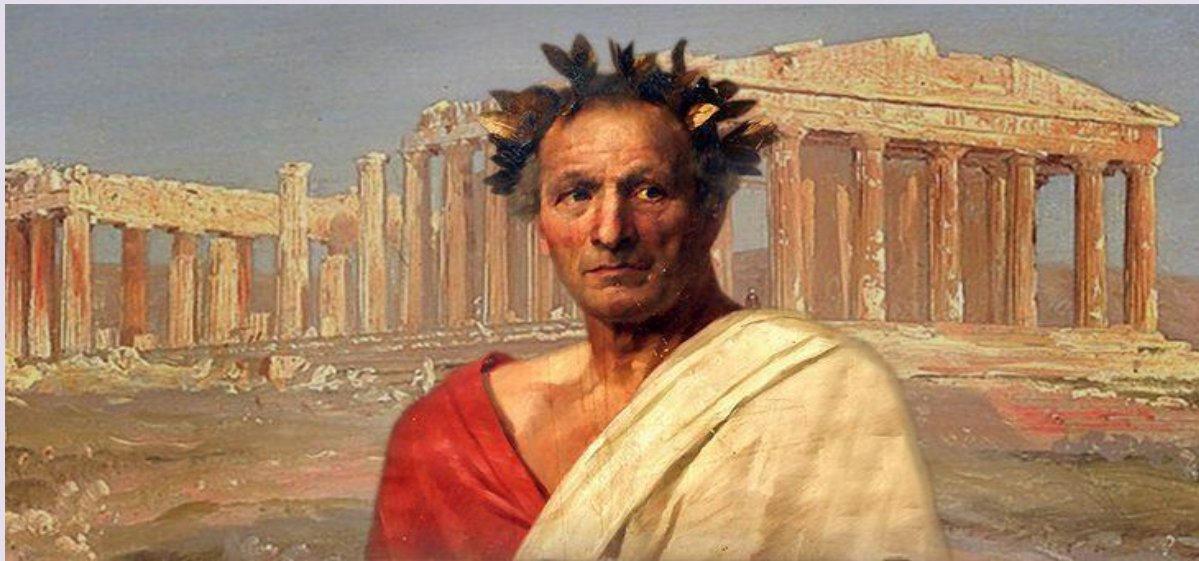
The World's Most Successful Pirate in History Was A Lady



Named Ching Shih, was the wife of Commander of the Red Flag Fleet. He just viewing her as a wife, considered her his equal and she became an active pirate commander in the fleet. Ching Shih soon earned the respect of her fellow pirates. So much so that after her husband's death she became the captain of the fleet. Under Shih's leadership, the Red Flag Fleet consisted of over 300 warships, with a possible 1,200 more support ships. She even had a possible 40,000 – 80,000 men, women and children.

They terrorized the waters around China. The Red Flag Fleet were such a fearsome band of raiders, that the Chinese government eventually pardoned Ching Shih and her entire fleet – just to get them off the high seas!

Julius Caesar Was Stabbed 23 Times



Julius Caesar is probably the most iconic name associated with the Romans. Likewise, his assassination and death are also highly notorious. Due to his coup d'état of the Roman Republic and his proclamation of himself as Dictator for Life, along with his radical political views, a group of his fellow Roman senators led by his best friend Brutus assassinated him on March 15th, 44 BC.

During the assassination, Caesar was stabbed at least 23 times, before finally succumbing to his wounds. He passed away with fabled words to his former best

friend Brutus, allegedly being “you too, sweet child?”

The Colosseum Was Originally Clad Entirely in Marble



When you visit or see the Colosseum these days, you’ll notice how the stone exterior appears to be covered in pockmarks all across its surface. Whilst you might assume this is just degradation of the material due to its age, it is actually because it was originally clad almost entirely in marble. The reason for the pockmarks is, after the fall of Rome, the city was looted and pillaged by the Goths. Yes, that’s right, the Goths! They took all of the marble from the Colosseum and stripped it (mostly) down to its bare stone setting.

The holes in the stone are from where the iron clamps and poles attaching the marble cladding to it have been ripped out.

