INSPIREEE

Inspirational Scripts, Personalities and Innovative RESEARCH OF EEE

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K.L.N. College of Engineering
Pottapalayam – 630 612,
Sivagangai District,Tamil Nadu, India

INSPIREEE

INspirational **S**cripts, **P**ersonalities and **I**nnovative **R**esearch of **EEE**

VISION

To become a high standard of excellence in Education, Training and Research in the field of Electrical and Electronics Engineering and allied applications

MISSION

To Produce excellent, innovative and Nationalistic Engineers with Ethical values and to advance in the field of Electrical and Electronics Engineering and Allied Areas

K.L.N. College of Engineering

Pottapalayam – 630 612, Sivagangai District, Tamil Nadu, India

KLNCE/EEE/INSPIREEE/2018/2

Contents

MESSAGE FROM HEAD OF THE DEPARTMENT

Dr.S.M.Kannan M.E., Ph.D.,MIEEE(USA),MISTE,FIE(India),
Professor & HOD / EEE,
K.L.N. College of Engineering.

In this issue, salient features of IT companies, online courses, opportunities and higher studies, question patterns of few recruiting companies are presented. These articles are highly informative and will help aspiring students. Students are encouraged to go through the article of BOAT requirement and prepare accordingly. Opportunity for apprentice training in reputed companies give good experience in core companies. Importance of Professional courses highlighted. Emerging areas such as Cloud computing, artificial intelligence, big data analytics are briefed. Article on disaster management will guide to safe guard people from some abnormal conditions.

The news letter uploaded in our College website are highly informative, students should regularly read the articles presented in it. The objective of articles presented in the news letter, to improve the students reading habit and in touch with the recent developments.

The top 10 skills required in 2020, forwarded by one of our Alumni, are listed below.

1. Complex problem solving.
2. Critical thinking.
3. Creativity.
4. People management.
5. Coordinating with others.
6. Emotional Intelligence.
7. Judgement and Decision making.
8. Service Orientation.
9. Negotiation.
10. Cognitive flexibility.

Students are expected to get maximum technical knowledge in their 4 years of Degree course. Those who are updating themselves, and proactive in nature are highly successful. Distractions in any form, will affect their study habits and will spoil their career. Plenty of job opportunities are available, but companies requirements can be met only when the students are gaining skills over the periods of study. Examination days are ahead, students are to be very cautious in every approach, including their daily travel to college and back to home.

Best wishes for Great future.

EDITORIAL CREW

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OMNATH.S.L(152033/IV Year B/Section)
SURIYA NARAYANAN K B (152063/ IV Year B Section)

POSTER CREATION:

KANAKA RAJAN M D M.A,PGDCA [LAB INSTRUCTOR]

ABOUT ABB

A.S.VIGNESH(162902) IV Year

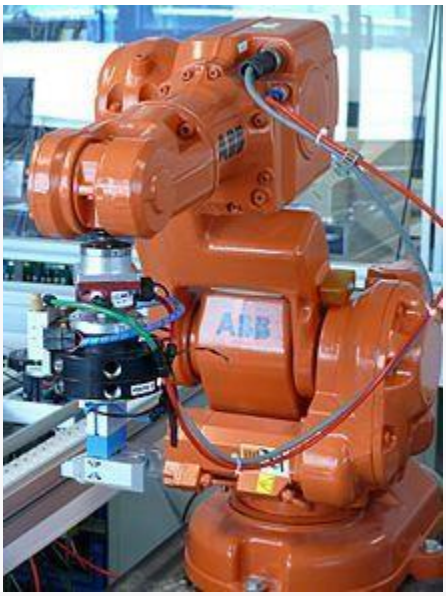
ABB (ASEA Brown Boveri) is a SwedishSwiss multinationalcorporation hea dquarteredin Zurich, Switzerland, operating mainly in robotics, power, heavy electrical equipment and automation technology areas. It is ranked 341th in the Fortune 500 global list of 2018 and has been a global Fortune 500 company for 24 years.

ABB's history goes back to the late 19th century. *Allmänna Svenska Elektriska Aktiebolaget* (General Swedish Electrical Limited Company, ASEA) was founded in 1883 by Ludvig Fredholm in Västerås as manufacturer of electrical light and generators. Brown, Boveri & Cie (BBC) was formed in 1891 in Baden, Switzerland, by Charles Eugene Lancelot Brown and Walter Boveri as a Swiss group of electrical companies producing AC and DC motors, generators, steam turbines and transformers.

ELECTRIFICATION PRODUCTS

The Electrification Products division manufactures low- and medium-voltage electrical products, including electric vehicle infrastructure, solar inverters, modular substations, distribution automation; products to protect people, installations and electronic equipment from electrical overload such as enclosures, cable systems and low-voltage circuit breakers; measuring and sensing devices, control products, switches and wiring accessories. The division further makes KNX systems that integrate and automate a building's electrical installations, ventilation systems, and security and data communication networks. Electrification Products also incorporates an Electrification Solutions unit manufacturing low voltage switchgear and motor control centres. Customers include a wide range of industry and utility operations, plus commercial and residential buildings.

The acquisition of GE Industrial Solutions, which closed in June 2018, further strengthened ABB's global position in electrification



An ABB industrial robot.

The Robotics and Motion division provides products and services for industrial production. It includes electric motors, generators, drives, power electronics and industrial robots. ABB has installed over 300,000 robots In 2006, ABB opened a manufacturing centre in Shanghai, China.Also, wind generators, solar power inverters and UPS products belong to this division.

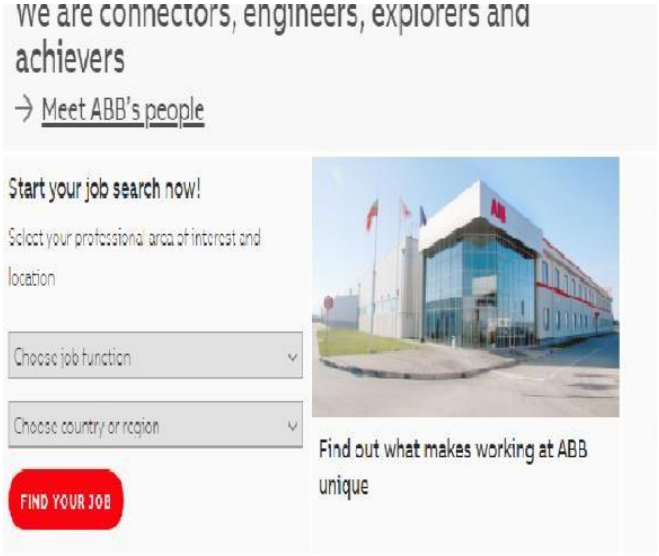
INDUSTRIAL AUTOMATION

The Industrial Automation division provides systems for control, plant optimization, and industry-specific automation applications. The industries servedinclude oil and gas, power, chemicals and pharmaceuticals, pulp andpaper, metals and minerals, marine and turbocharging. The division consists of seven business units: Control Technologies (the world's No 1 DCS supplier); Marine & Ports; Measurement & Analytics; Oil, Gas & Chemicals; Power Generation & Water; Process Industries and Turbocharging.

POWER GRIDS

The Power Grids division offerscomponentsforthe transmission and dis tribution of electricity. The division incorporates ABB's manufacturing network for transformers, switchgear, circuit breakers, and associated high voltage equipment such as digital protective relays. It also offers maintenance services. The division also offers turnkey systems and service for power transmission and distribution grids and for power plants; this includes electrical substations and substation automation systems flexible AC transmission systems(FACTS), high-voltage direct current (HVDC) systems, and network management systems. The division is subdivided into the four business units High Voltage Products, Transformers, Grid Automation and Grid Integration.

CAREER OPPORTUNITIES



Career opportunities

BIG DATA ANALYTICS

SANGEETHA.M (152015) IV Year

BIG DATA ANALYTICS is "the process of examining large data sets containing a variety of data types – i.e., Big Data – to uncover hidden patterns, unknown correlations, market trends, customer preferences, and other useful information." Companies and enterprises that implement Big Data Analytics often reap several business benefits, including more effective marketing campaigns, the discovery of new revenue opportunities, improved customer service delivery, more efficient operations, and competitive advantages. Companies implement Big Data Analytics because they want to make more informed business decisions.

Big Data Analytics gives analytics professionals, such as data scientists and predictive modelers, the ability to analyze Big Data from multiple and varied sources, including transactional data and other structured data.

HISTORY AND EVOLUTION OF BIG DATA ANALYTICS:

The concept of big data has been around for years; most organizations now understand that if they capture all the data that streams into their businesses, they can apply analytics and get significant value from it. But even in the 1950s, decades before anyone uttered the term "big data," businesses were using basic analytics (essentially numbers in a spreadsheet that were manually examined) to uncover insights and trends.

The new benefits that big data analytics brings to the table, however, are speed and efficiency. Whereas a few years ago a business would have gathered information, run analytics and unearthed information that could be used for future decisions, today that business can identify insights for immediate decisions. The ability to work faster – and stay agile – gives organizations a competitive edge they didn't have before.

