INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION

B.TECH-2nd SEM THEORY

PAPER NAME : PHYSICS-I

PAPER CODE : BS-PH-201(For EE)

- Find the directional derivative of $\mathbf{\emptyset} = x^2yz + 4xz^2$ at (1,-2,-1) along the direction $2\mathbf{i} \mathbf{j} 2\mathbf{k}$. 1.
- Differentiate between M-B,F-D, B-E statistics. 2.
- 3. Define polarization with example.
- 4. What are the condition to get sustained interference pattern ?
- 5. Distinguish between polar and axial vector with example.

PAPER NAME : CHEMISTRY-I PAPER CODE : BS-CH-201(Except EE)

- 1. Deduce schrodinger wave equation.
- 2. Calculate the bond order of O_2, O_2^+, O_2^-
- 3. Draw Pi-molecular orbital diagram of butadiene molecule.
- 4. Calculate the magnetic moment of Mn^{2+} system.
- 5. Explain why N_2 molecule is diamagnetic but O_2 molecule is paramagnetic?

PAPER NAME : MATHEMATICS PAPER CODE: BS-M201–IIA (For CSE)

- 1. a) Find a basis of \mathbb{R}^3 containing the vectors (1,1,0), (1,1,1).
 - b) Test the convergence of $\int_0^1 \frac{dx}{x(1-x)}$

2. a) Find the rank of
$$\begin{bmatrix} -1 & 2 & -1 & 0 \\ 2 & 4 & 4 & 2 \\ 0 & 0 & 1 & 5 \\ 1 & 6 & 3 & 2 \end{bmatrix}$$

b) If
$$I_n = \int_0^{\frac{\pi}{2}} x^n \sin x \, dx \ (n > 1)$$
, show that $I_n + n(n-1)I_{n-2} = n((\frac{\pi}{2})^{n-1})$.

i.
$$2x + 7y + 5z = 2k$$

ii. $4x + my + 10z = 2k + 1$

3. Find for what values of k and m the system has (i) a unique solution (ii) no solution (iii) many solution a) Establish a relation between Beta and Gamma function. .

b) Find the reduction formula for $\int_{0}^{\frac{\pi}{2}} \sin^{m} x \cos^{n} x \, dx$; m (> 1), n (> 1) being positive integers.

a) Show that the transformation $T: \mathbb{R}^2 \to \mathbb{R}^3$ defined by T(x, y) = (x - y, x + y, y) is a liner transformation. 4. b) Determine the values of a, b such that $\lim_{x\to 0} \frac{x(1+a\cos x)-b\sin x}{x^3} = 1$

NAME : MATHEMATICS PAPER CODE: BS-M202-IIB (Except CSE)

1. Expand the following function in power of x, in infinite series log(1+x), $-1 < x \le 1$

2. If $u = \tan^{-1} \frac{x^2 + y^2}{x + y}$, show that $x \frac{\delta u}{\delta x} + y \frac{\delta u}{\delta y} = \frac{1}{2} sin 2u$ 3. Find inverse of $= \begin{bmatrix} 1 & -2 & 2 \\ 2 & -3 & 6 \\ 1 & 1 & 7 \end{bmatrix}$.

4. 5. Test the convergence of the series
$$\sum_{n=1}^{\infty} \frac{n!2^n}{n^n}$$
.

PAPER NAME: PROGRAMMING FOR PROBLEM SOLVING PAPER CODE: ES-CS-201

- 1. Define pseudo code. Write a pseudo code to find the sum and average of given three numbers.
- 2. Draw the flowchart and write a C program to compute simple interest.
- 3. Explain the basic structure of a C program with an example.
- 4. What is an operator? explain various types of operators.
- 5. Explain the following operators in C language i) Relational ii) Logical iii) Conditional.
- 6. What is an assignment statement? Give the general form of an assignment statement.

PAPER NAME: COMMUNICATION SKILLS IN ENGLISH PAPER CODE: HM-HU-201

- 1. Mention some barriers of effective communication.
- 2. Draw the model of communication.
- 3. Differentiate between soft skills and hard skills.
- 4. Write a job application letter attaching your C.V. in an MNC for the post of "Junior Engineer". The Candidate should have good academic record, good communication skills with 1 yr experience.
- 5. Suppose you have been asked by the Principal of your institute to investigate the facilities available in the library. Now write a report making with some recommendations.
- 6. As the head of an MNC write a memo to all its employees about a short term change of duty hours.

B.TECH-2ND SEM PRACTICAL PAPER NAME : PHYSICS-I LAB PAPER CODE : BS-PH-291(For EE)

- 1. Determination of thermal conductivity of a bad conductor by Lees and Charlton's method.
- 2. Determination of dispersive power of the material of given prism.
- 3. Determination of wavelength of light by Newton's ring method.
- 4. Use of carry foster's bridge to determine unknown resistance.

PAPER NAME : CHEMISTRY-I LAB PAPER CODE : BS-CH-291(Except EE)

- 1. Define alkalinity of water. Name two acid-base indicators.
- 2. Write down the theory of conductometric titration of strong acid against strong base.
- 3. Define conductance. Draw the conductometric titration curve of strong acid against strong base.
- 4. Define pH. Write down the theory of pH-metric titration.

PAPER NAME : ENGINEERING GRAPHICS & DESIGN PAPER CODE : ES-ME-291(Except EE)

- 1. A room of building of 1000 m³ volume is represented by a similar block of 125 cm³ volume. Find the R.F. and construct a plain scale to measure up to 30m. Measure a distance of 24 m on the scale.
- 2. Draw the projections of regular hexagon of 30 mm side, having one of its sides in the H.P. and inclined at 60° to V.P. and its surface making angle of 45° with H.P. .
- 3. Construct an ellipse by four centre method having major axis 100 mm and minor axis 70 mm.
- 4. Construct a regular Heptagon about a circle of 100 mm diameter.

PAPER NAME : WORKSHOP/MANUFACTURING PRACTICES PAPER CODE : ES-ME-292 (For EE)

- 1. What are the common material used for pattern making.
- 2. Classify drills. Sketch a twist drill and named its various parts.

- 3. While shutting the flame, which cylinder is to be switched off first & why?
- 4. Define the core prints & Core Box (with Sketch)
- 5. What are the various types of pattern used in pattern shop. Explain any two.
- 6. What are the procedures commonly done in bench working and filling shop. Describe briefly.

PAPER NAME : LANGUAGE LABORATORY PAPER CODE : HM-HU-291

- 1. What is Proxemics? Cite one example.
- 2. Mention types of Listening.
- 3. Write some Do's and Don'ts of Group Discussion.

B.TECH-4TH SEM-CSE & IT - THEORY

PAPER NAME: DISCRETE MATHEMATICS PAPER CODE: PCC (CS) 401

- 1. Prove that the number of odd vertices in any graph is even
- 2. Suppose R is any equivalence relation on A. Show that R^{-1} is also equivalence
- 3. Using principle of inclusion and exclusion, show that for any three sets A, B, and C, $n(A \cup B \cup C) = n(A) + n(B) + n(C)$, if they are pairwise mutually disjoint.
- 4. prove that a tree with n vertices has n 1 number of edges..
- 5. If f:R \rightarrow Rdefined by $f(x) = x^3 1$, then find the values of $f^{-1}(7)$ and $f^{-1}(63)$.
- 6. Show that $(p \rightarrow q)\Lambda(q \rightarrow r) \rightarrow (p \rightarrow r)$ is a tautology

PAPER NAME: COMPUTER ARCHITECTURE PAPER CODE: PCC-CS-402

- 1. Define ISA. What are the advantages of network computers?
- 2. Write down the five classic components of a computer? Explain any one.
- 3. Define Moore's Law. Write the IEEE 754 floating point format.
- 4. Draw the diagram of portion of datapath used for fetching instruction.
- 5. Write the formula for calculating time between instructions in a pipelined processor.
- 6. Differentiate in-order execution from out-of-order execution.

PAPER NAME: FORMAL LANGUAGE & AUTOMATA THEORY PAPER CODE: PCC-CS-403

- 1. Define Finite Automata ? Differentiate between Deterministic FA and Non-Deterministic FA ?
- 2. Explain Relationship between grammar and language in Theory of Computation
- 3. Explain Chomsky Hierarchy in Theory of Computation
- 4. Explain Difference between Pushdown Automata and Finite Automata
- 5. Design a DFA for the following language $L = \{ 0m \ 1 \ n \mid m \ge 0 \text{ and } n \ge 1 \}$

PAPER NAME: DESIGN AND ANALYSIS OF ALGORITHMS PAPER CODE: PCC-CS 404

- 1. Explain Asymptotic Notations .
- 2. State the best, average and worst case complexities of binary search for successful and unsuccessful search.
- 3. Analyze the best, average and worst case complexity of quick sort.
- 4. Compare BFS and DFS algorithm with an example graph and denote its time complexities.
- 5. Obtain the solution to knapsack problem by Dynamic Programming method n=6, (p1, p2,...p6)=(w1,w2,...w6)=(100,50,20,10,7,3) and m=165.
- 6. Explain how backtracking is used for solving n- queens problem. Show the state space tree.

PAPER NAME: BIOLOGY PAPER CODE: BSC 401

- 1. Explain the concept of taxonomic hierarchy.
- 2. Write a short note on gene mapping
- 3. Explain the process of glycolysis.
- 4. Write a short note on first and second law of thermodynamics.
- 5. Discuss two mechanism of enzyme action.
- 6. Write down the difference between prokaryotes and eukaryotes.

B.TECH-4TH SEM-CSE – PRACTICAL PAPER NAME: COMPUTER ARCHITECTURE LAB PAPER CODE: PCC-CS-492

- 1. What are the three instruction classes and their instruction formats?
- 2. Write the structure of memory hierarchy.
- 3. Consider a cache with 64 blocks and a block size of 16 bytes. To what block number does byte address 1200 map.
- 4. Discuss about the various techniques to represent instruction in a computer system.
- 5. Explain the use of DMA controllers in a computer system with a neat diagram.

PAPER NAME: DESIGN AND ANALYSIS OF ALGORITHMS LAB PAPER CODE: PCC-CS-494

- 1. Implement Binary Search using Divide and Conquer approach.
- 2. Implement Quick Sort using Divide and Conquer approach.
- 3. Implement 8 Queen problem using Backtracking.
- 4. Implement Breadth First Search (BFS) using Graph Traversal Algorithm.
- 5. Implement Depth First Search (DFS) using Graph Traversal Algorithm.

