INSTITUTE OF SCIENCE & TECHNOLOGY ASSIGNMENT QUESTION B.TECH-2ND SEM THEORY PAPER NAME: CHEMISTRY-I PAPER CODE: BS-CH-201

- 1. What is the importance of 'finger print region' in infrared spectroscopy?
- 2. What is Lambert-Beer's Law?
- 3. Distinguish between hard water and soft water.
- 4. Write down the properties of water to be used as green solvent.
- 5. What is calgon conditioning of boiler feed water?

PAPER NAME: MATHEMATICS PAPER CODE: BS-M201–IIA

- 1. Two urns contain respectively 5 white, 7 black balls, and 4 white and 2 black balls. One of the urns is selected by the toss of a fair coin and then 2 balls are drawn without replacement from the selected urn. If both balls drawn are white, what is the probability that the first urn is selected?
- 2. The chance that a doctor will diagnose a certain disease correctly is 60%. The chance that a patient will die by his treatment after correct diagnosis is 40% and the chance of death by wrong diagnosis is 70%. A patient of the doctor who had the disease dies. What is the probability that the disease was diagnosed correctly?
- 3. If there is a war every 15 years on the average, then find the probability that there will no war in 25 years.
- 4. The random variable X is uniformly distributed in (0,1). Find the distribution of Y =-log x
- 5. An integer is choosen at random from the first 100 positive integers. What is the probability that the integer is divisible by 6 or 8?

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

- 1. Describe the bitwise operators with suitable examples.
- 2. Explain the associativity and precedence of operators with suitable examples.
- 3. List and explain various file handling functions in detail.
- 4. Compare static and dynamic memory allocation concepts.
- 5. Explain the following operations of file open, close, read with examples.
- 6. Describe the array definition, assignment, and initialization with examples.

PAPER NAME: ENGLISH PAPER CODE: HM-HU-201

- 1. State different levels of listening.
- 2. Discuss some barriers to Effective listening.
- 3. State some effective group discussion techniques.
- 4. How can you introduce yourself in Group Discussion?
- 5. Mention some group discussion tips for interview.

B.TECH-2ND SEM PRACTICAL PAPER NAME : CHEMISTRY-I LAB PAPER CODE : BS-CH-291

- 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 : PROGRAMING FOR PROBLEM SOLVING LAB PAPER CODE : ES-CS 291

- 1. Write a C program to find the sum of individual digits of a given positive integer.
- 2. Write a C program to find the roots of a quadratic equation.
- 3. Write a C program to find factorial of a given integer using non-recursive function.
- 4. Write a C program that uses functions to perform multiplication of two Matrices.
- 5. Write C program to count the number of lines, words and characters in a given text.
- 6. Write a C program to Calculate Total and Percentage marks of a student using structure.

PAPER NAME : ENGINEERING GRAPHICS & DESIGN PAPER CODE : ES-ME291

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

- 1. State different levels of listening.
- 2. Discuss some barriers to Effective listening.
- 3. State some effective group discussion techniques.
- 4. How can you introduce yourself in Group Discussion?
- 5. Mention some group discussion tips for interview.

B.TECH-4TH SEM-CSE & IT - THEORY PAPER NAME: DISCRETE MATHEMATICS PAPER CODE: PCC (CS) 401

- 1. 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.
- 2. Prove that in a tree there is one and only one path between every pair of vertices.
- 3. Describe Prims algorithm.
- 4. Prove that in a tree there is one and only one path between every pair of vertices.
- 5. Prove that a simple graph with n number of vertices and k number of components can have maximum number of edges.

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

- 1. How to execute instructions using straight line sequencing and branching? Give example.
- 2. Describe the working principle of flash memory and read only memories with applications.
- 3. Discuss about Synchronous bus and draw the timing diagram of input transfer of synchronous bus.
- 4. Discuss briefly about secondary storage devices.
- 5. What are the functions of the standard I/O interface? Explain.
- 6. Classify the instructions of typical computers. Explain about shift Instructions.

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

- 1. Design a DFA which accepts set of all strings which are divisible by 5 for binary alphabet.
- 2. Illustrate an example to explain the process used to convert a non-deterministic automata to deterministic automata?
- 3. Convert regular expression (01*+1) to finite automata.

- 4. Explain about Pumping Lemma.
- 5. Explain about Ambiguity in Grammars and Languages with example.
- 7. Explain Closure Properties of Context-Free Languages.