TYPES OF BIG DATA ANALYTICS TOOLS:

Big Data Analytics tools are important for companies and enterprises because of the sheer volume of Big Data now generated and managed by modern organizations. Big Data Analytics tools also help businesses save time and money and aid in gaining insights to inform data-driven decisions. There are various types of tools that may fall under the umbrella of Big Data Analytics or serve to improve the process of analyzing data: data storage and management, data cleaning, data mining, data analysis, data visualization, data integration, and data collection.

BENEFITS OF BIG DATA ANALYSIS FOR MODERN ENTERPRISES:

Big Data Analytics enables enterprises to analyze their data in full context quickly, and some offer real-time analysis. With high-performance data mining, predictive analytics, text mining, forecasting, and optimization, enterprises that utilize Big Data Analytics are able to drive innovation and make the best business decisions. Companies that take advantage of all that Big Data Analytics solutions have to offer are better positioned to optimize machine learning and address their Big Data needs in groundbreaking ways.

Specifically, Big Data Analytics enables enterprises to narrow their Big Data to the most relevant information and analyze it to inform critical business decisions. This proactive approach to business is transformative because it gives analysts and decision makers the power to move ahead with the best knowledge and insights available, often in real time. This means that companies can improve their customer retention, develop better products, and gain a competitive advantage by taking rapid action to respond to market changes, indications of critical customer shifts, and other metrics that impact business. Enterprises utilizing Analytics with fidelity also have the ability to boost sales and marketing results, discover new revenue opportunities, improve customer service, optimize operational efficiency, reduce risk, and drive other business results.

CLOUD COMPUTING

PRIYALAKSHMI.K.S(IV Year/B section)

Cloud computing is a general term for the delivery of hosted services over the internet.

Cloud computing enables companies to consume a compute resource, such as a virtual machine (VM), storage or an application, as a utility -- just like electricity -- rather than having to build and maintain computing infrastructures in house.

USES OF CLOUD COMPUTING

You are probably using cloud computing right now, even if you don't realize it. If you use an online service to send email, edit documents, watch movies or TV, listen to music, play games or store pictures and other files, it is likely that cloud computing is making it all possible behind the scenes. The first cloud computing services are barely a decade old, but already a variety of organizations —from tiny startups to global corporations, government agencies to non-profits—are embracing the technology for all sorts of reasons. Here are a few of the things you can do with the cloud:

Create new apps and services

Store, back up and recover data

Host websites and blogs

Stream audio and video

Deliver software on demand

Analyze data for patterns and make predictions

Top benefits of cloud computing

Cloud computing is a big shift from the traditional way businesses think about IT resources. What is it about cloud computing? Why is cloud computing so popular? Here are 6 common reasons organizations are turning to cloud computing services:

1. COST

Cloud computing eliminates the capital expense of buying hardware and software and setting up and running on-site datacenters—the racks of servers, the round-the-clock electricity for power and cooling, the IT experts for managing the infrastructure. It adds up fast.

2. SPEED

Most cloud computing services are provided self service and on demand, so even vast amounts of computing resources can be provisioned in minutes, typically with just a few mouse clicks, giving businesses a lot of flexibility and taking the pressure off capacity planning.

3. GLOBAL SCALE

The benefits of cloud computing services include the ability to scale elastically. In cloud speak, that means delivering the right amount of IT resources—for example, more or less computing power, storage,

bandwidth—right when its needed and from the right geographic location.

4. PRODUCTIVITY

On-site datacenters typically require a lot of "racking and stacking"—hardware set up, software patching and other time-consuming IT management chores. Cloud computing removes the need for many of these tasks, so IT teams can spend time on achieving more important business goals.

5. PERFORMANCE

The biggest cloud computing services run on a worldwide network of secure datacenters, which are regularly upgraded to the latest generation of fast and efficient computing hardware. This offers several benefits over a single corporate datacenter, including reduced network latency for applications and greater economies of scale.

6. RELIABILITY

Cloud computing makes data backup, disaster recovery and business continuity easier and less expensive, because data can be mirrored at multiple redundant sites on the cloud provider's network.

Types of cloud computing services:

Although cloud computing has changed over time, it has been divided into three broad service categories: infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (SaaS).

IaaS providers, such as AWS, supply a virtual server instance and storage, as well as APIs that enable users to migrate workloads to a VM. Users have an allocated storage capacity and can start, stop, access and configure the VM and storage as desired. IaaS providers offer small, medium, large, extra-large and memory- or compute-optimized instances, in addition to customized instances, for various workload needs.

In the PaaS model, cloud providers host development tools on their infrastructures. Users access these tools over the internet using APIs, web portals or gateway software. PaaS is used for general software development, and many PaaS providers host the software after it's developed. Common PaaS providers include Salesforce's Force.com, AWS Elastic Beanstalk and Google App Engine.

SaaS is a distribution model that delivers software applications over the internet; these applications are often called web services. Users can access SaaS applications and services from any location using a computer or mobile device that has internet access. One common example of a SaaS application is Microsoft Office 365 for productivity and email services.

Emerging cloud technologies and services

Cloud providers are competitive, and they constantly expand their services to differentiate themselves. This has led public IaaS providers to offer far more than common compute and storage instances.

For example, serverless, or event-driven computing is a cloud service that executes specific functions, such as image processing and database updates. Traditional cloud deployments require users to establish a

compute instance and load code into that instance. Then, the user decides how long to run -- and pay for -- that instance.

With serverless computing, developers simply create code, and the cloud provider loads and executes that code in response to real-world events, so users don't have to worry about the server or instance aspect of the cloud deployment. Users only pay for the number of transactions that the function executes. AWS Lambda, Google Cloud Functions and Azure Functions are examples of serverless computing services.

Public cloud computing also lends itself well to big data processing, which demands enormous compute resources for relatively short durations. Cloud providers have responded with big data services, including Google Big Query for large-scale data warehousing and Microsoft Azure Data Lake Analytics for processing huge data sets.

Another crop of emerging cloud technologies and services relates to artificial intelligence (AI) and machine learning. These technologies build machine understanding, enable systems to mimic human understanding and respond to changes in data to benefit the business. Amazon Machine Learning, Amazon Lex, Amazon Polly, Google Cloud Machine Learning Engine and Google Cloud Speech API are examples of these services.

Cloud computing Security remains a primary concern for businesses contemplating cloud adoption -- especially public cloud adoption. Public cloud service providers share their underlying hardware infrastructure between numerous customers, as public cloud is a multi-tenant environment. This environment demands copious isolation between logical compute resources. At the same time, access to public cloud storage and compute resources is guarded by account login credentials.

Many organizations bound by complex regulatory obligations and governance standards are still hesitant to place data or workloads in the public cloud for fear of outages, loss or theft. However, this resistance is fading, as logical isolation has proven reliable, and the addition of data encryption and various identity and access management tools has improved security within the public .

GATE

SANGEERTHANA.S(IV Year/ B sec)

GATE 2019: IIT Madras will conduct Graduate Aptitude Test in Engineering for admission to M.Tech/ Ph.D. and other Government Scholarships/Assistantships in the field of engineering and technology. The exam is conducted annually by IISc Bangalore and 7 IITs (Bombay, Delhi, Madras, Kanpur, Kharagpur, Guwahati and Roorkee) on a rotational basis. The official notification will be released in the second week of July.

GATE is a computer-based test with 65 questions to be solved within 3 hours. Two types of questions are asked in GATE – Objective Type and Numerical Type. Virtual calculators will be provided to solve numerical type questions.

SOME KEY POINTS TO KNOW MORE ABOUT GATE 2019-

- 1 new subject, Statistics (ST) has been added this year.
- As per GATE Eligibility, candidates must hold a Bachelor's degree to apply for the exam.
- The questions asked in the exam are based on topics of graduate level.

Check out the new changes introduced in GATE 2019

WHAT IS GATE EXAM?

- ✓ GATE is an online test with multiple choice and numerical type questions conducted for 24 disciplines (papers) of engineering. Mostly questions are fundamental, concept based and thought-provoking.
- ✓ Please don't have a misconception that GATE is only meant for ME/MTech which leads to the teaching career only.
- ✓ There are many other advantages of taking GATE such as employment in PSUs (Public Sector Undertakings), direct recruitment to Group A level posts in Central Government and some other Government of India Organizations.
- ✓ GATE qualifiers can use their GATE Scorecard for admission to Master's Program and direct Doctoral Programs in Engg./Tech./Architecture.
- ✓ The GATE Scorecard is also used to avail financial assistance (scholarship) for the post-graduate program.
- ✓ GATE Registration can be made online at GOAPS website.
- ✓ The exam will also be held for international candidates in Bangladesh, Ethiopia, Nepal, Singapore, Sri Lanka and United Arab Emirates (U.A.E).
- ✓ GATE Exam consists 65 questions divided into 3 section –
  - General Aptitude
  - Engineering Mathematics
  - From Respective Subjects

GATE ELIGIBILITY CRITERIA

- Bachelor's degree (4 years after 10+2, or 3 years after Diploma) in the related engineering and science stream
- Master's Degree in any branch of Mathematics/Science/Statistics/Computer Applications or equivalent degree.
- International applicants possessing a Bachelor's Degree or Master's Degree in the related engineering or science stream.
- Students in final year of Bachelor's/Master's degree.
- There is no stipulated age limit criterion defined for GATE applicants

MINISTRY OF EDUCATION

PONMUTHU LAKSHMI.S (152064) IV Year

INDIANGOVERNMENT SCHOLARSHIPS – 2018/2019

The Government of India through the Indian Council for Cultural Relations (ICCR), is offering fifty two (52) full scholarships for undergraduate, postgraduate degrees and Research for Kenyan students tenable in the Indian Universities/Colleges under the Africa Scholarship Scheme for the Academic year 2018/2019.