B.TECH-4TH SEM - EE & EEE - THEORY PAPER NAME: ELECTRICAL MACHINE-I PAPER CODE: PC-EE/EEE-401

- 1. What is the basic difference between synchronous motor and an induction motor?
- 2. Explain the scott connection or t-t connection of the transformer.
- 3. Explain the parallel operation of single phase transformer.
- 4. Why stator windings are arranged around the rotor?
- 5. What is the general working principle of induction motor?
- 6. Describe the operation of current transformer and potential transformer

PAPER NAME : DIGITAL ELECTRONICS

PAPER CODE: PC-EE / EEE-402

- 1. Briefly explain the difference between the octal and Hexa-decimal number system.
- 2. What do you mean by –Digital Signal? Briefly Explain it.
- 3. What is the difference between Analog signal and Digital signal?
- 4. Draw the circuit diagram of Flash type AD converter.
- 5. What do you mean by DAC?
- 6. Briefly explain the Boolean-Algebra in Digital

PAPER NAME: ELECTRICAL AND ELECTRONIC MEASURMENT PAPER CODE: PC-EE/EEE-403

1. Classify the resistances from the point of view of measurements

- 2. Describes the errors in electrodynamometer type wattmeter.
- 3. Explain type of errors in Electrical measurement.
- 4. Describe the method for measurements of reactive power in single phase circuit.
- 5. Explain the difference between Dynamometer type wattmeter and induction type wattmeter.
- 6. Principle of operation Crompton DC potentiometer.

PAPER NAME: THERMAL POWER ENGINEERING PAPER CODE: ES-EE-401

- 1. Derive the efficiency of Otto cycle with P-V and T-S diagram.
- 2. Derive the efficiency of Diesel cycle with P-V and T-S diagram.
- 3. Derive the boiler mounting and accessories in details.
- 4. What is difference between SI engine and CI engine?
- 5. Write down the fuel characteristic of SI and CI engine.
- 6. What is the difference between water tube and fire tube boiler?

PAPER NAME : VALUES AND ETHICS IN PROFESSION PAPER CODE: HM-EE/EEE 401

- 1. What is the relationship between ethics and the law?
- 2. Can an action be unethical but not illegal? If so, explain how and give an example
- 3. Is there a difference between what is legally required, and what is ethically required?
- 4. What are five unethical behaviours found in the workplace and how do they affect the development of a company?
- 5. Give an account of the nature, definition and scope of Ethics.
- 6. Difference between good and bad manner

PAPER NAME: ENVIROMENTAL SCIENCE

PAPER CODE: MC –EE/EEE 401

- 1. Explain the causes of water pollution.
- 2. Write a short note on Eutrofication.
- 3. Write a short note on material balance.
- 4. Write a short note on biodiversity hotspot.
- 5. Discuss exponential growth.
- 6. Write briefly about ozone layer destruction.

B.TECH-4TH SEM - EE & EEE – PRACTICAL

PAPER NAME: DIGITAL ELECTRONICS LAB PAPER CODE: PC-EE/EEE-492

- 1. Differentiate Encoder over De-coder.
- 2. Briefly explain the De-Morgan's theorem in Digital.
- 3. What do you mean by Logic Gates in Digital?
- 4. What do you mean by Binary Number system in Digital Electronics?
- 5. What is the difference between Logic symbol and truth table of the different logic gates?
- 6. Draw the circuit diagram of D/A converter.

PAPER NAME : THERMAL POWER ENGINEERING LAB PAPER CODE: ES-EE / EEE-491

- 1. To find the Calorific Value of Diesel Fuel & Coal by Bomb Calorimeter Study of cut model of IC Engines (petrol engine and diesel engine).
- 2. Study of valve timing diagram on four stroke diesel engine.
- 3. Study of valve timing diagram on four stroke petrol engine.

- 4. Study of cut model of Babcock boiler.
- 5. Study of cut model of IC Engines (petrol engine and diesel engine).

PAPER NAME : NUMERICAL METHODS LAB PAPER CODE: PC-CS-391

- 1. Write a C program to implement Gauss Elimination.
- 2. Write a C program to implement Gauss Seidel method.
- 3. Write a C program to implement Newton forward interpolation
- 4. Write a C program to implement Trapezoidal rule where f(x) = (1 / (1 + x * x)).

B.TECH-4TH SEM-AEIE - THEORY PAPER NAME : ELECTRICAL AND ELECTRONICS MEASURMENT PAPER CODE: PC-EI-401

- 1. Difference between potential transformer & current transformer.
- 2. Describe the application of AC energy meter.
- 3. Explain how temperature can be measured with the use of Thermistor.
- 4. Classify the resistances from the point of view of measurements
- 5. Describes the errors in electrodynamometer type wattmeter.
- 6. Explain type of errors in Electrical measurement.

PAPER NAME : INDUSTRIAL INSTRUMENTATION PAPER CODE: PC-EI-402

- 1. Describe the working of an analyzer that can be used to estimate the content of nitrogen oxide in a gas.
- 2. Explain the principle of operation of a paramagnetic oxygen analyzer with a neat sketch.
- 3. Describe a method of measuring dissolved oxygen content in the boiler feed water?
- 4. Explain the use of thermal conductivity gauge for the analysis of flue gas.
- 5. Describe the construction details and working of a dust monitor.
- 6. Write a short note on: Industrial Relay system.

PAPER NAME : MICROPROCESSOR& MICROCONTROLLER PAPER CODE: PC-EI-403

- 1. Explain the various Functions of 8085 microprocessor.
- 2. Describe the Bus Architecture of 8086 microprocessor.
- 3. Draw and explain the details architecture of 8085 microprocessor.
- 4. What are the functions of the various components in Operational-Amplifier?
- 5. What is the significance of CPU unit?
- 6. What is the definition of Microprocessor? Explain briefly.

PAPER NAME :DATA STRUCTURE AND ALGORITHM PAPER CODE: ES-CS 401

- 1. Define array. Write a short note on abstract data structure.
- 2. Write difference between linear array and linked list. Define linked list?
- 3. Convert the prefix expression -/ab*+bcd into infix expression.
- 4. What is connected graph. Define sorting.
- 5. Define hash table. What do you understand by spanning tree?
- 6. Discuss the best case, worst case, average case and amortized of an algorithm.

PAPER NAME : BIOLOGY PAPER CODE: BS-BIO-401

1. Write a short note on Carbohydrate.

- 2. Write a short note on the Factors Affecting Enzyme activity.
- 3. Discuss briefly about metabolism.
- 4. Discuss Briefly about Bacterial Growth curve.
- 5. Explain the concept of taxonomic hierarchy.
- 6. Write a short note on gene mapping

PAPER NAME : VALUES AND ETHCS IN PROFESSION

PAPER CODE: HM-HU-401

- 1. What is the relationship between ethics and the law?
- 2. Difference between good and bad.
- 3. Can an action be unethical but not illegal? If so, explain how and give an example
- 4. Is there a difference between what is legally required, and what is ethically required?
- 5. What are five unethical behaviors found in the workplace and how do they affect the development of a company?
- 6. Give an account of the nature, definition and scope of Ethics.

B.TECH-4TH SEM-AEIE - PRACTICAL PAPER NAME: ELECTRICAL AND ELECTRONICS MEASURMENT LAB PAPER CODE: PC-EI-491

- 1. Calibration of PMMC Ammeter & Voltmeter Using DC Crompton Potentiometer.
- 2. Calibration & Testing of AC Energy Meter.
- 3. Measurement of Inductance by Anderson bridge
- 4. Measurement of capacitance by De Sauty Bridge.

PAPER NAME : MICROPROCESSOR AND MICROCONTROLLER LAB PAPER CODE: PC-EI-492

- 1. Explain the difference between the 8085 microprocessor over 8086 microprocessor.
- 2. Explain the various flags of 8085 microprocessor.
- 3. Describe the Bus Interfacing in 8086 microprocessor.
- 4. Explain Microcontroller. Draw and explain the architecture of 8085 microprocessor.
- 5. What do you mean by addressing mode? What are the different addressing modes supported by 8086? Explain each of them with suitable examples.

PAPER NAME : ADVANCED LANGUAGE LAB PAPER CODE: HM-HU-481

- 1. What according to you are the strategies of a successful interview?
- 2. Demonstrate correct body language, voice modulation and appropriate pronounciation for delivering a speech.
- 3. Write your resume for future career.
- 4. Discuss the process of Communication Models.
- 5. Mention different types of Communication.

PAPER NAME : DATA STRUCTURE & ALGORITHM LAB PAPER CODE: ES-CS-491

- 1. Define binary search with an example and write down its limitations.
- 2. Explain the concept of Hauffman's tree.
- 3. Differentiate between depth-first search and breadth-first search traversal of a graph .
- 4. Discuss the best case, worst case, average case and amortized of an algorithm.
- 5. Draw a complete undirected graph having five nodes.

B.TECH-4TH SEM-ME-THEORY PAPER NAME: MATERIALS ENGINEERING PAPER CODE: ES-ME-401

- 1. Explain the various purpose of heat treatment. What are various method of heat treatment of steel
- 2. What is re-crystallization? Define re-crystalline temperature. Differentiate between hot and cold working.
- 3. Describe the method of improving the machinability. Explain the term creep and fatigue.
- 4. Draw the iron carbon diagram and explain.
- 5. Explain the various purpose of heat treatment. What are various method of heat treatment of steel
- 6. What is powder metallurgy ? Why it is necessary to use lubricants in the press compacting of powders ? State the advantages and disadvantages of powder metallurgy.

PAPER NAME: APPIED THERMODYNAMICS PAPER CODE : PC-ME-401

- 1. Explain briefly Otto cycle with the help of p-v and T-S diagram, and derive an expression for ideal efficiency of Otto cycle.
- 2. Explain briefly Diesel cycle with the help of p-v and T-S diagram, and derive an expression for ideal efficiency of Diesel cycle.
- 3. What do you understand by the term ' psychrometry'.
- 4. Define the following: specific humidity, DPT,WBT and absolute humidity.
- 5. Show Rankine cycle on p-v and T-S diagram and explain the processes involved.
- 6. Drive the expression for the work done when compression is isothermal and isentropic for reciprocating compressor.