The Vikings Were the First People to Discover America.



Half a millennium before Christopher Columbus “discovered” America, Viking chief

Leif Eriksson of Greenland landed on the Island of Newfoundland in the year 1,000 AD. The Vikings under Leif Eriksson settled Newfoundland as well as discovering and settling Labrador further north in Canada.

S.SAI HARI/I YR EEEM

AN INK WHICH WE DON'T KNOW ABOUT!

It was introduced by the Council of Scientific and Industrial Research (CSIR) and National Physical Laboratory (NPL) to combat the problem of fake printing of passports and counterfeiting of currency notes.

Important facts about the new ink

The ink consists of single excitable dual emissive luminescent pigment.

- The development of the ink is based on the concept of fluorescence and phosphorescence phenomena
- The developed ink has features of changing the colour of pigment after the notes are printed.
- The ink shows white colour in ambient light. It turns into a red colour when it is exposed to UV light and when UV source is switched off it turns into a green colour.
- The reason behind the development of new ink is a duplication of Rs.500 and Rs.2000 notes. As per RBI annual report (2018-19), the risk of duplication of Rs.500 and Rs.2000 notes is higher. Rs.500 duplication accounts for 12% and Rs.2000 to 21.9%.

A. BALAJI IYR/EEEM

PENCIL WONDER



HOBBIES

It has been rightly said that regular studies are like a minute speck of information in a vast galaxy of knowledge. There are plenty of things to learn out there. We just need the right mindset for it. A hobby is a great way to incorporate a vast subject of learning into our daily lives. The best thing about hobbies is that they are flexible. They don't have any strict guidelines to follow. They don't demand us to do them every day. A regular hobby like reading books can be picked up anytime and anywhere. However, highly skilled hobbies like coding require much more time and skills. You can take professional help if you feel that you don't have access to enough resources that would further your level of learning. After graduating, when people go out looking for jobs, their hobbies help them to bag jobs. Most of the top recruiters have been demanding to know about our hobbies. So, that they will get a better idea about our personalities. Our hobbies reflect our personalities. The things

we choose to do, tell a lot about what kind of people we are. You might be excelling in academics, but if you don't have a proper hobby that you have been following since a young age. Then you won't be showcasing any solid personality. Therefore, it is imperative to choose an area of interest and devote some time to it to develop as a wholesome individual.

Balamurugan/II- Yr- EEEM

FEAR OFFERS TWO CHOICES

First, let us evaluate your self-desire of how you want to represent yourselves to this world. Remember, this is a game and the individual with the highest score wins! So, here goes the question – Is the figure below concave or convex?

Examine the figure carefully... Be patient, pause your reading and come up with the most appropriate answer that you are satisfied with. So, now let us see how you want to represent yourselves to this world. Please, allot a mark of 1 to your scorecard if you have diagnosed this figure as either a concave or convex. If you are in a confusion as you have diagnosed the figure as either of them, then, feel free to assign yourselves the highest mark of 2.

Finally, the results have been declared that the individual with the score of zero wins the game. So, the highest appraisals and the prestigious title of “Winner” goes to that person who has shown up suddenly from nowhere. End of competition.

From this competition, I have shown you how this world has changed drastically from a truthful vintage to a corrupted young age. As a citizen of this once beautiful economy, we never have tried to face our day to day changes with utmost courage and determination. We know our strength but fail to be confident about it. We dream of a safe future and live for someone else's life. We see an act of arrogance and marvel at ourselves about our escape from them. We have a passion but we hide it with our dull looking resume. Finally, we get a job and lead a mechanical life.

Just ask yourselves, “Is this the life which you are destined to live?” If your answer is yes, then, you can surely win with almost nil passion and nil interest. If you say no,

then, you surely are a 'LEGEND'! The above game might have come up with two endpoints. One is acceptance and the other is back talks.

Let us first analyze the scene in terms of back talks. Just consider a competition is being held like this and you are one of the competitors. If you have entered this competition with the main motto of winning, then, you would have started to doubt your skills after the announcement of the results. Fear would have enveloped your mind and you would be subjected to constant disappointment. This might lead you to hide your identity in that competition and would also have made you have back talks about the conspiracy that happened during the finals.