ELIGIBILITY

i. Undergraduate degrees the applicants should be holders of a minimum of B plain (B) in KCSE.
ii. For Masters degree scholarships, be a holder of at least upper 2nd class honors and must state the source of funding at undergraduate level of study.
iii. For PhD scholarship be a holder of a very good Masters' degree and should have proof of support from a prospective supervisor in at least one chosen institution
iv. All masters and PhD applicants should have served in the public sector for at least two year since last graduation
v. Are below 25 years for undergraduate, 35 years for Masters Degree and 45 years for PhD.

APPLICATION PROCEDURE

All eligible candidates must read and adhere to the following guidelines strictly:

1. Students should apply on the ICCR Scholarship portal at: a2ascholarships.iccr.gov.in
2. A print out of the dully filled and signed application form along with other attachments and a photograph should be forwarded to the Ministry of Education Kenya on the address indicated on No. 7 below.
3. Student's placement to a particular educational Institution/University will depend on the availability of seats and the course that a student chooses. Therefore, before the student fills three choices, he/she must check the Institution/Universities available for the discipline that he/she intends to study.
4. In case of scholars pursuing Sciences courses, the expenditure on laboratory, chemicals and other related incidental charges will have to be borne by the students themselves.
5. Students applying for BE/B tech courses must have science subjects i.e Physics, Chemistry and Mathematics (PCM) in their secondary school examination certificates, which is mandatory for Engineering courses.
6. Students wishing to study performing arts should enclose video/audio cassettes of their recorded performances.
7. Submit the hard copy of Preliminary Application form from MOE and

completed online form with certified photocopies of ID, academic/ professional certificates, transcripts, Birth Certificate, other testimonials and a proposal in the area of study through your head of department (Masters and PhD applicants) to the Directorate of University on the address:
Director – University Education, Ministry of Education. P.O. Box 9583 – 00200, NAIROBI

OR

Deliver to Telposta Towers, 27th floor, Room 2702 during working hours between 8.00 am to 5.00 pm.

NOTE:

a) It may be noted that NO admission or scholarship is offered for Medical/Paramedical(Nursing/Physiotherapy/ anaesthesia etc)/fashion courses. Similarly the scheme does not offer veterinary sciences or pharmacology subjects.

b) Priority may be given to candidates applying for higher studies (Postgraduate, M. Phil and PhD courses) and those who have never studied in India before.

c) Students are requested to refer to the ICCR website: www.iccrindia.net for the list of the Universities.

8. Completed applications should reach the Ministry not later than 23th January 2018.

NB:

1. Only shortlisted applicants shall be contacted through e-mail /phone call from the following numbers 0773825305 / 0771842051
2. To be nominated does not in any way guarantee selection or placement

ARTIFICIAL INTELLIGENCE IN MEDICAL FIELD

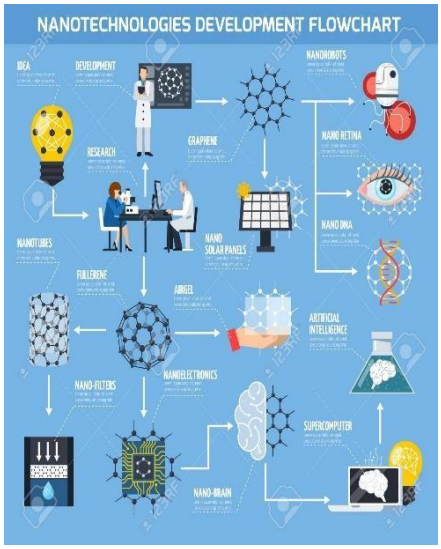
M.SOWMIYA (152080) IV Year

ARTIFICIALINTELLIGENCE:

Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Most AI examples that you hear about today – from chess-playing computers to self-driving cars – rely heavily on deep learning and natural language processing.

AI adds intelligence to existing products. In most cases, AI will not be sold as an individual application. Rather, products you already use will be improved with AI capabilities, much like Siri was added as a feature to a new generation of Apple products. Automation, conversational platforms, bots and smart machines can be combined with large amounts of data to improve many technologies at home and in the workplace, from security intelligence to investment analysis.

AI IN MEDICAL FIELD:



This new study is an example of deep learning applied to medical prediction tasks. In the past, predictive models in health care have considered a limited number of variables in highly-cleansed health data.

Artificial intelligence could help mitigate the impacts of this severe deficit of qualified clinical staff by taking over some of the diagnostic duties typically allocated to humans.

For example, AI imaging tools can screen

chest x-rays for signs of tuberculosis, often achieving a level of accuracy comparable to humans. This capability could be deployed through an app available to providers in low-resource areas, reducing the need for a trained diagnostic radiologist on site.

BRINGING INTELLIGENCE TO MEDICAL DEVICES AND MACHINES:

In the medical environment, smart devices are critical for monitoring patients in the ICU and elsewhere. Using artificial intelligence to enhance the ability to identify deterioration, suggest that sepsis is taking hold, or sense the development of complications can significantly improve outcomes and may reduce costs related to hospital-acquired condition penalties.

“There’s a very good chance [wearable data will have a major impact] because our care is very episodic and the data we collect is very coarse,” said Arnaout. “By collecting granular data in a continuous fashion, there’s a greater likelihood that the data will help us take better care of patients.”

CONCLUSION:

Artificial intelligence is not here to replace us. It augments our abilities and makes us better at what we do. Because AI algorithms learn differently than humans, they look at things differently. They can see relationships and patterns that escape us. This human, AI partnership offers many opportunities.

PROFESSIONAL COURSES vs OTHER FORM OF EDUCATION

PALPANDI.M(152084)IV Year

EDUCATIONAL QUALIFICATION:

If you are looking for a job, your resume is incomplete without mention of your educational qualifications, also called academic qualifications. Even in the social world, the kind of respect a man or woman gets from others is often heavily dependent upon the degrees he/she has earned in college studies. The higher the academic qualifications, the better are the prospects of a person to achieve success in life. Better equipped persons grab more opportunities in life than persons who have lower levels of academic qualifications.

PROFESSIONAL QUALIFICATION:

Professional qualification refers to the degrees that individuals earn from a college or university that give a chance to earn their living in a profession. For example, the degree of M.D is enough for a doctor to land in a job and enter a profession that normally earns bread and butter for the person for the rest of his life. A student completing his MBA becomes eligible to enter the administrative world in many industries while a degree in law ensures a lifelong profession for the person.

In general, modern Western education as it emerged from the foundations of universities and schools in the 12th century onwards is concerned with learning to think critically and autonomously. It aims to produce a certain type of *person* with a certain type of *attitude to the world.*

Professional qualifications aim to do something different. First, they aim to create a limited skill supply and push the price up of the skill for the person who has it. Professional qualifications make *clubs to make money*. Second, they aim to force people to demonstrate an ability or capacity to do something: they aim to evidence *very specific skills*, with no view on the type of person who holds them. Your electrician or surgeon could be an immoral racist in her private life, and it's of no concern to the professional qualification body - but an education establishment would be furious.

Of course, education often fails to live up to its objectives - many leading courses in history, politics etc. at leading universities and meandering, vacuous group-chats designed to keep professors in jobs and give rich kids a few years in a holiday camp.

Many professional qualifications take place in educational establishments, but don't even attempt to meet the objectives of 'education' more broadly - like architects, doctors and electricians. And many of these professional qualifications produce inept practitioners too - there are foolish doctors, architects and electricians all over (except a truly stupid electrician kills herself, while the doctor unfortunately does not).

Much education takes place alone, not in an institution, when an individual goes on a quest and accepts that they're probably wrong about most things, reading and critiquing and pondering.