PAPER NAME : FLUID MECHANICS & FLUID MACHINES PAPER CODE : PC-ME-402

- 1. Deduce the Haigen-Poiseuille equation for steady, laminar , fully-developed incompressible flow through a circular pipe in the form $Q = \Pi D^4 X \Delta P / 128 \mu L$.
- 2. What do you mean by similitude & what are the different types of similarities that must exist between a model & prototype.
- 3. State Buckingham's π theorem.
 - a. The efficiency η of a fan depends on density ρ , dynamic viscosity μ of the fluid, angular velocity $\check{\omega}$, diameter D of the rotor & the discharge Q.
 - b. Express η in terms of dimensionless parameter.
- 4. (a)State the working principle of a Pelton wheel.(b)Derive the expression of discharge through a rectangular weir.(c)Write a short note on Francis turbine.
- 5. A Kaplan turbine is developes a shaft power of 24650 KW at an average head of 39m. Assuming a speed ratio of 2, Flow ratio0.6, diameter of the boss equal to 0.35times the diameter of the runner & an overall efficiency of 90%.calculate the diameter, speed & specific speed of the runner.

PAPER NAME : STRENGTH OF MATERIAL PAPER CODE : PC-ME-403

- 1. Prove that a hollow shaft can withstand higher torque than a solid shaft of same length and weight if the two shafts are the same material
- Determine the diameter of solid shaft which transmit 740 kW at 350 rpm. The angle of twist must not exceed one degree per meter length and the maximum torsional shear stress is to be limit to 55 N/mm². Assume G=84 kN/mm².

- 3. What is modulus of section? A rectangular beam, simply supported over a span of 4m, is carrying a uniformly distributed load of 60 kN/m. Find the dimension of the beam, if depth of the beam section is 3.5 times its width. Take maximum bending stress in the beam section as 75 Mpa.
- 4. Derive the equation strain energy store in a body due to shear stress.
- 5. a weight of 2600N is dropped on a closely helical spring consisting of 60 turns. find the height by which the weight is dropped before by striking the spring so that the spring may be compressed by 220mm and diameter of spring wire is 30mm
- 6. A closed helical spring has stiffness of 10N/mm. it's when fully compressed, with adjacent coils touching each other is 400mm. The modulus of rigidity of the materials of the spring is 8×10^4 N/mm²

PAPER NAME: METROLOGY AND INSTRUMENTATION PAPER CODE: PC-ME-404

- 1. What is an effective diameter of threads? State its significance. Explain with sketch Measurement of effective diameter by two wire method stating limitation
- 2. In the measurement of surface roughness, height of 20 successive peaks and valleys measured from a datum are as follows 45, 25, 40, 25, 35, 16, 40, 22, 25, 34, 25, 40, 20, 36, 28, 18, 20, 25, 30, 38. If these measurements were made over a length of 20mm, determine C.L.A and R.M.S value of these.
- 3. Show that the gauge factor F of a resistance strain gauge is given by

F = 1+ 2
$$\mu$$
 + {($\delta \rho / \rho$)/($\delta L / L$)}

- 5. Where μ is Poisson's ratio, ρ is the resistivity of the material of wire of strain gauge, and L is the length of the wire.
- 6. Describe with sketch the construction and use of gear tooth vernier caliper. How is the gear tooth thickness at PCD measured? Explain piezo-electric crystal type microphone with suitable diagram.
- 7. What is comparator? Explain its used and essential parts.

B.TECH-4TH SEM-ME-PRACTICAL PAPER NAME : PRACTICE OF MANUFACTURING PAPER CODE : PC-ME-491

- 1. Draw block diagram of a closed loop system. Give an example of closed loop system. What are the advantages and disadvantages of closed loop system?
- 2. State the principle of vernier instrument. Explain briefly the construction and use of vernier caliper with a neat sketch.
- 3. What is an effective diameter of threads? State its significance. Explain with sketch Measurement of effective diameter by two wire method stating limitation
- 4. The instrument used for measuring surface texture are (i) Tomlinson surface metet (ii) Taylor Hobson Talsurf.
- 5. Study the working of logic gates.
- 6. How to measure angle by universal bevel protector.

PAPER NAME : MACHINE DRAWING-I PAPER CODE : PC-ME-492

1. Draw the following figure in first angle projection method.



2. Draw the following figure in first angle projection method.



B.TECH-4TH SEM-CE-THEORY PAPER NAME: INTRODUCTION TO FLUID MECHANICS PAPER CODE : CE(ES) 401

- 1. Write down the surface tension equation on different cases.
- 2. What do you mean by fluid pressure at a point? Explain Pascal's law.
- 3. When is the fluid called laminar?
- 4. What is continuous distribution of mass.
- 5. What is Knudsen number and what is the Knudsen number value for continuum.
- 6. What is microscopic and macroscopic approach of fluid mechanics.

PAPER NAME: INDTRODUCTION TO SOLID MECHANICS PAPER CODE : CE(ES) 402

- 1. Plane element in a boiler is subjected to tensile stresses of 400 Mpa an one plane and 150 Mpa on the other at right angles to the former .Each of the above stresses is accompanied by a shear stress of 100 Mpa such that when associated with the minor tensile stress tends to rotate the element in anticlockwise direction. Find a)Principal stresses and their directions b) Maximum shearing stresses and the directions of the plane on which they act.
- 2. What is point of contra flexure? What is overhanging?
- 3. A cantilever beam 7 m long with constant *EI* is subjected to two 45 KN loads, one at 2 m from end & another at free end respectively. Compute deflection at the free .
- 4. Define the Poisson's ratio. Derive a relationship between modulus of elasticity, modulus of rigidity and bulk modulus
- 5. Determine the rotation and deflection at the free end of the cantilever beam subjected to u.d.l over an entire span.
- 6. Derive the relationship between BM and SF.

PAPER NAME : SOIL MECHANICS-I PAPER CODE : CE(PC) 401

- 1. What do you mean by dry density, saturated density and porosity?
- 2. In a Proctors compaction test the maximum dry density was found to be 1.8gm/c.c. and O.M.C. is 15.2% if the specific gravity of the soil grains is 2.65, calculate degree of saturation , and void ratio and the max dry density?
- 3. What do you mean by dry density, saturated density and porosity? 4. Define the following- total unit weight, water content, dry unit weight, saturated unit weight, unit weight of solids, submerged unit weight, mass specific gravity, total unit weight, saturated unit weight.

- 4. The mass specific gravity of a soil equals 1.64. the specific gravity of solids is 2.70. determine the void ratio under the assumption that the soil is perfectly dry. What would be the void ratio, if the sample is assumed to have a water content of 8%?
- 5. Explain the various types of soil classification. What is group index classification? State its formula. Where it is used?
- 6. A sample of clay soil has a water content of 40% at full saturation. Its shrinkage limit is 15%, Assuming G=2.70, Determine the degree of shrinkage S_r , Comment on the nature of soil?

PAPER NAME: ENVIRONMENTAL ENGINEERING-I PAPER CODE: CE(PC) 402

- 1. State the factor that affects the rate of water demand.
- 2. What is screening and sludge digestion?
- 3. Discuss about different type of ground water source?
- 4. Name the different type of pipes used in water supply scheme. Briefly describe their characteristics
- 5. Why is disinfection necessary?
- 6. What is pipe corrosion? What are the effects of corrosion? What do you mean by per capita demand?

PAPER NAME: SURVEYING & GEOMATICS PAPER CODE: CE(PC) 403

- 1. Write short notes on any four of the following:
 - a) Levelling staff
 - b) Compensating and cumulative error in chaining
 - c) Optical square
 - d) Fly levelling
 - e) Isogonic and agonic lines
- 2. The length of the offset is 15m and the scale of the plan 10m to 1cm. If the offset is laid out 3^o from it's true direction, find the perpendicular displacement of the plotted point on the paper.
- 3. What is the principle of chain surveying?
- 4. What is well & ill conditioned triangle?
- 5. What are the sources of error in chaining.
- 6. The sides of a triangle are 12.0,16.5 and 23.0 m. Respectively. Examine whether the triangle is well-conditioned.

PAPER NAME: CONCRETE TECHNOLOGY PAPER CODE: CE(PC) 404

- 1. Discuss plasticizers and super plasticizers, indicating their purpose. Name some products and their dosages used as plasticizers and super plasticizers.
- 2. Discuss about compaction factor test.
- 3. What are the factors affecting workability of concrete? Explain briefly.
- 4. Write short notes on Low heat Portland cement.
- 5. Describe the steps of production of concrete. What are the different tests conducted on hardened concrete? Explain

PAPER NAME: SOCIETAL & GLOBAL IMPACT PAPER CODE: CE(HS) 401

- 1. Discuss conservation, Repair and Rehabilitations of structures.
- 2. What do you mean by GDP? Discuss its effects in Economy of the country?
- 3. Mention the basic methods of treatment for waste water?
- 4. State the factor that affects the rate of water demand.
- 5. Distinguish between the following: a)Pre-chlorination and post-chlorination (b)Super-chlorination and dechlorination
- 6. Explain in detail the basic concept of EIA. Also give a note on probable environmental impact of a thermal power plant & a mining industry. What is environmental risk assessment?

PAPER NAME: MANAGEMENT-I(ORGANIZATIONAL BEHAVIOR) PAPER CODE: CE (MC) 401

- 1. What is Extraversion and introversion of OB?
- 2. What are the Characteristics and components of Attitudes?
- 3. Define the Term Organizational Behavior?
- 4. Define Personality in OB
- 5. Define the Relationship of Personality with OB?

B.TECH-4TH SEM-CE-PRACTICAL PAPER NAME: FLUID MECHANICS LABORTORY PAPER CODE: CE(ES)-491

- 1. How to evaluate the performance of pump & turbine?
- 2. Discuss how to calibrate the notch & orifice meter
- 3. How to measure the water surface profile for hydraulic jump?