Now, what might have been the state of your mind if you had accepted the result of the competition? Just one thing, your inner voice would never have got down, no matter what happens. The factor that made your mind to accept or deny the result was the belief which you had on yourselves. In turn, this whole thought would have been from the source of so-called FEAR. Fear was the outcome of that competition but your belief has changed the state of your mind. It is all again your choice.

If you face constant failures in your life, just learn the mistakes from them and wait for the even more beautiful future you are destined to live in. A person who wants to be a winner learns less and wins his/ her life in the first attempt. But a person who is LEGENDARY tries with many attempts to succeed while learning many valuable things and finally wins in his last attempt. A winner is just a HISTORY who wins his life; while a LEGEND is beyond history who wins the world.

FEAR has two meanings. The choice is yours...

Choice 1 – Forget Everything and run forward to be a winner.

Choice 2 – Face Everything and Rise, accepting all your defeats, to be a legend.

S.Divins Sobi IIIYR EEEM

SHARPEN YOUR AXE

John, a woodcutter, worked for a company for five years but never got a raise. The company hired Bill and within a year he got a raise. Then John resented Bill's getting a raise after only one year and went to his boss to talk about it.

The boss said, "You still cut the same number of trees you were cutting five years ago. We are a result-oriented company and would be happy to give you a raise if your productivity goes up". John went back and started hitting harder and putting in longer hours but he still wasn't able to cut more trees! He went back to his boss and told him his dilemma.

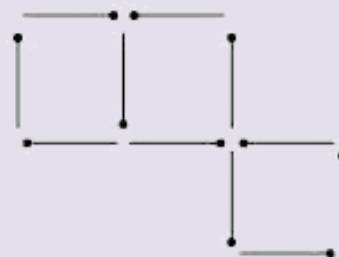
The boss told John to go talk to Bill. Maybe there is something Bill knows that you and I don't. John asked Bill how he managed to cut more trees. Bill answered, "After every tree I cut, I take a break for two minutes and sharpen my axe. When was the last time you sharpened your axe?"

When was the last time you sharpened your axe? Past glory and education don't count much. We have to continuously sharpen the brain.

Vinnarasi IIYR EEEM

Patterns to Ponder

<u>RA</u>	SC	TE
QC	<u>RE</u>	SG
PE	QG	?



What is the answer in the blank?

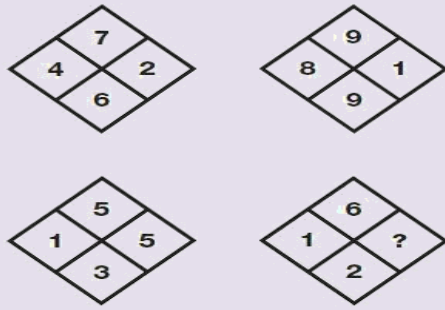
In this diagram, 11 matches make 3 squares. Your challenge is to move 3 matches to show 2 squares.

1. The Hardest Logic Puzzle Ever? If a giraffe has two eyes, a monkey has two eyes, and an elephant has two eyes, how manyeyes do we have?

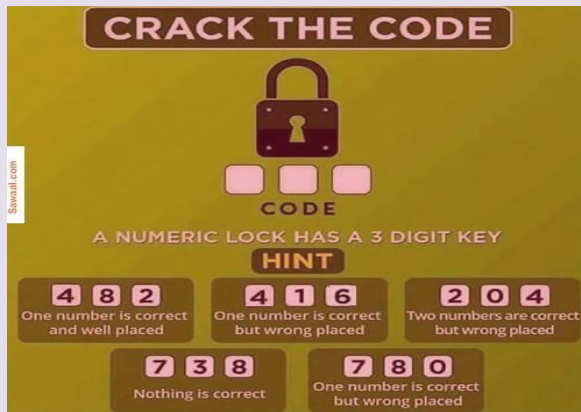
A) 3 B) 4 C)1 D)2

2. Crack the code & Unlock the Key?

A) 062 B) 602 C)042 D)204



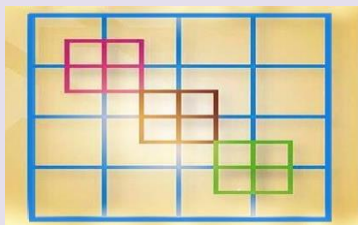
3. Find the missing Number?