ELECTRICAL VEHICLE & STORAGE TECHNOLOGY

VINOTH.M (162905) IV Year

Electric and hybrid vehicles are associated with green technologies and a reduction in greenhouse emissions due to their low emissions of greenhouse gases and fuel-economic benefits over gasoline and diesel vehicles. Recent analyses show nevertheless that electric vehicles contribute to the increase in greenhouse emissions through their excessive need for power sources, particularly in countries with limited availability of renewable energy sources, and result in a net contribution and increase in greenhouse emissions across the European continent. The chemical and electronic components of car batteries and their waste management require also a major investment and development of recycling technologies, to limit the dispersion of electric waste materials in the environment. With an increase in fabrication and consumption of battery technologies and multiplied production of electric vehicles worldwide in recent years, a full review of the cradle-to-grave characteristics of the battery units in electric vehicles and hybrid cars is important. The inherent materials and chemicals for production and the resulting effect on waste-management policies across the European Union are therefore reported here for the scope of updating legislations in context with the rapidly growing sales of electric and hybrid vehicles across the continent. This study provides a cradle-to-grave analysis of the emerging technologies in the transport sector, with an assessment of green chemistries as novel green energy sources for the electric vehicle and microelectronics portable energy landscape.

Additionally, this work visions and surveys the future development of biological systems for energy production, in the view of bio batteries. This work is of critical importance to legislative groups in the European Union for evaluating the life-cycle impact of electric and hybrid vehicle batteries on the environment and for establishing new legislations in context with waste handling of electric and hybrid vehicles and sustain new innovations in the field of sustainable portable energy

To reduce the usage of fossil fuel and ease air pollution, many countries have put huge efforts to promote the development of electric vehicles. Lithium-ion batteries are the main power sources of electric vehicles, and have been the research focus in both industry and academia [1,2].

This special issue has focused on advanced energy storage technologies and their applications, which covers all kinds of energy storage and application fields, such as:

(1) Novel energy storage materials and topologies;

(2) Application in electrical/hybrid driven system and electrical/hybrid vehicles;

(3) Next generation energy storage devices,

systems, or techniques;

(4) Large-scale energy storage system modeling, simulation and optimization, including testing and modeling ageing processes;

(5) Advanced energy storage management systems, including advanced control algorithms and fault diagnosis/online condition monitoring for energy storage systems;

(6) Business model for the application and deployment of energy storage;

(7) Lifecycle analysis, repurposing, and recycling.

ARTIFICIAL INTELLIGENCE IN MEDICAL FIELD

MEHARUNNISHA.S (152058) IV Year

INTRODUCTION:

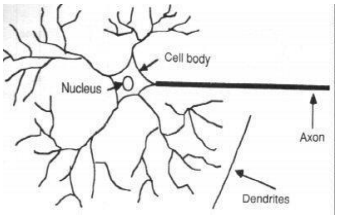
Artificial Intelligence is a intelligence performed by the machine competing the natural Intelligence .In computer science ,AI is the study of "**Intelligent Agents**" as the machine observes the external and environment and acts according to it to achieve its goal.AI involves in activities like speech recognition, learning, planning, problem solving. Robotics is a major field to AI.

NEUTRAL NETWORK:

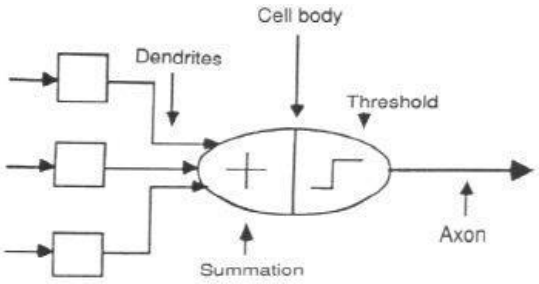
An Artificial Neural Network (ANN) is an information processing paradigm that is inspired by the way biological nervous systems, such as the brain, process information. An ANN is configured for a specific application, such as pattern recognition or data classification, throughа learning process. Learning in biological systems involves adjustments to the Synaptic connections that exist between the neurons.

FROM HUMAN NEURONS TO ARTIFICIAL NEURONS:

The comparison between natural and artificial neuron is shown below,



COMPONENTS OF A NEURON



MODEL OF ARTIFICIAL NEURON

NEURAL NETWORKS IN MEDICINE

Artificial Neural Networks (ANN) are currently a 'hot' research area in medicine and it is believed that they will receive extensive application to biomedical systems in the next few years. At the moment, the research is mostly on modeling parts of the human body and recognizing diseases from various scans (e.g. cardiograms, CAT scans, ultrasonic scans, etc.).

Neural networks are ideal in recognizing diseases using scans since there is no need to provide a specific algorithm on how to identify the disease.

AI IN MEDICAL FIELD GIVES SUPERPOWER

The field of medicine has, arguably, been more positively affected by modern deep learning techniques than any other industry. An iPhone can detect cancer and a smart watch can detect a stroke. Machine learning is infiltrating and optimizing nearly every aspect of medicine from the way 911 emergency services are dispatched to assisting doctors during surgery. You can even quit smoking with the help of AI.

ADVANTAGES OF AI IN MEDICAL FIELD:

- **Improving Diagnosis**

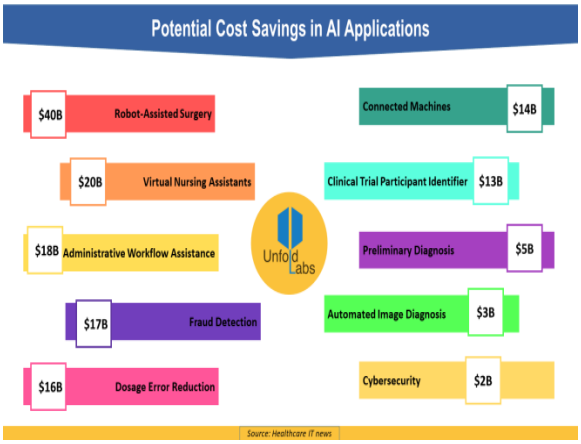
Assuming it's been loaded with all the relevant data, an AI-equipped product has the potential to sift through disease data, clinical studies, medical records, genetic information and even a patient's health records far quicker and more efficiently than a human physician for a more accurate diagnosis.

- **Better Serving Rural Communities**

Health centers should collaborate on the data, enabling an idea of federated data analytics,". "It is critical to break down the information silos. We have to think about how we're going to collaborate and share the data to form [health care] partnerships."

- **Economic advantages:**

The cost is much reduced by using AI.



AI RISKS IN HEALTHCARE:

- **Accuracy and Safety**

Since AI is fairly new, it has the potential to be less accurate and reliable thereby putting patients at risk.

- **Risk for Doctors & Patients**

AI can also pose a risk for doctors and patients. Since AI has not been perfected, doctors cannot fully rely on AI and still need to make decisions based on their knowledge and expertise. Patients are also at risk for the same reason. If a program provides incorrect information, patients will not be treated properly.

Applications of AI in medical field:

Medication Management:

The National Institutes of Health have created the AiCure app to monitor the use of medication by a patient. Most common users could be people with serious medical conditions, patients who tend to go against doctor advice, and participants in clinical trials.

Virtual Nurses:

The startup has developed Molly, a digital nurse to help people monitor patient's condition and follow up with treatments, between doctor visits. The program uses machine learning to support patients, specializing in chronic illnesses.

ABOUT BIG DATA ANALYTICS

K.INDHUPRIYA (152052) IV Year

The big data means a flood of data, but what exactly it means? What is the difference between a lot of data and big data? According to Gartner, "information becomes big data when the volume can no longer be managed with normal database tools".

Big data analytics is the process of collecting, organizing and analyzing a lot or large sets of data. Big data analytics is the process of examining large and varied sets of data to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful information that can help organizations make more-informed business decisions. Today, big data is creating new jobs and also changing existing ones.

Now-a-days many organizations are collecting, storing, and analyzing massive amounts of data. It can help organizations to better understand the information within the data and will also help to identify the data that is most important to the business. The Analysts working with Big Data typically have the knowledge that comes from analyzing the data. Of all the platforms and approaches for storing and analyzing big data, none is receiving more attention than Hadoop. Its origins traces from early 2000s, when companies such as Google, Yahoo!, and Facebook needed to store and analyze massive amounts of data from the Internet, Because no commercial solutions were available, these and other companies had to develop their own.

Businesses are recognizing the potential value of this data and are putting the technologies, people, and processes in place to capitalize on the opportunities. Big data and analytics are intertwined. A key to deriving value from big data is the use of analytics. Collecting and storing big data creates little value; it is only data infrastructure at this point. It must be analyzed and the results used by decision makers and organizational processes in order to generate value.

Big data and analytics are not new. Many analytic techniques, such as regression analysis, simulation, and machine learning, have been available for many years. From an evolutionary perspective, big data is not new. A major reason for creating data warehouses in the 1990s was to store large amounts of data. Back then, a terabyte was considered big data.

BIG DATA IS BIG BUSINESS:

Big data is a Driving Factor Behind Every Marketing Decision Companies can use this information to their advantage; automating processes, gaining insight into their target

market and improving overall performance using the feedback readily available.