PAPER NAME: SOLD MECHANICS LABORTORY PAPER CODE: CE(ES)-492

- 1. Write down the compression test on concrete cubes
- 2. Write down the Bending test on Mild steel.
- 3. Write down the torsion test on Mild steel

PAPER NAME: ENGINEERING GEOLOGY LABORTORY PAPER CODE: CE(ES)-493

- 1. Write down the collimation and Rise and Fall Method.
- 2. Describe the visual image interpretation.
- 3. Describe the satellite image preprocessing.

PAPER NAME: SURVEYING & GEOMATICS LABORTORY PAPER CODE: CE(PC)-493

- 1. Discuss the procedure of traverse survey by prismatic compass.
- 2. Discuss the procedure of preparing field book.
- 3. State the interdependency and advancement of different surveying methods

PAPER NAME: CONCRETE TECHNOLOGY LABORTORY PAPER CODE: CE(PC)-494

- 1. Discuss the procedure of Consistency test of cement.
- 2. Discuss the procedure of compaction factor test
- 3. Discuss the procedure of Slump test of Workability.

B.TECH-4TH SEM-ECE-THEORY

PAPER NAME: ANALOG COMMUNICATION PAPER CODE: EC 401

- 1. Briefly explain PM Techniques?
- 2. What is PLL & Closed Loop?
- 3. Define AM and draw its frequency spectrum.
- 4. What are the differences between the TDMA & FDMA?
- 5. Compare AM and FM with respect to broadcast band and intermediate frequency.

PAPER NAME: ANALOG ELECTRONIC CIRCUITS PAPER CODE: EC 402

- 1. What is Integrated circuit? What is the difference between Intrinsic & Extrinsic semiconductor?
- 2. Draw & Explain the pin diagram of OPAMP.
- 3. Describe the operations of a Rectifier with suitable diagrams.
- 4. What is the difference between OP-AMP and Integrated circuit?
- 5. Briefly explain the operation of P-N Junction diode.
- 6. What do you mean by Doping of the Semiconductor?

PAPER NAME: MICROPROCESOR & MICROCONTOLLER PAPER CODE: EC 403

- 1. Describe the Bus Architecture of 8086 microprocessor.
- 2. Draw and explain the details architecture of 8085 microprocessor.
- 3. What are the functions of the various components in Operational-Amplifier?
- 4. What is the significance of CPU unit & MMU Unit?
- 5. What is the definition of Microprocessor? Explain briefly.
- 6. Explain the different functions of Microprocessor.

PAPER NAME: DESIGN AND ANALYSIS OF ALGORITHM PAPER CODE: ES-CS 401

- 1. Explain Asymptotic Notations .
- 2. State the best, average and worst case complexities of binary search for successful and unsuccessful search.
- 3. Analyze the best, average and worst case complexity of quick sort.
- 4. Compare BFS and DFS algorithm with an example graph and denote its time complexities.
- 5. Obtain the solution to knapsack problem by Dynamic Programming method n=6, (p1, p2,...p6)=(w1,w2,...w6)=(100,50,20,10,7,3) and m=165.
- 6. Explain how backtracking is used for solving n- queens problem. Show the state space tree.

PAPER NAME: NUMERICAL METHOD PAPER CODE: BS-M401

- 1. Prove that $\Delta^n f(x) = \sum_{i=0}^n (-1)^n n(i f(x + (n i)h))$
- 2. Hence prove that $\Delta^n y_0 = \sum_{i=0}^n (-1)^i C_i^n y_{n-i}$.
- 3. Describe Newton's backward difference method
- 4. Show that ΔC_{x+1}^n = (n(x), where the difference operator
- 5. Describes composite Trapezoidal rule and its geometrical interpretation
- 6. Write down Gauss Elimination method

PAPER NAME: BIOLOGY FOR ENGINEERS PAPER CODE: BS-B401

- 1. Explain the process of glycolysis.
- 2. Write a short note on first and second law of thermodynamics.
- 3. Discuss two mechanism of enzyme action.
- 4. Write down the difference between prokaryotes and eukaryotes.
- 5. Write a short note on Carbohydrate.
- 6. Write a short note on the Factors Affecting Enzyme activity.

B.TECH-4TH SEM-ECE-PRACTICAL

PAPER NAME: ANALOG COMMUNICATION LAB PAPER CODE: EC491

- 1. What is Time division multiplexing? Explain in brief.
- 2. Define Phase Demodulation with suitable Diagram.
- 3. What are the differences between the FM & PM?
- 4. Briefly explain about the working principle of dual balanced modulator
- 5. Define DSBSC Modulation and draw its frequency spectrum.
- 6. Explain the production of Flicker noise briefly.

PAPER NAME: ANALOG ELECTRONIC CIRCUITS LAB PAPER CODE: EC492

- 1. What is the importance of Slew-Rate? Explain briefly
- 2. Briefly describe about JFET and PMOS.
- 3. What do you mean by N-Channel MOSFET?
- 4. Draw the V-I characteristics of a Zener-Diode & explain.
- 5. Draw the Diagram of a BJT & explain its operation.
- 6. Briefly explain the operation of half wave rectifier & Full wave rectifier with suitable necessary diagrams.

PAPER NAME: MICROPROCESSOR & MICROCONTROLLER LAB PAPER CODE: EC 493

- 1. Explain the difference between the 8085 microprocessor over 8086 microprocessor.
- 2. Explain the various flags of 8085 microprocessor.
- 3. Describe the Bus Interfacing in 8086 microprocessor.
- 4. Explain Microcontroller. Draw and explain the architecture of 8085 microprocessor.
- 5. What do you mean by addressing mode? What are the different addressing modes supported by 8086? Explain each of them with suitable examples.
- 6. With necessity diagrams explain the significance of MMU unit?

PAPER NAME: SOFT SKILL DEVELOPMENT LAB PAPER CODE: HS-HU-481

- 1. Differentiate between C.V and Resume.
- 2. Write some dos and don'ts of Group Discussion.
- 3. Write in detail email etiquettes..
- 4. Discuss the process of Communication Models.
- 5. Mention different types of Communication.

PAPER NAME: NEUMERICAL METHOD LAB PAPER CODE: BS-M-491

- 1. Obstruct the iterative scheme of Gauss's Elimination method for solving a system of Liner Algebraic Equations
- 2. Find the Lagrange's formula the interpolating polynomial which corresponds to the following data

<i>u. 1</i>	<i>D</i> 1	<i>c</i> . 0	<i>a.</i> 2	<i>e</i> . 5
f. $f(x)$	g. 9	h. 5	<i>i</i> . 3	<i>j</i> . 15

- 3. Describe Newton's backward difference method
- 4. Use Runge-Kutta Method of forth order to compute the numerical values of the differential equation $\frac{dy}{dx} = x^2 + y^2$; y(1)=0, find y at x = 1.3.
- 5. Prove that the nth order divided difference of a polynomial of degree n is constant
- 6. Derived the Newton-Raphson Method. Using this formula to find the roots of the equation $x^2 5x + 2 = 0$ correct up to three places of decimals.

B.TECH-6TH SEM-CSE-THEORY

PAPER NAME: DATABASE MANAGEMENT SYSTEMS PAPER CODE : PCC-CS601

- 1. Explain types of database Users.
- 2. What are the functions of DBA? Explain in detail. 9. Explain the concept of EER model with suitable example.
- 3. What is data abstraction and data independence? Explain their types.
- 4. Draw scheme for university databases.
- 5. Explain the various types of data models used in DBMS.
- 6. Explain the fundamental operation in relational algebra.

PAPER NAME: COMPUTER NETWORKS PAPER CODE: PCC-CS 602

- 1. Difference between a Firewall and Antivirus.
- 2. Difference between IPV4 and IPV6.
- 3. What is a VPN? Explain its working.
- 4. What is the maximum segment length of a 100Base-FX network?
- 5. Explain the concept of Subnetting and Supernetting.
- 6. Difference between a Domain and a Workgroup.

PAPER NAME: DISTRIBUTED SYSTEM PAPER CODE: PEC-IT 601B

- 1. Define a distributed system. Mention a few real time examples of distributed systems.
- 2. What are the models that are followed in distributed systems? Mention the examples of distributed systems.
- 3. Write down the trends in distributed systems.
- 4. Explain the trends in distributed systems.
- 5. Explain the challenges in distributed systems.
- 6. Explain the fundamental operation in relational algebra. the advantages of a distributed computing environment over standalone applications.

PAPER NAME: PARALLEL AND DISTRIBUTED ALGORITHMS PAPER CODE: PEC-IT602A

- 1. Explain Super-Scalar execution with the help of an example.
- 2. What is PRAM Model? What are the subclasses of PRAM?
- 3. Explain Bus-based, multi-stage and crossbar network topologies.
- 4. Explain completely-connected, star, linear array and Mesh networks?
- 5. What are the criteria that are used to evaluate the cost and performance of static interconnection networks?
- 6. Explain the Cache coherence in multiprocessor system.

PAPER NAME: NEUMERICAL METHOD PAPER CODE: OEC-IT 601A

- 1. Prove that $\Delta^n f(x) = \sum_{i=0}^n (-1)^n n(i f(x + (n i)h))$
- 2. Hence prove that $\Delta^n y_0 = \sum_{i=0}^n (-1)^i C_i^n y_{n-i}$.

- 3. Describe Newton's backward difference method
- 4. Show that ΔC_{x+1}^n = (n(x), where the difference operator
- 5. Describes composite Trapezoidal rule and its geometrical interpretation
- 6. Write down Gauss Elimination method

B.TECH-6TH SEM-CSE-PRACTICAL PAPER NAME: DATA MANAGEMENT SYSTEM LAB PAPER CODE: PCC-CS691

- 1. Write relational algebra queries for a given set of relations.
- Draw E-R diagram and convert entities and relationships to relation table for a given scenario.
 a. Two assignments shall be carried out i.e. consider two different scenarios.
- 3. Perform the following:
 - a. Altering a Table, Dropping/Truncating/Renaming Tables, Backing up / Restoring a Database.
- 4. Write a Pl/SQL program using FOR loop to insert ten rows into a database table.
- 5. For a given set of relation tables perform the following
 - a. Creating Views (with and without check option), Dropping views, Selecting from a view.

PAPER NAME: COMPUTER NETWORKS LAB PAPER CODE: PCC-CS 692

- 1. Define the meaning of the term Computer Network.
- 2. What 2 categories can networks be divided up into?
- 3. Define the term peer-to-peer network.
- 4. Describe the problem with peer-to-peer networks.
- 5. Define the term network cable.6. Define the term hub.
- 6. Define the term server and give an example of something that would be saved on it.