4. How many times in a day, are the hands of a clock in a straight line but opposite indirection?

A)20 B)22 C) 24 D) 48

5.How many squares do you see?



A)44 B)45 C)46 D)50

PUZZLE TIME

planet earth

P	R	M	M	G	P	V	Q	T	U	N	D	R	A
E	D	L	O	R	C	O	W	A	V	E	M	O	O
O	S	I	I	S	A	E	L	E	R	A	P	T	L
C	H	U	O	A	S	A	E	A	G	Y	Q	A	S
E	E	S	A	T	S	A	D	M	R	R	V	U	S
A	M	E	E	E	K	U	A	O	O	A	I	Q	E
N	I	A	I	L	E	D	N	A	L	S	I	E	C
I	S	W	D	L	L	S	O	L	A	R	O	D	I
C	P	E	E	I	P	A	E	A	R	K	T	N	M
L	H	E	S	T	N	T	R	D	O	O	O	A	E
E	E	D	E	E	O	S	C	S	C	O	E	S	T
E	R	L	R	T	A	E	T	A	K	S	M	A	E
L	E	A	T	S	Y	D	A	L	Y	E	E	I	O
R	P	A	C	E	C	I	P	T	R	N	U	R	R

SEAWEED
SATELLITE
WAVE
ROCKY
SOLAR
MAGMA
KELP
METEOR
HEMISPHERE
SAND
SALT
ISLAND
POLAR
PYRO
DESERT
ICECAP
OCEANIC
MOSS
EQUATOR
TUNDRA

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Electricity and Magnetism Word Search

G	Q	W	P	A	R	A	L	L	E	L	N	E	A	I	Z	S
H	J	J	T	K	N	K	H	Q	Z	O	U	P	S	O	U	W
T	Z	Q	F	X	F	A	Q	C	V	D	T	R	M	T	E	E
F	V	B	Q	C	M	D	S	E	R	I	E	S	K	Z	M	W
C	N	A	Y	Q	H	P	Q	H	F	G	R	S	C	V	J	P
A	F	T	E	A	I	X	A	F	I	Y	M	R	I	O	P	F
P	Q	T	I	Y	V	F	S	J	E	X	I	W	R	W	G	I
L	B	E	D	R	Y	C	E	L	L	R	N	J	C	P	F	L
X	C	R	X	Z	D	J	Y	V	B	C	A	V	U	C	V	A
I	R	Y	L	R	X	D	Q	B	C	X	L	I	I	D	R	M
N	E	T	Z	P	D	D	G	L	U	Y	G	L	T	B	V	E
E	S	J	Q	I	O	K	H	U	R	T	D	Z	G	C	S	N
M	I	B	K	T	K	A	B	V	R	B	V	D	N	Z	S	T
Q	S	T	E	O	E	F	S	P	E	P	O	R	Q	S	O	I
R	T	B	D	J	L	U	K	K	N	E	G	A	T	I	V	E
C	O	Q	J	A	E	T	N	C	T	I	A	I	U	A	I	Q
I	R	B	M	G	C	I	T	S	L	E	C	H	A	R	G	E
L	P	L	M	Y	T	K	E	Y	H	W	T	T	V	X	G	J
Z	W	D	X	L	R	P	J	P	O	S	I	T	I	V	E	X
J	L	Y	M	H	O	I	W	F	G	B	H	H	N	U	L	I
V	N	N	C	K	N	U	Q	I	N	S	U	L	A	T	O	R
H	E	L	E	C	T	R	O	M	A	G	N	E	T	I	C	G



POSITIVE RESISTOR INSULATOR
CIRCUIT SERIES BATTERY
DRY CELL CURRENT TERMINAL
ELECTRON FILAMENT NEGATIVE
PARALLEL CHARGE ELECTROMAGNETIC



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