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

- 1. Show that the average case time complexity of quick sort algorithm is O(n loge n).
- 2. Perform binary search on list of elements to find the key element using divide and conquer, and also estimate the time complexity.
- 3. Device backtracking algorithm to find all solutions to the n-queens problem and represent the solution space in state space tree.
- 4. How to search an answer node in branch and bound using Least Cost Search? Explain.
- 5. Derive the Best, Worst and Average time complexities of Merge sorting technique.
- 6. Discuss details about Depth First Search (DFS) algorithm.

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.

PAPER NAME: ENVIRONMENTAL SCIENCE PAPER CODE: MC-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-CSE – PRACTICAL PAPER NAME: COMPUTER ARCHITECTURE LAB PAPER CODE: PCC-CS-492

- 1. Design a circuit of Decimal-to-BCD Encoder using IC 74147.
- 2. Design a Half Adder and Full Adder & Half Subtractor and Full Subtractor by using Basic gates.
- 3. Design and set up A 4-bit binary parallel adder using IC 7483.
- 4. Develop and set up a 4:1 Multiplexer (MUX) using only NAND gates.
- 5. Design a decoder circuit using basic gates and to verify IC 74LS139.
- 6. Develop and test a 7-segment static display system to display numbers 0 to 9.

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

- 1. Write a program to perform Bubble sort for any given list of numbers.
- 2. Write a program to perform Insertion sort for any given list of numbers.
- 3. Write a Program to perform Binary Search for a given set of integer values recursively and non-recursively.
- 4. Find Maximum and Minimum element from a array of integer using Divide and Conquer approach.
- 5. Write a program to find minimum cost spanning tree using Kruskal's Algorithm.

6. Write a program to find minimum cost spanning tree using Prim's 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.
- 7. What are distribution transformer?
- 8. What are the salient features of distribution transformer?
- 9. What is oil immersed type transformer?
- 10. How to supply power to rotor?

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
- 7. Briefly explain the operation of P-N Junction diode.
- 8. What do you mean by Doping of the Semiconductor?
- 9. What is the difference between Zener Breakdown & Avalanche Breakdown?
- 10. What do you mean by Efficiency of Rectification?

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.
- 7. What are the limitation of dual beam CRO?
- 8. Difference between potential transformer & current transformer.
- 9. Describe the application of AC energy meter.
- 10. Explain how temperature can be measured with the use of Thermistor.

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

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

- 7. What is the significance of drought in boiler practice?
- 8. A chimney is 28 m high and the temperature of the hot gas in the chimney is 320°C. The temperature of outside air is 23°C and the furnace is supplied with 15 kg of air per kg of coal burnt. Calculate draught in mm of water.
- 9. What is the difference between gas turbine and IC engine?
- 10. What is the difference between closed gas turbine and open gas turbine?

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
- 7. What is Professionalism?
- 8. What is Social and ethical responsibilities of Technologists?
- 9. What is Renewal Energy Resources?
- 10. What are Engineering Ethics?

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.
- 7. Write a short note on London smog.
- 8. Write a short note on photochemical smog.
- 9. Write a note on smog.
- 10. Write about effects of air pollution.

B.TECH-4TH SEM - EE & EEE – PRACTICAL PAPER NAME: ELECTRIC MACHINE-I LABORATORY PAPER CODE: PC-EE/EEE 491

- 1. Study the characteristic of a compound DC generator (short shunt).
- 2. Measurement of speed of DC series motor as a function of load torque.
- 3. Study of methods of speed control of DC motor.
- 4. Determine Open circuit and Short circuit test of transformer.
- 5. To study separately excited dc generator.

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

- 1. What do you mean by Binary Number system in Digital Electronics?
- 2. Differentiate Encoder over De-coder.
- 3. What do you mean by Logic Gates in Digital?
- 4. What is the difference between Logic symbol and truth table of the different logic gates?

- 5. Draw the circuit diagram of D/A converter.
- 6. Briefly explain the De-Morgan's theorem in Digital.

PAPER NAME : THERMAL POWER ENGINEERING LAB PAPER CODE: ES-ME-491

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

PAPER NAME : ELECTRICAL AND ELECTRONIC MEASUREMENT LABLABORATORY PAPER CODE: PC-EE/EEE 493

- 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.
- 5. Measurement of capacitance by Schering Bridge.

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 8x10⁴ 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

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

- 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. Study the working of logic gates.
- 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. How to measure angle by universal bevel protector.
- 6. What is comparator? Explain its used and essential parts. What do you mean by MML and LML?
- 7. 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?
- 8. Explain with a neat sketch the working principle of an electromagnetic flow meter.

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.