B.TECH-6TH SEM - EE & EEE- THEORY PAPER NAME: POWER SYSTEM-II

- 1. Discus about sf6 circuit breaker .
- 2. What is per unit system describe with example.
- 3. Explain with a neat diagram the application of merz-price circulating current principle for the protection of alternator.
- 4. Transmission line protection
- 5. What is relay? Discus about fundamental requirements of protective relay
- 6. Explain the operating principle of dtoc and idmt relays?

PAPER NAME: MICROPROCESSOR & MICROCONTROLLER PAPER CODE: PC-EE/EEE 602

- 1. What do you mean by addressing mode? Explain each of them with suitable examples.
- 2. What are the different addressing modes supported by 8086?
- 3. Explain the various Functions of 8085 microprocessor.
- 4. 4.. Describe the Bus Architecture of 8086 microprocessor.
- 5. Draw and explain the details architecture of 8085 microprocessor.
- 6. What are the functions of the various components in Operational-Amplifier?

PAPER NAME: ELECTRICAL MACHINE DESIGN PAPER CODE: PE-EE 601C

- 1. What are the functions of conservator and breather in transformer?
- 2. What type of wiring would you recommend for mechanical workshop? Give reasons in support of your answer.

- 3. As per IE rules, what are the provision applicable to medium, high and extra-high voltage installation?
- 4. State the factors, governing the amount of illumination at a particular place and the necessary point to be kept in view for executing schemes.
- 5. Explain utilization factor and depreciation factor used in connection with lighting scheme.
- 6. On arrival of electrical machines what steps you followed for their acceptance?

PAPER NAME: ELECTRICAL MACHINE DESIGN PAPER CODE: PE-EEE 601B

- 1. What are the functions of conservator and breather in transformer?
- 2. What type of wiring would you recommend for mechanical workshop? Give reasons in support of your answer.
- 3. As per IE rules, what are the provision applicable to medium, high and extra-high voltage installation?
- 4. State the factors, governing the amount of illumination at a particular place and the necessary point to be kept in view for executing schemes.
- 5. Explain utilization factor and depreciation factor used in connection with lighting scheme.
- 6. On arrival of electrical machines what steps you followed for their acceptance?

PAPER NAME: INDUSTRIAL ELECTRICAL SYSTEMS PAPER CODE: PE-EE/EEE 602C

- 1. On arrival of electrical machines what steps you followed for their acceptance?
- 2. State of operational steps involved in installation of electric machines in a workshop.
- 3. What is the meaning of HRC fuse? How does it operate?
- 4. What are the considerations in selecting a fuse for?

i)Motor protection ii) Transformer protection

- 5. What is the meaning of earthing? State the different methods of earthing.
- 6. What are the functions of conservator and breather in transformer?

PAPER NAME: ECONOMICS FOR ENGINEER PAPER CODE: HM 601(EE/EEE)

- 1. Differentiate law of supply and demand
- 2. Explain in detail about flow in an economy.
- 3. Discuss the concept of factors in fluency demand.
- 4. Discuss Economic Decision Trees.
- 5. Discuss Direct and Indirect Costs.
- 6. Discuss Recurring and Nonrecurring Costs

PAPER NAME: DIGITAL SIGNAL PROCESSING PAPER CODE: OE-EE-601A

- 1. Explain the differences between current DFT and FFT.
- 2. Why VLSI design flow is often called as cycle? Explain.
- 3. What do you mean by CMOS Transmission Gates?
 - i. 2 input AND gate
 - ii. 2 input OR gate
- 4. What is ASIC? Give its classification.
- 5. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
- 6. What is FFT? Explain briefly.

PAPER NAME: DATABASE MANAGEMENT SYSTEM PAPER CODE: OE-EEE-601B

- 1. Explain types of database Users.
- 2. What are the functions of DBA? Explain in detail. 9. Explain the concept of EER model with suitable example.
- 3. What is data abstraction and data independence? Explain their types.
- 4. Draw scheme for university databases.
- 5. Explain the various types of data models used in DBMS.

B.TECH-6TH SEM - EE & EEE- PRACTICAL

PAPER NAME: MICROPROCESSOR & MICROCONTROLLER LAB PAPER CODE: PC-EE/EEE 692

- 1. Explain the various flags of 8085 Microprocessor.
- 2. What are the different addressing modes supported by 8086?
- 3. Describe the Different Interfacing in 8086 Microprocessor.
- 4. What is the significance of MMU unit? Briefly Explain it.
- 5. What are the Fundamentals features of a Microprocessor?
- 6. Explain different Practical applications of Microprocessor.

PAPER NAME: ELECTRICAL & ELECTRONIC DESIGN LAB PAPER CODE: PC-EE681/PC-EEE-681

- 1. Design and validation of an electronic choke for a fluorescent tube.
- 2. Designing an iron core (with air gap) inductor with specified operating dc current and minimum inductance.
- 3. Designing the power distribution system for a small township.
- 4. Design and validation of the electronic commutation system for a permanent magnet fractional hp motor.
- 5. Design and validation of an electronic fan regulator.

PAPER NAME: POWER SYSTEM-II LAB PAPER CODE: PC-EE 691/PC-EEE 691

- 1. Study of the characteristics of on load time delay relay and off load time delay relay.
- 2. Test to find out polarity, ratio and magnetization characteristics of CT and PT.
- 3. Test to find out characteristics of under voltage relay and earth fault relay.
- 4. Study on DC load flow.
- 5. Study on AC load flow using Gauss-seidel method.
- 6. Study on AC load flow using Newton Raphson method.

B.TECH-6TH SEM-AEIE -THEORY PAPER NAME: ECONOMICS FOR ENGINEERS PAPER CODE : HM-HU-601

- 1. Describe the various concepts of engineering economics and analyze its efficiency.
- 2. Explain the concept and scope of engineering economics.
- 3. Differentiate law of supply and demand
- 4. Explain in detail about flow in an economy.
- 5. Discuss the concept of factors in fluency demand.
- 6. Economic Decision Trees?

PAPER NAME: BIO MEDICAL INSTRUMENTATION PAPER CODE : PC-EI 602

- 1. Explain the principle of operation of a paramagnetic oxygen analyzer with a neat sketch.
- 2. Explain the construction details of one of them.
- 3. List the types of electrodes used for pH measurement.
- 4. Describe a method of measuring dissolved oxygen content in the boiler feed water?
- 5. Explain the use of thermal conductivity gauge for the analysis of flue gas.
- 6. Describe the construction details and working of a dust monitor.

PAPER NAME: DIGITIAL SIGNAL PROCESSING PAPER CODE : OE-EI 603

- 1. Explain the differences between current DFT and FFT.
- 2. Why VLSI design flow is often called as cycle? Explain.
- 3. What do you mean by CMOS Transmission Gates?
 - i. 2 input AND gate
 - ii. 2 input OR gate
- 4. What is ASIC? Give its classification.
- 5. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
- 6. What is FFT? Explain briefly.

PAPER NAME: INDIAN CONSTITUTION & CULTURES PAPER CODE : MC-ES-601

- 1. What are the Objectives of Indian Constitution?
- 2. What are the fundamental rights according to Indian Constitution
- 3. Explain in brief about the salient features of Indian Constitutions?
- 4. Write down the Gandhian and liberal intellectual rights and duties of Indian Constitution?
- 5. Write down the eligibility criteria for becoming a Prime Minister?
- 6. Organization of Supreme Court

PAPER NAME: ARTIFICIAL INTELLIGENCE PAPER CODE : OE-EI-602

- 1. How Artificial intelligence, Machine Learning, and Deep Learning differ from each other?
- 2. Explain the term of "Q-Learning."
- 3. Differentiate between Natural(Human) Intelligence & Artificial Intelligence.
- 4. Differentiate between Supervised and Unsupervised learning.
- 5. How we do mapping between facts and representation?
- 6. Explain the structure of Intelligent Agent.

PAPER NAME: PROCESS CONTROL PAPER CODE : PC-EI-601

- 1. What are the differences between retentive and non-retentive timer PLC?
- 2. How Can We Calibrate A Positioner?
- 3. Discuss analytically the problem for the proportional controller in a first order process.
- 4. Why is derivative control not used alone?
- 5. Draw the block diagram of a basic process control loop and describe the function of each block in brief.
- 6. Explain what is the working principle of the magnetic meter?

B.TECH-6TH SEM-AEIE -PRACTICAL PAPER NAME:INSTRUMENTATION SYSTEM DESIGN LAB PAPER CODE : PC-EI692

- 1. Describe the construction details and working principle of UV-Analyzer.
- 2. Explain various Instrumentation techniques in details.
- 3. Explain the construction details & working principle of solar-cell & LED.
- 4. Briefly explain the operations of reference Electrode for pH measurement?
- 5. Explain the working principle of measurement Sensors.
- 6. Describe the working of an analyzer that can be used to estimate the content of nitrogen oxide in a gas.

PAPER NAME: ARTIFICIAL INTELLIGENCE LAB PAPER CODE : OE-EI-692

- 1. Design the PEAS information for Taxi Driver Agent and Automated Robot in a manufacturing plant.
- 2. Explain Goal Based Agent and Utility based Agent architecture with proper diagram.
- 3. Explain the task classification of AI.
- 4. Define Artificial intelligence on the basis of "System that think rationally " and " System that act like humans".
- 5. What is PEAS representation? Mention some related fields of Artificial Intelligence.
- 6. Mention some related fields of Artificial Intelligence.

PAPER NAME: PROCESS CONTROL PAPER CODE : PC-EI-691

- 1. Simulation of step response at impulse response for type one and type two systems with unity feedback system using Matlab.
- 2. Design of Lead, Lag and Lead-Lag compensation circuit for the given plant transfer function. Analyze step response of the system by simulation.
- 3. Obtain Transfer Function of a given system from State Variable model and vice versa. State variable analysis of a physical system obtain step response for the system by simulation.
- 4. State variable analysis using simulation tools. To obtain step response and initial condition response for a single input, two-output system in SV form by simulation.
- 5. Study of effect of nonlinearity in a feedback controlled system using phase plane plots. Determination of phase plane trajectory and possibility of limit cycle of common nonlinearities.