Facebook stores enormous amounts of user data, making it a massive data wonderland. Every day, we feed Facebook's data beast with mounds of information. Every 60 seconds, 136,000 photos are uploaded, 510,000 comments are posted, and 293,000 status updates are posted. That is a LOT of data. For Facebook, the big data is the people. Giving us increasingly convenient ways to keep in touch with friends and family has proven to be a huge draw and made Facebook one of the biggest companies in the world in a little over ten years. It also means they have collected a lot of data on us, and we can use this Big Data ourselves. It comes into play when we search for old friends; by matching our search results to people we are most likely to be connected to.

The Google algorithms run complex algorithms designed to match the query you entered with all the data available. It will try to determine whether you are looking for news, facts, people or statistics, and pull the data from the appropriate feed. Businesses from the very largest to one-man bands are also regularly making use of Big Data analytics, when they advertise through Google's Adwords service. By learning about us when we surf the web (most obviously, what web pages and is the product we are frequently viewing. Google can adverts for products and services we might be interested in. Advertisers get access to Big Data analytics when they use Adwords and other services such as Google Analytics to attract people who fit their customer profile to their websites and stores.

Facebook actually has a very similar business and data model to Google – although they are wildly differentiated in their marketing. Each chooses to focus building their corporate image on the aspect of Big Data for which it is best known.

Some of the businesses using bigdata to boost their brand success are Amazon, Netflix, LinkedIn, American Express, ebay, etc.

HOW BIG DATA ANALYTICS IS USED TODAY:

As the technology that helps an organization to break down and analyze the data to improve business and business can be transformed in all sorts of ways. Today's advances in analyzing big data allow researchers to decode human DNA in minutes, even predict where terrorists plan to attack, determine which gene is mostly likely to be responsible for certain diseases and, of course, which ads you are most likely to respond to on Facebook

ARTIFICIAL INTELLIGENCE

K.CHANDRALEKHA(152013/IV Year)

INTRODUCTION:

Artificial intelligence is a branch of computer science capable of analyzing complex medical data. Their potential to Further references were obtained by cross referencing from key articles. An overview of different artificial intelligent techniques is presented in this paper along with the review of important clinicalapplications. Results: The proficiency of artificial intelligent techniques has been explored in almost every field of medicine. Artificial neural network was the most commonly used analytical tool whilst other artificial intelligent techniques

Here are 10 common ways AI is changing healthcare now and will in the future.

exploit meaningful relationship with in a data set can be used in the diagnosis, treatment and predicting outcome in many clinical scenarios.

such as fuzzy expert systems, evolutionary computation and hybrid intelligent systems have all been used in different clinical settings. Discussion: Artificial intelligence techniques have the potential to be applied in almost every field of medicine. There is need for further clinical trials which are appropriately designed before these emergent techniques find application in the real clinical setting.

MANAGING MEDICAL RECORDS AND OTHER DATA:

Since the first step in health care is compiling and analyzing information (like medical records and other past history), data management is the most widely used application of artificial intelligence and digital automation. Robots collect, store, re- format, and trace data to provide faster, more consistent access.

1. DOING REPETITIVE JOBS:

Analyzing tests, X-Rays, CT scans, data entry, and other mundane tasks can all be done faster and more accurately by robots. Cardiology and radiology are two disciplines where the amount of data to analyze can be overwhelming and time consuming. Cardiologists and radiologists in the future should only look at the most complicated cases where human supervision is useful.

2. TREATMENT DESIGN:

Artificial intelligence systems have been created to analyze data – notes and reports from a patient's file, external research, and clinical expertise – to help select the correct, individually customized treatment path.

3. DIGITAL CONSULTATION:

Apps like Babylon in the UK use AI to give medical consultation based on personal medical history and common medical knowledge. Users report their symptoms into the app, which uses speech recognition to compare against a database of illnesses. Babylon then offers a recommended action,

taking into account the user's medical history.

4. VIRTUAL NURSES:

The startup Sense.ly has developed Molly, a digital nurse to help people monitor patient's condition and follow up with treatments, between doctor visits. The program uses machine learning to support patients, specializing in chronic illnesses.

In 2016, Boston Children's Hospital developed an app for Amazon Alexa that gives basic health information and advice for parents of ill children. The app answers asked questions about medications and whether symptoms require a doctor visit.

5. MEDICATION MANAGEMENT:

The National Institutes of Health have created the AiCure app to monitor the use of medication by a patient. A smartphone's webcam is partnered with AI to autonomously confirm that patients are taking their prescriptions and helps them manage their condition. Most common users could be people with serious medical conditions, patients who tend to go against doctor advice, and participants in clinical trials.

6. DRUG CREATION:

Developing pharmaceuticals through clinical trials can take more than a decade and cost billions of dollars. Making this process faster and cheaper could change the world. Amidst the recent Ebola virus scare, a program powered by AI was used to scan existing medicines that could be redesigned to fight the disease.

The program found two medications that may reduce Ebola infectivity in one day, when analysis of this type generally takes months or years – a difference that could mean saving thousands of lives.

7. PRECISION MEDICINE:

Genetics and genomics look for mutations and links to disease from the information in DNA. With the help of AI, body scans can spot cancer and vascular diseases early and predict the health issues people might face based on their genetics.

8. HEALTH MONITORING:

Wearable health trackers – like those from FitBit, Apple, Garmin and others – monitors heart rate and activity levels. They can send alerts to the user to get more exercise and can share this information to doctors (and AI systems) for additional data points on the needs and habits of patients.

9. HEALTHCARE SYSTEM ANALYSIS: In the Netherlands, 97% of healthcare invoices are digital. A Dutch company uses AI to sift through the data to highlight mistakes in treatments, workflow inefficiencies, and helps area healthcare systems avoid unnecessary patient hospitalizations.

These are just a sample of the solutions AI is offering the healthcare industry. As innovation pushes the capabilities of automation and digital workforces, from providers like Novatio, more solutions to save time, lower costs, and increase accuracy will be possible.

CLOUD COMPUTING

S.MANODHARSHINI(152034) IV Year

INTRODUCTION

Cloud computing is shared pools of configurable computer system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the Internet. Cloud computing relies on sharing of resources to achieve coherence and economies of scale, similar to a public utility.

HISTORY

- While the term "cloud computing" was popularized with Amazon.com releasing its Elastic Compute Cloud product in 2006, references to the phrase "cloud computing" appeared as early as 1996, with the first known mention in a Compaq internal document.
- The cloud symbol was used to represent networks of computing equipment in the original ARPANET by as early as 1977, and the CSNET by 1981— both predecessors to the Internet itself. The word cloud was used as a metaphor for the Internet and a standardized cloud-like shape was used to denote a network on telephony schematics. With this simplification, the implication is that the specifics of how the end points of a network are connected are not relevant for the purposes of understanding the diagram.
- The term cloud was used to refer to platforms for distributed computing as early as 1993, when Apple spin-off General Magic and AT&T used it in describing their (paired) Telescript and PersonaLink technologies. In Wired's April 1994 feature "Bill and Andy's Excellent Adventure II", Andy Hertzfeld commented on Telescript, General Magic's distributed programming language.

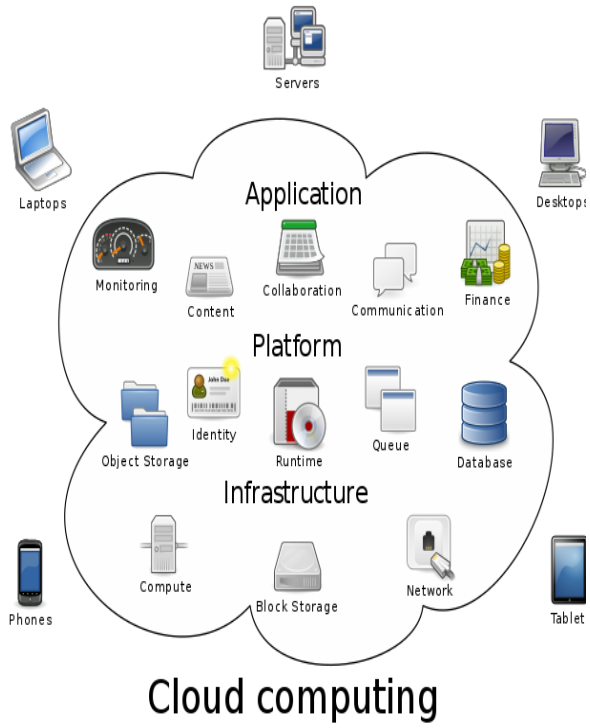
SCOPE

- According to the statistics provided by the Market Research Media, the worldwide market for Cloud Computing is likely to grow at a CAGR of 30% to reach US$ 270 billion through the year 2020. Considering the cutting-edge innovations and new industry-specific applications.
- Cloud Computing is fast emerging as an essential component of an enterprise’s IT framework.

- Organizations, both big and small have deployed the cloud technology in some suitable capacity. Enterprises need expert IT professionals to work around ‘the cloud’. The Cloud Computing industry requires professionals with adept training and knowledge in both technical and managerial fields. The demand for IT professionals continues to rise at an exponential rate as more and more enterprises adopt Cloud Computing.