PAPER NAME: ENVIROMENTAL SCIENCE PAPER CODE: MC-481

- 11. Explain the causes of water pollution.
- 12. Write a short note on Eutrofication.
- 13. Write a short note on material balance.
- 14. Write a short note on biodiversity hotspot.
- 15. Discuss exponential growth.
- 16. Write briefly about ozone layer destruction.
- 17. Write a short note on London smog.
- 18. Write a short note on photochemical smog.
- 19. Write a note on smog.
- 20. Write about effects of air pollution.

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

- 1. Explain the various parts of a centrifugal pump with neat labelled sketch.
- 2. Explain the following terms-suction head, delivery head, static head, manometric head.
- 3. The internal and external diameters of the impeller of a centrifugal pump are 200mm and 400mm respectively. The pump is running at 1200rpm the vane angles of the impeller at inlet and outlet are 20^o and 30^o respectively. The water enters the impeller radially and velocity of flow is constant. Determine the work done by the impeller per unit weight of water.
- 4. A centrifugal pump delivers water against a net head of 14.5m and a design speed of 1000 rpm. The vanes are curved back to an angle of 30⁰ with the periphery. The impeller diameter is 300mm and outlet width is 50mm.determine the discharge of the pump if manometric efficiency is 95%.
- 5. Determine the expression for total pressure and Centre of pressure for horizontal plane surface submerged in a liquid.
- 6. A rectangular plane surface 2m wide and 3m deep lies in water in such a way that its plane makes an angle of 30° with the free surface of water. Determine the total pressure and the position of center of pressure when the upper edge is 1.5m below the free water surface.
- 7. Explain Buckingham's π theorem. What are the methods of selecting the repeating variables?
- 8. A Pelton wheel has a mean bucket speed of 10 meters per second with a jet of water flowing at the rate of 700 liter's under a head of 30 meter's. The buckets deflect the jet through an angle of 160⁰ calculate the power given by water to the runner and the hydraulic efficiency of the turbine. Assume co-efficient of velocity as 0.98.
- 9. Find an expression for the drag force on smooth sphere of diameter D, moving with a uniform velocity V in a fluid of density ρ and dynamic viscosity μ .
- 10. What is water hammer? Describe the factors on which water hammer is depends.

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

- 1. Derive the relationship between BM and SF.
- 2. What is point of contra flexure? What is overhanging?
- 3. What is the difference between Method of joints and Method of section.
- 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. Write down the statement of Mohr circle and construct a Mohr circle with neat sketch.

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

- 1. Explain the various components of stresses acting on a soil element. Formulate the stress tensor matrix.
- 2. A soil sample has a porosity of 40% the specific gravity of soil solids is 2.70.calculate a)void ratio b)dry density c)unit weight of soil if the soil is 50% saturated and d)unit weight if the soil is completely saturated.
- 3. Calculate the unit weight and specific gravity of soil solids of
 - a) a soil composed of pure quartz and
 - b) a soil composed of 60% quartz,25% mica and 15% iron oxide. Assume that both soils are saturated and have void ratio of 0.63.take average g for quartz=2.66, for mica=3.0, and for iron oxide=3.8
- 4. Explain the IS light compaction test in detail.
- 5. Define coefficient of compressibility, coefficient of volume change, liquidity index related to soil.
- 6. Explain the textural method of classification of soil.
- 7. Explain the Mohr coulomb envelope theory related to shear strength.
- 8. A concentrated of load of 1000 KN is applied at the ground surface. Compute the vertical pressure (1) at a depth of 4m below the load (2) at a distance of 3m at a same depth. Use Boussinesqs equations.
- 9. Explain vane shear test. What is bulking of sand and thioxotropy of clay?
- 10. In a Proctors compaction test the max dry density was found to be 1.8 gm/cc and O.M.C. is 15.2%. If the specific gravity of soil grains is 2.65. Calculate the degree of saturation and void ratio and the max dry density?

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

- 1. Discuss about types of precipitation.
- 2. Define about terms Aquifer, confined Aquifer, Aquicludes, Aquifuges.
- 3. Define terms berm, canal bank, and hydraulic gradient, free board.
- 4. Describe with a neat sketch the working of a float type rain gauge.
- 5. What are the open wells? Explain with a sketch constant level pumping test
- 6. Explain mass curve analysis, explain with sketches.
- 7. Enumerate the systems of flood forecasting.

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

- 1. The distance between two points measured with a 20m chain, was recorded as 327 m it was afterward found that the chain ws 3cm too long, what was the true distance between the points?
- 2. Write the different type of correction in chain surveying.
- 3. Write short notes on any two of the following :

a) Base line,

- b) Tie line,
- c) Check line
- 4. What are the advantages of observing back bearing in a closed traverse?
- 5. What are the method of determination of area from plan?
- 6. What are advantages of traversing over triangulation?