B.TECH-6TH SEM-CE-THEORY

PAPER NAME: CONSTRUCTION ENGINEERING & MANAGEMENT PAPER CODE: CE(PC)-601

- 1. Write down the types of contract.
- 2. Write down the regulation & by laws in respect of side spaces, back & front spaces, height of building.
- 3. Write a short note on CPM & PERT.
- 4. What are the basic construction methods for steel structure.
- 5. Write down the definition of aspect, prospect, roominess, grouping, circulation, privacy
- 6. What are the rights & responsibilities of an engineer.

PAPER NAME: ENGINEERING ECONOMICS, ESTIMATING & COSTING PAPER CODE: CE(PC)-602

- 1. What are the basic construction methods for steel structure.
- 2. Write down the basic microeconomic concept .
- 3. Write a short note on NVP,ROI & IRR.
- 4. Write down the theory of firm & market structure. 5. Write a short note on bar bending schedule.
- 5. Write down how to prepare a tender document.

PAPER NAME:WATER RESOURCES ENGINEERING PAPER CODE : CE(PC)603

- 1. What are the open wells? Explain with a sketch constant level pumping test
- 2. explain mass curve analysis, explain with sketches.
- 3. Enumerate the systems of flood forecasting.
- 4. Write a short note on decry's law of measuring velocity of ground water.

- 5. What is the necessity of temperature control is gravity dam?
- 6. Discuss about field capacity and permanent wilting point.

PAPER NAME: DESIGN OF STEEL STRUCTURE PAPER CODE : CE(PC)604

- 1. How shear value, bearing value and tearing value related to riveted connection is calculated?
- 2. Design a single angle discontinuous strut to carry a factored axial compressive load of 65KN.the length of strut is 3m between intersections. It is connected to 12mm thick gusset plate by 20mm diameter 4.6 grade bolts. Use steel of grade Fe410.
- 3. Design a built up column 15m long to carry factored axial load of 1180KN.the column is restrained in position but not in direction at both the ends. Provide single lacing system with bolted connections. Assume steel of grade fe410 and bolts of grade4.6.design the column with two channels placed back to back.
- 4. Define slenderness ratio. State its values as per is 800.
- 5. What is batten and lacing? Draw a figure for each.
- 6. Define ductility factor and shear lag factor of tension members.

PAPER NAME: FOUNDATION ENGINEERING PAPER CODE : CE(PE) 601B

- 1. Define and explain Darcy's law and constant head permeability test?
- 2. Discuss about the different type of shallow foundation with neat sketch.
- 3. Discuss about alluvial soil, aeolin soil and colluvial soil.
- 4. Define the following- total unit weight, water content, dry unit weight, saturated unit weight ,unit weight of solids, submerged unit weight, mass specific gravity, total unit weight, saturated unit weight.
- 5. Explain the various types of soil classification. What is group index classification? State its formula. Where it is used?
- 6. A sample of clay soil has a water content of 40% at full saturation. Its shrinkage limit is 15%, Assuming G=2.70, Determine the degree of shrinkage S_r, Comment on the nature of soil?

PAPER NAME: STRUCTURAL ANALYSIS-II PAPER CODE : CE(PE) 602B

- 1. What is carryover moment, carryover factor?
- 2. A beam ABC, 10m long, fixed at ends A and B is continuous over joint B and is loaded as shown in Fig. Using the slope deflection method, compute the end moments and plot the bending moment diagram. Also, sketch the deflected shape of the beam. The beam has constant EI for both the spans.
- 3. Analysis the two span continuous beam shown in figure by slope deflection method and draw bending moment , shear force diagram and elastic curve.



- 4. Write down the difference between stiffness and flexibility matrix approaches.
- 5. Differentiate determinate and indeterminate of structure

PAPER NAME: SOFT SKILL AND INTERPERSONAL COMMUNICATION PAPER CODE : CE(OE)601A

- 1. Write an enquiry letter asking about a bunch of laptops you want to buy for you cyber cafe.
- 2. Write an email to your Principle requesting 7days leave from your college.
- 3. What is Communication? Write down the model and purpose of communication.
- 4. What are the 7c's and 4s' of Communication.
- 5. What are the 4 basic roles of Business Communication?
- 6. What are the barriers of Business Communication?

B.TECH-6TH SEM-CE-PRACTICAL PAPER NAME: WATER RESOURCES ENGINEERING LAB PAPER CODE: CE(PC)-693

- 1. Discuss about different type of raingauges
- 2. Discuss about thiessen polygon method and isohyetal method.
- 3. Discuss about Run off and Catchment area.

PAPER NAME:STEEL STRUCTURAL DESIGN LAB PAPER CODE : CE(PC)694

- 1. Design different components of an industrial building.
- 2. How to calculate shear force and bending moment on rolled and build up girder.
- 3. What is the difference between plate girder and gantry girder?

PAPER NAME: QUANTITY SURVEY ESTIATION & VALUATION LAB PAPER CODE : CE(PC)695

- 1. Write down the details of measurement and calculation of cost.
- 2. Prepare a quantity estimate of a single storied building .
- 3. Write a short note on types of estimate.

B.TECH-6TH SEM-ME-THEORY PAPER NAME:-MANUFACTURING TECHNOLOGY PAPER CODE : PC-ME-601

- 1. What are the difference between jig and fixture.
- 2. Write the name various types of jig and explane any one of them.
- 3. What is interpolation in NC system? Explain different types of interpolation..
- 4. Mention the purpose of miscellaneous functions in part programming. Write any 2 M codes with their application.
- 5. Write the name different types of locator. Explane any two of them.
- 6. With neat sketches explain the prinicipal methods used to produce metallic powders in powder metallurgy.

PAPER NAME: DESIGN OF MACHINE ELEMENT PAPER CODE : PC-ME602

- 1. Explain the process of general costing method any components
- 2. A cotter joint is required to resist an axial load of 60 KN. Design the joint completely. Assume $\sigma_t = 80$ MPa, $\tau = 50$ MPa, $\sigma_{cr} = 150$ MPa. Distinguish between cotter joint and knuckle joint.
- 3. What is a lever? Explain the principle on which it works? State the applications of hand and foot levers. Discuss the procedure for designing the hand and foot levers.
- 4. Design and make a neat dimensioned sketch of a muff coupling which is used to connect two steel shafts transmitting 40KW at 350 rpm. The material for the shafts and key is plain carbon steel for which allowable shear crushing stresses may be taken as 40 MPa and 80 MPa respectively. The material for muff is cast iron for which the allowable shear stress may be assumed as 15 MPa. State the Purpose of Shaft Coupling.

- 5. A 15 KW , 960 rpm motor has a mild steel shaft of 40 mm diameter and the extension being 75 mm . The permissible shear and crushing stresses for the mild steel key are 56 MPa and 112 MPa. Design the keyway in the motor shaft extension. Check the shear strength of the key against the normal strength of the shaft. Explain the term 'Effect of keyways'
- 6. Define Ergonomics, also state its advantage. State the functions Estimating Department.

PAPER NAME: INTERNAL COMBUSTION ENGINE AND GAS TURBINE PAPER CODE: PE-ME601A

- 1. Explain briefly Otto cycle with the help of p-v and T-S diagram, and derive an expression for ideal efficiency of Otto cycle.
- 2. Explain briefly Diesel cycle with the help of p-v and T-S diagram, and derive an expression for ideal efficiency of Diesel cycle.
- 3. In an Otto cycle, the temperature at the beginning and end of the isentropic compression is 316 K and 596 K respectively. Determine the air standard efficiency and the compression ratio.
- 4. What is the difference between gas turbine and IC engine.
- 5. What is the difference between closed gas turbine and open gas turbine.
- 6. Write down the fuel characteristic of SI and CI engine.
- 7. What is difference between SI engine and CI engine?

PAPER NAME: TURBOMACHINERY PAPER CODE: PE-ME 602C

- 1. The velocity of water at the outlet of a conical draft tube attached to a Francis turbine is 1.6 m/s. The velocity of water at the inlet of the draft tube, which is 5m above the tail race level, is 5.5m/s. If the loss of head due to friction in the draft tube is 40% of the velocity head at outlet of the tube, find the the pressure head at inlet to the draft tube.
- 2. A hydro Turbine is required to give 25 MW at 45m head and 90 rpm runner speed. The laboratory facilities available, permit testing of 20 KW model at 5m head. What should be the model runner speed & model to prototype scale ratio.
- 3. A Pelton wheel has a mean bucket speed of 10m/s with a jet of water flowing at the rate of 800 l/s under a head of 35m. The bucket deflects the jet through an angle of 160⁰.Calculate the power given by water to the runner & hydraulic efficiency. Assume co-efficient of velocity as 0.98
- 4. For isentropic flow through the nozzle derives the relation

$$dA/A = [M^2 - 1] dV/V$$

- 5. A radial flow hydraulic turbine is required to be designed to produce 25 MW under a head of 16m at a speed of 90 rpm. A geometrically similar model with an output of 30KW & a head of 5m is to be tested under dynamically similar conditions. At what speed must the model run? What is the required runner diameter ratio between the model & prototype & what is the discharge through the model, if its efficiency is 90%.
- 6. What is an air vessel? Describe the function of the air vessel for reciprocating pump. What is cavitation? How it can be minimized?

PAPER NAME : HUMANITIES-II (OPERATION RESEARCH) PAPER CODE : HM-HU 601

- 1. Use two-phase simplex method to solve the following LPP problem
 - a. Minimize $z = x_1 + x_2$
 - b. Subject to $2x_1 + x_2 \ge 4$
 - i. $x_1 + 7x_2 \ge 7$
 - ii. $x_1, x_2 \ge 0$.
- 2. Difference between PART AND CPM
- 3. Use BIG-M method to solve the following L.P.P

Mimize $Z=5x_1+3x_2$ Subject to $2x_{1+}4x_2 \le 12$

2**x_**+2**x_**=10

 $5x_1 + 2x_2 \ge 10$ $x_{1,x_{2}=1}$

- 4. A super market has two single girls at the sales counter. If the service time for each customer is exponential with a mean of 4 mins. and if the people arrive in a Poisson fashion at the rate of 10 an hours, then calculate the (i) probability that a customer has to wait for beginning served?(ii) expected percentage of idle time for each sales girl?
- 5. Write down the queuing model for $\{(M/M/1) : (N/FCFS)\}$.