- Aspirants focused on taking a plunge into the Cloud can choose from a range of career paths such as

Cloud architects, Cloud engineers, Cloud security experts, Cloud developers, Cloud support analysts to name a few. Similar to all other IT jobs, jobs in the Cloud Computing stream involve considerably high pay packages. Even the entry level jobs receive fat pay packages, making the sector more lucrative for ambitious professionals.



SKILL-SETS

Candidates seeking to pursue a career in Cloud Computing need to possess exceptional IT and programming skills. Required technical skills comprise a strong hold on programming languages, visualization technologies and HTML. Professionals seeking to succeed in the managerial stream need to gain an understanding of issues associated with policy, agreements, risk analytics, online marketing strategies as well as the ability to deal with clients.

CLOUD ENGINEERING

Cloud engineering is the application of engineering disciplines to cloud computing. It brings a systematic approach to the high-level concerns of commercialization, standardization, and governance in conceiving, developing, operating and maintaining cloud computing systems. It is a multidisciplinary method encompassing contributions from diverse areas such as systems, software, web, performance, information, security, platform, risk, and quality engineering.

CONCLUSION

Cloud Technologies are mostly virtualization environments. Aspirants seeking to make good in the Cloud need to be adept in networking and virtualization and gain hands-on exposure with live deployments. Candidates can also experiment with their Cloud Technology Skills on few websites that offer lab infrastructure such as Azure, AWS and Google Cloud among others.

CLOUD COMPUTING

HEMANTH KUMARI IV Year

While the term "**cloud computing**" was popularized with Amazon.com releasing its Elastic Compute Cloud product in 2006, references to the phrase "cloud computing" appeared as early as 1996, with the first known mention in a Compaq internal document.

Cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics and more—over the Internet ("the cloud"). Companies offering these computing services are called cloud providers.

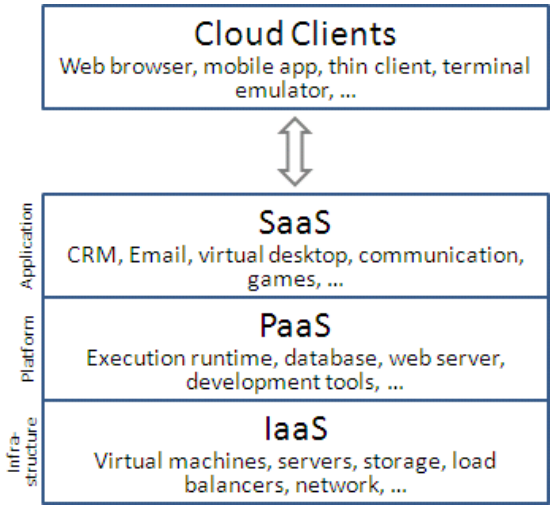
The goal of cloud computing is to allow users to take benefit from all of these technologies, without the need for deep knowledge about or expertise with each one of them. The cloud aims to cut costs, and helps the users focus on their core business instead of being impeded by IT obstacles.The main enabling technology for cloud computing is **virtualization**.

Virtualization software separates a physical computing device into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks.

SOFTWARE AS A SERVICE (SAAS):
In this model, a complete application is offered to the customer, as a service on demand. A single instance of the service runs on the cloud & multiple end users are serviced. On the customers side, there is no need for upfront investment in servers or software licenses, while for the provider, the costs are lowered, since only a single application needs to be hosted & maintained. Today SaaS is offered by companies such as Google, Salesforce, Microsoft, Zoho, etc.

PLATFORM AS A SERVICE (PAAS):
Here, a layer of software, or development environment is encapsulated & offered as a service, upon which other higher levels of service can be built. The customer has the freedom to build his own applications, which run on the provider infrastructure. To meet manageability and scalability requirements of the applications, PaaS providers offer a predefined combination of OS and application servers, such as LAMP platform (Linux, Apache, MySql and PHP), restricted J2EE, Ruby etc. Googles App Engine, Force.com, etc are some of the popular PaaS examples.

INFRASTRUCTURE AS A SERVICE (IAAS): IaaS provides basic storage and computing capabilities as standardized services over the network. Servers, storage systems, networking equipment, data centre space etc. are pooled and made available to handle workloads. The customer would typically deploy his own software on the infrastructure. Some common examples are Amazon, GoGrid, 3 Tera, etc.


Cloud Clients
Web browser, mobile app, thin client, terminal emulator, ...
Application
SaaS
CRM, Email, virtual desktop, communication, games, ...
Platform
PaaS
Execution runtime, database, web server, development tools, ...
Infra-structure
IaaS
Virtual machines, servers, storage, load balancers, network, ...

JASMINE INFOTECH INTERVIEW PATTERN

KARTHICK.K.S(162062)

The purpose of the paper is to study on recruitment and selection process with reference to Jasmin Infotech, Chennai. A structured questionnaire was prepared and the questionnaires were distributed to the respondents .To analyze the questionnaire most of the respondents are male and on the basis of experience majority of the respondents are 3-5 years

.

In this organization HR managers were most active and skilled. To analyze the questionnaire most of the respondents have good opinion about the recruitment policy in Jasmin InfoTech. It found that that 68% of the respondents are recruited by walk-in interview, 22% are recruited by buddy referral and remaining of 10% respondents are recruited by campus interview.

Selection: Recruitment Interview Process; Human Resource Management

INTRODUCTION

Human Resource Management is responsible for the people dimension of the organization. It is a pervasive force, action-oriented, individually oriented, development-oriented, future-focused, and interrogative in nature and is a comprehensive function. HRM aims at achieving organizational goals meet the expectations of employees; develop the knowledge, skills and ability of employees, improve the quality of working life and manage human resource in an ethical and socially responsible manner. Recruitment and Selection are two important functions of human resource management.

RECRUITMENT

Recruitment is the process of locating and encouraging potential applicants to apply for existing or anticipated job openings.

The important function is applicant link to the organization, joining together those with jobs to fill and those seeking jobs. Recruitment aims at attracting a large number of qualified applicants who are ready to take up the job

If it's offered. Recruitment technically speaking the function of recruitment proceeds the selection function. It includes job finding, developing employees and attracting them to apply for job in an organization. . The purpose of recruitment is to identify suitable man power to meet the job requirement and job specification.

SELECTION

Selection is the process of finding out the most suitable candidate to the job. The selection process is to determine whether the prospective candidate possesses the qualification and experience for specific job. Selection is usually a series of hurdles or steps. Each one must be successfully cleared before the applicant proceeds to next. Selection test includes intelligence and aptitude test, achievement test, assessment and personality test. Interview is an important source of information about job applicants. Several types of interviews are used, depending on the nature and importance of the position to be filled within the organization. Recruitment and selection forms a part of the activities underlying human resource management. HRM function is effective, there must be consistently good levels of teamwork, plus ongoing co-operation and consultation. HR managers can be an importantrepository of up-to-date knowledge and communication skill.

OBJECTIVES OF THE STUDY

1. To study the Recruitment and Selection system with reference to "Jasmin InfoTech Pvt. Ltd".
2. To understand the different methods of recruitment and selection followed in the organization.
3. To find out the relationship between job offered and experience of the employees

RESEARCH METHODOLOGY

Research methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Research design is the blue print of the study. The design of the study is research questions, hypothesis, independent and dependent variables, data collection methods and statistical analysis plan. Present study takes into consideration a sample size of 50 employees.

DATA ANALYSIS AND INTERPRETATION

The main objective of the study is to analysis the Recruitment and Selection system with reference to "Jasmin InfoTech Pvt. Ltd., using questionnaire techniques.

Table 1: Gender of the Respondent

Gender	Frequency	Percentage
Male	**29**	**58**
Female	**21**	**42**
Total	**50**	**100**

Table-1 shows that 58% of the respondents are female and 42% are male.

FINDINGS

- Among the respondents majority of the respondents are male and 42% are female.
- 3 – 5 years of experience of the respondents are 42% and 20% are between 5 – 7 years. Very few respondents are

1 year.

- Majority of the respondents are recruited by walk-in-interview and 10% of the respondents are recruited by campus interview.
- Through aptitude test 64% of the respondents are selected and minimum of 10% of the respondents are selected
- situation test and personality test.
- Equal number of respondents are average and excellent feedback opinion about Human Resource department.
- Majority of the respondents have good opinion about the recruitment policy in jasmine.
- **Suggestions**
- The screening techniques handled by the company are of high standard, hence it is very important to maintain the
- Standard with required changes.
- The test conducted by the company are not very tough and hence the company can follow the same pattern.
- The selection process is found to be very effective and hence no modification is necessary.
- The company can have a tie up with suitable recruitment agency which would be helpful when there are many requirements.
- The company provides equal opportunity to the employees and it is essential for the company to ensure that they retain the name.

CONCLUSION

The project titled as "A STUDY ON RECRUITMENT AND SELECTION PROCESS IN JASMIN INFOTECH PRIVATE LIMITED" attempted to know about the effectiveness of the recruitment procedures followed in the organization.