PAPER NAME : CONSTITUTION OF INDIA PAPER CODE : MC 601

- 1. Write down the eligibility criteria for becoming a Prime Minister?
- 2. What are the Objectives of Indian Constitution
- 3. What are the fundamental rights according to Indian Constitution?
- 4. Explain in brief about the salient features of Indian Constitutions?
- 5. Write down the Gandhian and liberal intellectual rights and duties of Indian Constitution?

B.TECH-6TH SEM-ME-PRACTICAL PAPER NAME: MECHANICAL ENGINEERING LABORATORY II (DESIGN) PAPER CODE: PC-ME691

- 1. What is impact energy? Write use of impact properties?
- 2. To study the impact testing machine and perform the izod impact tests.
- 3. Why impact test is required for material testing? What is notch sensivity?
- 4. To study the fatigue testing machine and perform rotating beam fatigue test.
- 5. What is fatigue life? Write short note endurance limit.
- 6. To study the impact testing machine and perform the charpy impact tests.

B.TECH-6TH SEM-ECE-THEORY PAPER NAME: CONTROL SYSTEM & INSTRUMENTATION PAPER CODE: EC 601

- 1. What are the differences between retentive and non-retentive timer PLC?
- 2. How Can We Calibrate A Positioner?
- 3. Discuss analytically the problem for the proportional controller in a first order process.
- 4. Why is derivative control not used alone?
- 5. Draw the block diagram of a basic process control loop and describe the function of each block in brief.
- 6. Explain what is the working principle of the magnetic meter?

PAPER NAME: COMPUTER ARCHITECTURE PAPER CODE: EC 602

- 1. Define the meaning of the term Computer Network.
- 2. Define the term peer-to-peer network.
- 3. Define the term network cable. Define the term hub.
- 4. Define the term server and give an example of something that would be saved on it.
- 5. Define the term Router.
- 6. Define the term Wide Area Network (WAN). Again, make sure you describe how large of an area it covers.

PAPER NAME: OBJECT ORIENTED PROGRAMMING PAPER CODE: OE-EC-604C

- 1. Difference between Procedural programming and OOPs?
- 2. What are the main features of OOPs? Explain any one.
- 3. What is Compile time Polymorphism and how is it different from Runtime Polymorphism?
- 4. Write a program to find the number of instances created for a given class.
- 5. Write a c++ program to find the area of circle, rectangle and triangle using function overloading. Assume function name is "AREA".
- 6. Write a program for finding smallest of two numbers using inline function and ternary operator.

PAPER NAME: INFORMATION THEORY & CODING PAPER CODE: PE-EC-604D

- 1. What are Golay-Codes? Describe the concepts of Golay Codes.
- 2. Define Information and Entropy.
- 3. What are the salient difference between the error correcting capability and error detecting capability of a code word?
- 4. Discuss algebraic properties of convolutional code.
- 5. Describe Parity check generator.
- 6. Explain Line-coding & convolutional coding.

PAPER NAME: ECONOMICS FOR ENGINEERS PAPER CODE: HS-HU-601

- 1. Describe the various concepts of engineering economics and analyze its efficiency.
- 2. Explain the concept and scope of engineering economics.
- 3. Differentiate law of supply and demand
- 4. Explain in detail about flow in an economy?
- 5. Discuss the concept of factors in fluency demand.
- 6. Economic Decision Trees?

B.TECH-6TH SEM-ECE-PRACTICAL PAPER NAME: CONSTROL SYSTEM & INSTRUMENTATION LAB PAPER CODE: EC 691

- 1. Simulation of step response at impulse response for type one and type two systems with unity feedback system using Matlab.
- 2. Design of Lead, Lag and Lead-Lag compensation circuit for the given plant transfer function. Analyze step response of the system by simulation.
- 3. Obtain Transfer Function of a given system from State Variable model and vice versa. State variable analysis of a physical system obtain step response for the system by simulation.
- 4. State variable analysis using simulation tools. To obtain step response and initial condition response for a single input, two-output system in SV form by simulation.
- 5. Study of effect of nonlinearity in a feedback controlled system using phase plane plots. Determination of phase plane trajectory and possibility of limit cycle of common nonlinearities.

PAPER NAME: COMPUTER NETWORK LAB PAPER CODE: EC 692

- 1. Write a program to implement connection oriented and connectionless client for well known services i.e standard ports.
- 2. Implementation of concurrent server service using connection oriented socket system calls(Service: Daytime, Time).

- 3. Implementation of Distance Vector Routing Protocol.
- 4. Implementation of RSA public key algorithm.
- 5. Program to demonstrate the use of advanced socket sytem calls : readv(),writev() getsockname(),setsockname().
- 6. Implementation of Iterative server using connection less socket system calls. (Service: Student Grade).

PAPER NAME: UNIVERSAL HUMAN VALUES PAPER CODE: MC-681

- 1. What is Natural Acceptance?
- 2. What is Maturity?
- 3. Meaning of Justice
- 4. Difference between Values and Ethics
- 5. What are the basic requirements for the fulfilment of aspirations of every human being with their correct priority?
- 6. Difference between respect and Value

B.TECH-8TH SEM-CSE-THEORY PAPER NAME: INTERNET OF THINGS PAPER CODE: PEC-CS 801E

- 1. Explain with neat diagram, The oneM2M IoT Standardized Architecture.
- 2. Explain genesis of IoT in Detail.
- 3. What is IoT? Explain Evolutionary Phases of the Internet.
- 4. Explain in detail, Impact of IoT in Real World.
- 5. What does IOT and Digitization mean? Elaborate on this concept.
- 6. Explain convergence of IT and OT. And differentiate between IT and OT.

PAPER NAME: BIG DATA ANALYTICS PAPER CODE: OEC-CS801A

- 1. Explain four 'V's of Big data. Briefly discuss applications of big data. Explain advantages and disadvantages of big data analytics.
- 2. Explain working of various phases of Map Reduce with appropriate example and diagram.
- 3. Discuss Hadoop YARN in detail with failures in classic MapReduce.
- 4. What is data serialization? With proper examples discuss and differentiate structured, unstructured and semistructured data. Make a note on how type of data affects data serialization.
- 5. What are the advantages of Hadoop? Explain Hadoop Architecture and its Components with proper diagram.
- 6. Explain Job Scheduling in Map Reduce. How it is done in case of (i) The Fair Scheduler (ii) The Capacity Scheduler

PAPER NAME: E-COMMERCE & ERP PAPER CODE: OEC-CS 802A

- 1. Relationship between E Commerce & Networking
- 2. Advantages & Disadvantages of E Commerce
- 3. Rules & Regulations for Controlling E Commerce
- 4. Web Security
- 5. Mobility & Commerce
- 6. Collaborative product development

B.TECH-8TH SEM-CE-THEORY PAPER NAME: PROFESSIONAL PRACTICE, LAW & ETHICS PAPER CODE: CE-(HS) 801

- 1. What is the relationship between ethics and the law?
- 2. Can an action be unethical but not illegal? If so, explain how and give an example
- 3. Is there a difference between what is legally required, and what is ethically required?
- 4. Discuss the relationship between professional responsibility and loyalty to company?
- 5. Explain the meaning of accountability.
- 6. Explain the meaning of moral leader ship.

PAPER NAME: DEEP FOUDATION PAPER CODE: CE-OE 801C

- 1. Write a short note on Dynamic and static formula on pile.
- 2. How to determine penetration test on pile foundation?
- 3. Write a short note on negative skin friction on pile.
- 4. Describe types of drilled pier?
- 5. Write down the various types of Well foundation.
- 6. How to determine penetration test on pile foundation?
- 7. Write a short note on negative skin friction on pile.

PAPER NAME: EARTHQUAKE ENGINEERING PAPER CODE: CE-OE 802B

- 1. What is an earthquake?
- 2. What is damping?
- 3. Explain the various types of damping.
- 4. Explain how the intensity and magnitude of an earthquake are measured.
- 5. Briefly explain the plate tectonic theory of an earthquake occurrence. . What is an earthquake?
- 6. What is damping?
- 7. Explain the various types of damping.

PAPER NAME: PAVEMENT MATERIALS AND DESIGN PAPER CODE: CE-PE 801D

- 1. What are the stresses acting in concrete pavements?
- 2. Draw a typical cross section of highway in embankment.
- 3. How to determine Plate Load test.
- 4. What is the difference between rigid pavement and flexible pavement?
- 5. Describes properties of Bitumen Binders.
- 6. What are the stresses acting in concrete pavements?
- 7. Draw a typical cross section of highway in embankment.

B.TECH-8TH SEM-EE/EEE-THEORY PAPER NAME: UTILIZATION OF ELECTRIC POWER PAPER CODE: PC-EE-801

- 1. State and explain laws of illumination.
- 2. What do you understand polar curve? How is it useful to an illumination engineer?
- 3. What are the different types of heating? Discuss any one.
- 4. With the help of circuit diagrams explain the working of the following light sources.i)High pressure mercury vapour lamp ii)Fluorescent tube
- 5. Explain with a neat diagram the principle of operation of a sodium vapour lamp. Mention its use.

- 6. Write a short notes on the following:
- a) Resistance Oven b) Arc Furnaces c) Induction Heating d) Dielectric Heating
- 7. Draw and describe briefly the typical arrangement of Back to Back HVDC system.
- 8. What are the types of HVDC transmission system applications ?

PAPER NAME: ADVANCE ELECTRIC DRIVE PAPER CODE: PE-EE 801C

- 1. What are the different advantages of electrical drives?
- 2. What are the equivalent value of drive parameter for loads with rotational and translation motion?
- 3. What are the different types of braking of D.C. motor, Induction motor and synchronous motor? Also determine the energy loss during breaking.
- 4. Explain the 1-phase, 3-phase fully controlled and half controlled D.C. drives.
- 5. Explain the Voltage Source Inverter fed Synchronous motor drive.
- 6. Write short note on the followings:a. Stepper motor drive.b. Switched Reluctance motor drive.
- 7. Compare simultaneous and sequential methods of power flow analysis.
- 8. Write short notes on Limitation of HVDC transmission.