ABB GROUP OF INDUSTRIES

S.Jayashree (162030) IIIrd Year

ABB (ABBN: SIX Swiss Ex) is a pioneering technology leader in power grids, electrification products, industrial automation and robotics and motion, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, ABB today is writing the future of industrial digitalization with two clear value propositions: bringing electricity from any power plant to any plug and automating industries from natural resources to finished products. As title partner in ABB Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 147,000 employees.

About:

Management**:**

Ulrich Spiesshofer has been the chief executive officer since September 2013. The board of directors[31] is chaired by Peter Voser. He was elected in April 2015 and succeeded Hubertus von Grünberg, who had been Chairman since May 2007. Jürgen Dormann was chairman from 2002 to 2007, and Percy Barnevik from 1999 to 2002

Primary investor:

The largest single stake in the firm is held by the Swedish investment company Investor AB,controlled by the Wallenberg family, which holds 10.48%

Divisions:

- Electrification products
- Power grid
- Industrial automation
- Robotics and motion

History:

ABB (ASEA Brown Boveri) is a Swedish-Swiss multinational corportation headquartered in Zurich, Switzerland, operating mainly in robotics, power, heavy electrical equipment and automation technology areas. It is ranked 341th in the Fortune 500 global list of 2018 and has been a global Fortune 500 company for 24 years.

It was founded in 1883 by Ludvig Fredholm in Vasteras as manufacturer of electrical light and generators.

ABB is traded on the SIX Swiss Exchange in Zürich, Nasdaq Stockholm and the New York Stock Exchange in the United States in May 2013, ABB Sécheron SA joined with several groups in Geneva TOSA (Trolleybus Optimisation Systèm Alimentation, or in English, Trolleybus Power System Optimization) in a one-year demonstration of a trolleybus route using a novel charging system. Rather than overhead wires, charging is accomplished by fixed overhead devices located at stops along the route and at the terminus. Jean-Luc Favre, head of Rail ISI, discussed the promising role of improved electric transport technology in ABB

Requirements:

Your B.E / B.Tech in Electrical / Mechanical Engineering with 5 - 6 years of experience

will be an ideal fit. Should have the following skills and knowledge:

- Require a deep understanding of supply development with quality back ground with 5 to 6 year of experience in mechanical/electrical components and related products.
- Knowledge of handling casting, forging, welded & machining parts and experience / background on Metal Finishing (surface treatments) is an added advantage.
- Knowledge of supplier product qualification process, and quality assurance is must.

Requirement for software engineer:

• Degree in computer science or information systems management & design

• Strong technical background achieved during at least 5 years of professional experience with quality assurance and test for applications, preferably by past engagements such as senior IS tester, QA Lead, technical test leader or similar

• Ability to work independently, with minimal direction from outside

• Advanced knowledge of software testing best practices

• Experience in leading testing activities for huge commercial projects

• Profound IS application technology knowledge combined with basic understanding of the overall context of business processes and the IS technologies impact

• Excellent communication skills, good negotiation skills(English is a must)

• Software Testing certifications

• Knowledge of sales and marketing business processes will be an advantage

To know more visit: www.abb.com

GRADUATE APTITUDE TEST IN ENGINEERING

K.SONIA (152075/IV Year)

The Indian Institute of Science (IISc) and seven Indian Institutes of Technology (IITs at Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) jointly administer the conduct of GATE Exam. The operations related to GATE in 8 zones all over India are managed by a Zonal GATE Office at IISc. or IITs. The Organizing Institute (OI) is responsible for the end-to-end process and coordination amongst the administering Institutes. The Organizing Institute for GATE 2016 was IISc Bangalore, for GATE 2018 was IIT Guwahati & for GATE 2019 is IIT Madras.

Benefits

- A good GATE score is helpful for getting admission in to IITs, IISC, IIITs, NITs and many other renowned institutions
- Many PSUs like HAL, IOCL, PGCIL, BARC etc consider GATE score
- GATE qualification is also a minimum requirement to apply for various fellowships awarded by many Government organizations like DRDO, BARC, ISRO etc.
- GATE qualified candidates are also eligible for the award of Junior Research Fellowship in CSIR Laboratories and CSIR sponsored projects.
- Focused GATE Preparation also helps in other prestigious PSU recruitment examinations like CIL, AP Genco, AP Transco, NTPC, BSNL etc
- MS program at Singapore, New Zealand & Germany
- Fellowship at IIMA & IIMB in management course with a monthly stipend of Rs. 22,000
- Helps in better preparation for B.Tech semesters
- Brushing up technical skills for Campus Recruitment

Exam Pattern

The GATE examination consists of a single online paper of 3-hour duration, in which there will be a total of 65 questions carrying 100 marks.

Section Weightage & Marks

Weightage	**Questions (Total 65)**	
Respective Engineering Branch	70 Marks	25 - 1 mark questions 30 - 2 mark questions
Engineering Maths	15 Marks	
General Aptitude	15 Marks	Five 1 mark questions Five 2 mark questions

70% of the total marks is given to the technical section while 15% weightage is

given to General Aptitude and Engineering Maths.

Particulars

For 1-mark multiple-choice questions, 1/3 marks will be deducted for a wrong answer. Likewise, for 2-mark multiple-choice questions, 2/3 marks will be deducted for a wrong answer. There is no negative marking for numerical answer type questions.

Question Types:

(i) Multiple Choice Questions (MCQ) carrying 1 or 2 marks each in all papers and sections. These questions are objective in nature, and each will have a choice of four answers, out of which the candidate has to mark the correct answer(s)

(ii) Numerical Answer/Fill in the blank Questions of 1 or 2 marks each in all papers and sections. For numerical answer questions, choices will not be given. Candidates have to enter the answer (which will be a real number, signed or unsigned, e.g. 25.06, -25.06, 25, -25 etc.) using a virtual keypad. An appropriate range will be considered while evaluating the numerical answer type questions so that the candidate is not penalized due to the usual round-off errors. Design of Questions

The Fill in the Blank Questions usually consist of 35% - 40% of the total weightages.

The questions in a paper may be designed to test the following abilities:

(i) Recall:

These are based on facts, principles, formulae or laws of the discipline of the paper. The candidate is expected to be able to obtain the answer either from his/her memory of the subject or at most from a one-line computation.

(ii) Comprehension:

These questions will test the candidate's understanding of the basics of his/her field, by requiring him/her to draw simple conclusions from fundamental ideas.

(iii) Application:

In these questions, the candidate is expected to apply his/her knowledge either through computation or by logical reasoning.

(iv) Analysis and Synthesis:

In these questions, the candidate is presented with data, diagrams, images etc. that require analysis before a question can be answered. A Synthesis question might require the candidate to compare two or more pieces of information. Questions in this category could, for example, involve candidates in recognizing unstated assumptions, or separating useful information from irrelevant information.

About Online Pattern

The examination for all the papers will be carried out in an ONLINE Computer Based Test (CBT) mode where the candidates will be shown the question s in a random sequence on a computer screen. The candidates are required to either select the answer (for MCQ type) or enter the answer for numerical answer type question using a mouse on a virtual keyboard (keyboard of the computer will be disabled). The candidates will also be allowed to use a calculator with which the online portal is equipped with.

GRADUATE APTITUDE TEST IN ENGINEERING

R.UMAMAHESHWARI IV Year

The **Graduate Aptitude Test in Engineering** (**GATE**) is an examination that primarily tests the comprehensive understanding of various undergraduate subjects in engineering and science. GATE is conducted jointly by the Indian Institute of Science and seven Indian Institutes of Technologies at Roorkee, Delhi, Guwahati , Kanpur, Kharagpur, Chennai (Madras) and Bombay on behalf of the National Coordination Board – GATE, Department of Higher Education, Ministry of Human Resources Development (MHRD), Government of India.

The GATE score of a candidate reflects the relative performance level of a candidate. The score is used for admissions to various post-graduate education programs (e.g. Master of Engineering, Master of Technology, Doctor of Philosophy) in Indian higher education institutes, with financial assistance provided by MHRD and other government agencies. Recently, GATE scores are also being used by several Indian public sector undertakings (i.e., government-owned companies) for recruiting graduate engineers in entry-level positions. It is one of the most competitive examinations in India. GATE is also recognized by various institutes outside India, such as Nanyang Technological University in Singapore.

Duration and examination type:

The examination is of 3 hours duration, and contains a total of 65 questions worth a maximum of 100 marks. From 2014 onward, the examination for all the papers is carried out in an online Computer Based Test (CBT) mode where the candidates are shown the questions in a random sequence on a computer screen. The questions consist of

both multiple choice questions (four answer options out of which the correct one has to be chosen) and numerical answer type questions (answer is a real number, to be entered via an on-screen keypad and computer mouse). Candidates are provided with scribble pads for rough work and these have to be returned after the examination. At the end of the 3-hour window, the computer automatically closes the screen from further actions.

Syllabi:

- General Aptitude (common for all disciplines): language and analytic skills.
- Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.
- Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.