PAPER NAME: SENSORS & TRANSDUCERS PAPER CODE: OE-EE 801D

- 1. Write a short note on: Industrial Relay system.
- 2. State the difference between measurement and instrumentation?
- 3. Describe different components of sensor system?
- 4. What are the fundamental features of various wireless sensor Networks?
- 5. Explain working principle with neat diagram of a Transducer.
- 6. What are the characteristics of smart-cities? What is the importance of sensor nodes?
- 7. What is Graded-index Fiber? Write its advantages.
- 8. Draw & Explain the working principle of Light –Emitting-Diode.

PAPER NAME: UTILIZATION OF ELECTRIC POWER PAPER CODE: OE-EEE 801A

- 1. State and explain laws of illumination.
- 2. What do you understand polar curve? How is it useful to an illumination engineer?
- 3. What are the different types of heating? Discuss any one.
- 4. With the help of circuit diagrams explain the working of the following light sources. i)High pressure mercury vapour lamp ii)Fluorescent tube
- 5. Explain with a neat diagram the principle of operation of a sodium vapour lamp. Mention its use.
- 6. Write a short notes on the following:
 - a) Resistance Oven b) Arc Furnaces c) Induction Heating d) Dielectric Heating
- 7. Draw and describe briefly the typical arrangement of Back to Back HVDC system.
- 8. What are the types of HVDC transmission system applications ?

PAPER NAME: DIGITIAL SIGNAL PROCESSING PAPER CODE: PC-EEE 801

- 1. Explain the differences between current DFT and FFT.
- 2. Why VLSI design flow is often called as cycle? Explain.
- 3. What do you mean by CMOS Transmission Gates?
 - i. 2 input AND gate

- ii. 2 input OR gate
- 4. What is ASIC? Give its classification.
- 5. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
- 6. What is FFT? Explain briefly.
- 7. What is DFT? Explain briefly.
- 8. Derive a PLA programmed table for the combinational circuit that a square a 3 bit number

PAPER NAME: SENSORS & TRANSDUCERS PAPER CODE: OE-EEE 801D

- 1. Write a short note on: Industrial Relay system.
- 2. State the difference between measurement and instrumentation?
- 3. Describe different components of sensor system?
- 4. What are the fundamental features of various wireless sensor Networks?
- 5. Explain working principle with neat diagram of a Transducer.
- 6. What are the characteristics of smart-cities? What is the importance of sensor nodes?
- 7. What is Graded-index Fiber? Write its advantages.
- 8. Draw & Explain the working principle of Light –Emitting-Diode.

B.TECH-8TH SEM-EEE-PRACTICAL PAPER NAME: DIGITIAL SIGNAL PROCESSING LAB PAPER CODE: PC-EEE-891

- 1. Draw & explain the operating principle of a swept super heterodyne spectrum analyzer.
- 2. With proper explanation, deduce the Norton's theorem. What is Laplace transformation?
- 3. With diagram, explain the operation of various types of connected graphs.
- 4. What are the major advantages of Fourier transform over Laplace transformation?
- 5. Briefly discuss about LTI Systems. Mention the advantages and disadvantages of Band pass filters.
- 6. Draw and explain the working principle of 2-port Networks.

B.TECH-8TH SEM-ME-THOERY PAPER NAME: POWER PLANT ENGINEERING PAPER CODE: PC-ME 801B

- 1. A) Explain the different types of draught applied in power plant. Why artificial draught is preffered in power plant.
 - B) How the fan or blower in forced draught differently installed as compared to induced draught system & why? State three advantages of mechanical draught.
- 2. Degree of superheat & temperature of steam generated
- 3. Calorific value of coal in kj/kgk
- 4. Equivalent evaporation in kg of steam per kg of coal
- 5. A) What is circulation ratio? Mention the range of circulation ratio. Derive relationship ratio between CR & TDF.
 - B)A chimney of height42m.is used for producing a draught of 25mm.of water. The temperatures of ambient air & flue gases are 290°c respectively. The coal burnt in combustion chamber contains 85% carbon, 3% moisture & remaining ash. Neglecting losses & assuming the values of burnt products euquivalent to the volume of air supplied & complete combustion of fuel. Find the percentage of excess air supplied.
- 4. Derive an expression for the maximum blade efficiency in a single stage impulse turbine.
- 5. A) What is necessity of coal storage? Discuss the different method s used for coal storage at plant. What do you mean by diversity factor? What is the consideration for selecting a site for thermal power plant.

B) The peak load on a 60 MW power station is 45 MW. It supplies power through four transformers, whose connected loads are 17,12,9& 10 MW. The maximum demand on the transformer is 20,16,12 & 8 MW

respectively. If annual load factor is 50% & the plant is operating for 68% of the period in a year, find out the following:

i) Average load on stationii)Energy supplied per yeariii)Demand factoriv)Power station use factor

PAPER NAME: PROCESS PLANNING AND COST ESTIMATION PAPER CODE: PE-ME 802H

- 1. What are requirement for planning preventive maintenance?
- 2. How the standard time of maintenance is calculated.Define motion study .state the different charts which are used for motion study.
- 3. Write a short note on Gantt chart and Line balancing. What do you mean by dispatching ? Describe the importance of follow up section What are roles of suppliers and customer in JIT system
- 4. What are steps for ISO 9000 registration .
- 5. Describe the five step road map for implementing six-sigma.
- 6. Write short note on (a) Total Productive maintenance (b) breakdown maintenance.
- 7. 7How work measurement is done?.
- 8. Explain the different material handling equipments.

PAPER NAME: ENERGY CONSERVATION AND MANAGEMENT PAPER CODE : OE-ME802E

- 1. Draw typical model of Energy Action Play in India
- 2. What is life Cycle Costing? What is the formula and why we require life cycle costing?
- 3. Write a Short Notes (a) Waste heat Exchanger (b) Heat Pipe (C) Industrials Insulation
- 4. What is the significance of an energy policy?
- 5. What are the base line data that an audit team should collect while conducting detailed energy audit?
- 6. Write down the steps involved in 'Energy management Strategy and also state the Procedure for creating the energy audit report
- 7. Write a short Note on primary and Secondary sources of energy with essential example.
- 8. Write a short notes on (1) Methods of Improving the of Power factor (2) Heat Wheels

PAPER NAME: INDUSTRIAL POLLUTION AND CONTROL PAPER CODE: OE-ME802D

- 1. What is Water Pollution? Drive the Sources Of Water Pollution.
- 2. Write down the Effects of Water Pollution.
- 3. What is air pollution? Where does air pollution come from?
- 4. What effect does air pollution have on food, crops, forests and biodiversity?
- 5. What is the role of air quality monitoring in air quality management?
- 6. What is noise pollution? Write down types of noise pollution in details.
- 7. Write down Effects of Noise Pollution on Human Health.
- 8. Write down Prevention of Noise Pollution

B.TECH-8TH SEM-ECE-THEORY PAPER NAME: INTERNET OF THINGS PAPER CODE: OE-EC-803A

- 1. Explain with neat diagram, The oneM2M IoT Standardized Architecture.
- 2. Explain genesis of IoT in Detail.
- 3. What is IoT? Explain Evolutionary Phases of the Internet.

- 4. Explain in detail, Impact of IoT in Real World.
- 5. What does IOT and Digitization mean? Elaborate on this concept.
- 6. Explain convergence of IT and OT. And differentiate between IT and OT.

PAPER NAME: ARTIFICIAL INTELLIGENCE PAPER CODE: OE-EC-804A

- 1. How Artificial intelligence, Machine Learning, and Deep Learning differ from each other?
- 2. Explain the term of "Q-Learning."
- 3. Differentiate between Natural(Human) Intelligence & Artificial Intelligence.
- 4. Differentiate between Supervised and Unsupervised learning.
- 5. How we do mapping between facts and representation?
- 6. Explain the structure of Intelligent Agent.

PAPER NAME: FIBRE OPTIC COMMUNICATION PAPER CODE: PE-EC-801B

- 1. Explain the differences between NA and OPTICAL FIBRE
- 2. What are the characteristics of an OPTICAL FIBRE?
- 3. What is FDM? Explain briefly.
- 4. Write shot notes on: IC fabrication
- 5. What is OP-AMP? Explain briefly.
- 6. What is FET? Give its classification.

PAPER NAME: MIXED SIGNAL DESIGN PAPER CODE: PE-EC-802A

- 1. Explain the differences between current DFT and FFT.
- 2. Why DTFT design flow is often called as cycle? Explain.
- 3. What is FFT? Explain briefly.
- 4. Describe different components of a Sensor system?
- 5. What are the fundamental features of Instrumentation?
- 6. Explain working principle with neat diagram for Wireless-sensor Networks.

B.TECH-8TH SEM-AEIE-THEORY PAPER NAME: POWER PLANT INSTRUMENTATION PAPER CODE: PE-EI-801

- 1. Explain the working of a gas turbine power plant with a schematic diagram.
- 2. What are the different types of solar plate collector? Discuss in details.
- 3. What are the different working fluids in binary cycle geothermal power plants?
- 4. Layout and working principle of a Gas turbine power plant.
- 5. Describe the Nuclear power plant with layout diagram.
- 6. Layout and working of a Thermal power plant.

PAPER NAME: DIGITAL IMAGE PROCESSING PAPER CODE: OE-EI-801

- 1. What are the various steps in digital image processing? Also discuss the components of image processing system.
- 2. Discuss sampling and quantization of image.
- 3. Discuss the models of color image processing.
- 4. Discuss wavelet transformations in one and two dimensions.

- 5. How edge detection and linking is done in image segmentation? Explain.
- 6. Discuss the object recognition based ob decision theoretic methods.

PAPER NAME: PROJECT MANAGEMENT & ENTREPRENEURSHIP PAPER CODE: HM-HU-801

- 1. Define the term Entrepreneur; explain the attributes of a successful entrepreneur?
- 2. Illustrate the role of entrepreneurship in the Indian Economy.
- 3. Write an essay on the role played by DIC & SISI for the development of entrepreneurship?
- 4. What do you mean by term business idea, explain the Government procedure involved in it?
- 5. Explain the role of Central Government & State Government in promoting Entrepreneurship in India?
- 6. Explain the prospects of women entrepreneurship in India?