Result And Test Score:

GATE results are usually declared about one month after the examinations are over. The results show the total marks scored by a candidate, the GATE score, the all-India rank (AIR) and the cut off marks for various categories in the candidate's paper. The score is valid for 3 years from the date of announcement of the GATE results. The score cards are issued only to qualified candidates.

Qualifying Marks:

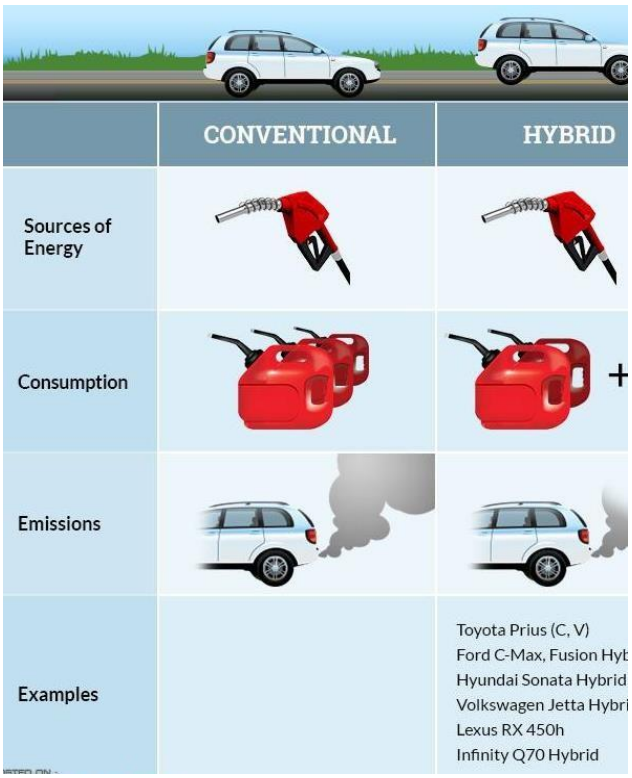
The rules for qualifying marks have varied from year to year. The qualifying marks (out of 100) are different for different subjects as well as categories.

Category	Qualifying mark (out of 100)
General (GN)	25 or $\mu + \sigma$, whichever is higher.
Other backward classes (OBC)	90% of general category's qualifying mark.
Scheduled castes (SC) and scheduled tribes (ST)	2/3 (i.e., 66.67%) of general category's qualifying mark.

ELECTRIC VEHCILE AND STORAGE TECHNOLOGY

S.Merunaline IV Year

Electric vehicle is a vehicle whose wheels are rotated by electric motors for propulsion. These vehicle have limitation in terms of weight ,power and operate at maximum speed .EV are zero emission of pollutant and eco friendly. There are 2 main type of electric vehicles(EV) .They are BEV-battery electric vehicle and PHEV-plug in hybrid electric vehicle



Electric vehicle around the world:

- Electric car top selling Nissan leaf in Amsterdam.
- High speed rail- china's CRH5 in Beijing.
- Electric trolleybus in Sao Paulo, Brazil.
- Electric tram in Vienna, Austria.
- U.S. manufactured electric truck Australia.
- Battery electric bus with onboard LiFePO4 battery.
- Electric locomotive of Shatabdi express in India.
- Electric ,solar powered aircraft, solar impulse successfully circumnavigated the globe.
- A Chinese made electric scooter in Maringa, Brazil.
- An e-bike in New York.

Electric motor:

The power of a vehicle electric motor, as in other vehicles is measured in kilowatt(kw) where 100 kw is roughly equivalent to 134 horsepower .DC electricity is fed into a DC/AC INVERTER where it is converted to AC electricity and this AC electricity is connected to a 3 phase AC motor.For electric trains, forklift trucks and some electric cars Dc motors are often used. In recent production vehicles, various motor types have been implemented for instance: *Induction motors* within Tesla Motor vehicles and *Permanent Magnet Machines* in the Nissan Leaf.In addition to these motor there are also *Synchronous Brushed Motor* and *Switched Reluctance Motor* .

Battery:

In the past, *Nickel Metal Hybird Batteries* were used. Because of its high cost and self discharge tendency this battery is replaced by *Lithium Ion* batteries. It has higher energy

density , longer life span and higher power density than other practical batteries.Toyota

power density than other practical batteries.Toyota motor corporation is trying to replace the current lithium ion battery with *Solid State Battery* by 2020 and further research going on *Lithium Air Battery*.

Energy Efficiency:

Internal combustion engine have thermodynamic limits on efficiency .Gasoline engine effectively use only 15% of fuel energy to move the vehicle. Diesel engine can reach on-board efficiency of 20%.Electric vehicle can reach on-board efficiency of 90% .

Performance

	ELECTRIC Nissan Leaf Visia	PETROL Ford Focus Hatchback	DIESEL Ford Focus Hatchback
CO2 emissions	0 g/km	114 g/km	99 g/km
Max range	124 miles	677 miles	862 miles
Top speed	89 mph	120 mph	120 mph
Power	107 bhp	123 bhp	118 bhp
0-60 mph	11.1 seconds	10.9 seconds	10.2 seconds
Torque	254 Nm, 187 ft-lb	200 Nm, 148 ft-lb	270 Nm, 199 ft-lb
Transmission	Automatic	Manual	Manual

ARTIFICIAL INTELLIGENCE

K.YUVALAKSHMAN IV Year

Since the invention of computers or machines, their capability to perform various tasks went on growing exponentially. Humans have developed the power of computer systems in terms of their diverse working domains, their increasing speed, and reducing size with respect to time.

A branch of Computer Science named *Artificial Intelligence* pursues creating the computers or machines as intelligent as human beings.

DEFINITION:

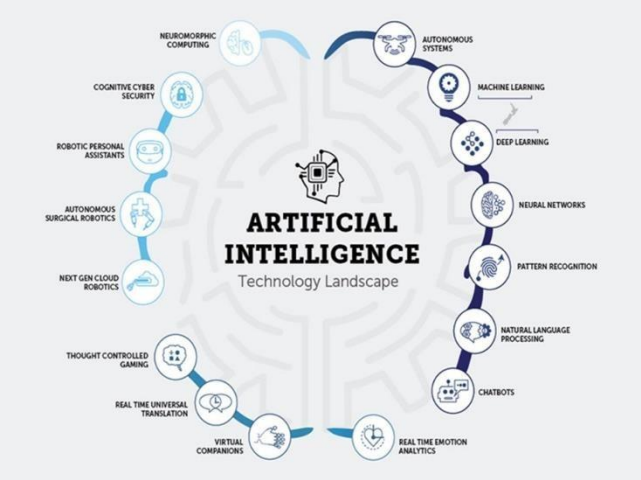
According to the father of Artificial Intelligence, John McCarthy, it is *"The science and engineering of making intelligent machines, especially intelligent computer programs".*

Artificial Intelligence is a way of **making a computer, a computer-controlled robot, or a software think intelligently**, in the similar manner the intelligent humans think.

AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

Goals of AI

- **To Create Expert Systems** − The systems which exhibit intelligent behavior, learn, demonstrate, explain, and advice its users.
- **To Implement Human Intelligence in Machines** − Creating systems that understand, think, learn, and behave like humans.



AITechnique

In the real world, the knowledge has some unwelcomed properties −

- Its volume is huge, next to unimaginable.
- It is not well-organized or well-formatted.
- It keeps changing constantly.

AI Technique is a manner to organize and use the knowledge efficiently in such a way that −

- It should be perceivable by the people who provide it.
- It should be easily modifiable to correct errors.
- It should be useful in many situations though it is incomplete or inaccurate.

AI techniques elevate the speed of execution of the complex program it is equipped with.

Applications of AI

AI has been dominant in various fields such as −

- **Gaming** − AI plays crucial role in strategic games such as chess, oker, tic-tac-toe, etc., where machine can think of large number of possible positions based on heuristic knowledge.
- **Natural Language Processing** − It is possible to interact with the computer that understands natural 2language spoken by humans.
- **Expert Systems** − There are some applications which integrate machine, software, and special information to impart reasoning and advising. They provide explanation and advice to the users.
- **Vision Systems** − These systems understand, interpret, and comprehend visual input on the computer. For example,
    - A spying aeroplane takes photographs, which are used to figure out spatial information or map of the areas.
    - Doctors use clinical expert system to diagnose the patient.
    - Police use computer software that can recognize the face of criminal with the stored portrait made by forensic artist.
- **Speech Recognition** − Some intelligent systems are capable of hearing and comprehending the language in terms of sentences and their meanings while a human talks to it. It can handle different accents, slang words, noise in the background, change in human's noise due to cold, etc.
- **Handwriting Recognition** − The handwriting recognition software reads the text written on paper by a pen or on screen by a stylus. It can recognize the shapes of the letters and convert it into editable text.


VISION
To become a high standard of
Excellence in Education,Training
And Research in the field of
Electrical &Electronics Engineering
and allied areas
time to
go green
MISSION
To produce excellent,innovative
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With Ethical Values and to
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&Electronics Engineering and
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