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

- 1. Write down the step of production of concrete.
- 2. What is the ratio of M15 and M20 grade of concrete and their uses?
- 3. What is flakiness index and elongation index?
- 4. Write down about consistency test.
- 5. Write down about P.S.C. and P.P.C.
- 6. Write down about admixtures.

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

- 1. What are the social impact caused by a civil engineer?
- 2. What is the impact of civil engineering in shaping the world?
- 3. What is the impact of civil engineering in health and quality of life?
- 4. How civil engineers interacts with the society?
- 5. How do civil engineers impact our daily lives?
- 6. Can engineers make a beneficial contribution to society?

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 Behaviour?
- 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. What is Time- division multiplexing? Explain in brief.
- 2. Define sampling theorem with necessary diagrams.
- 3. Briefly explain PM Techniques?
- 4. What is PLL & Closed Loop?
- 5. Define AM and draw its frequency spectrum.
- 6. What are the differences between the TDMA & FDMA?
- 7. Compare AM and FM with respect to broadcast band and intermediate frequency.
- 8. Define Telephone Network.
- 9. Explain noise temperature. What is white noise?
- 10. What are the differences between the AM & FM?

PAPER NAME: ANALOG ELECTRONIC CIRCUITS PAPER CODE: EC 402

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

9. What is the difference between Zener Breakdown & Avalanche Breakdown? 10. What do you mean by Efficiency of Rectification?

PAPER NAME: MICROPROCESOR & MICROCONTOLLER PAPER CODE: EC 403

- 1. What do you mean by BIU Unit? 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. 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?
- 7. What is the significance of CPU unit & MMU Unit?
- 8. What is the definition of Microprocessor? Explain briefly.
- 9. Explain the different functions of Microprocessor.
- 10. What is the significance of RISC architecture?

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.
- 7. Describe the Travelling sales person problem and discuss how to solve it using dynamic programming.
- 8. Can we say that the time for Merge Sort is $\Theta(n \log n)$. What is its worst and best time of procedure for Merge Sort.
- 9. Use an algorithm for greedy strategies for the knapsack to find an optimal solution to the knapsack instance n=7,m=15,(p1,p2,...,p7)=(10,5,15,7,6,18,3),and (w1,w2,...w7)=(2,3,5,7,1,4,1).
- 10. Define spanning tree. Compute a minimum cost spanning tree for the graph of figure using prim's algorithm.

PAPER NAME: NUMERICAL METHOD PAPER CODE: BS-M401

- 1. Write down Regular falsi method
- 2. Prove that $\Delta^n f(x) = \sum_{i=0}^n (-1)^n n(i f(x + (n-i)h))$ 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 = (nCx), where the difference operator
- 5. Δ operates on n and hence show that $\sum_{n=1}^{N} n(i) = \{(N+1)((i+1))\} - \{1((i+1))\}$
- 6. Describes composite Trapezoidal rule and its geometrical interpretation.
- 7. Write down Gauss Elimination method

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

- 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.
- 7. Write a short note on Carbohydrate.
- 8. Write a short note on the Factors Affecting Enzyme activity.

9. Discuss briefly about metabolism.

10. Discuss Briefly about Bacterial Growth curve.

B.TECH-4TH SEM-ECE-PRACTICAL PAPER NAME: ANALOG COMMUNICATION LAB PAPER CODE: EC491

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

PAPER NAME: ANALOG ELECTRONIC CIRCUITS LAB PAPER CODE: EC492

- 1. Briefly explain the importance of Slew-Rate & CMRR with suitable necessary diagrams.
- 2. Briefly explain the operation of JFET and PMOS with suitable necessary diagrams.
- 3. Briefly explain the operation of N-Channel MOSFET with necessary suitable diagrams.
- 4. Draw the V-I characteristics of a Zener-Diode & explain.
- 5. Briefly explain the operation of a BJT with necessary suitable diagrams.
- 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. Draw & Explain the Architecture of the 8085 microprocessor & 8086 microprocessor.
- 2. Necessity of the various flags of 8085 microprocessor.
- 3. Describe the Bus Interfacing in 8086 microprocessor.
- 4. Explain the working principle of a Microcontroller with suitable necessary diagrams.
- 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 ma me Zagrange s termina merpenang perjuennar minen een espenae te me rene mig aata						
<i>a</i> . X	<i>b</i> 1	<i>c</i> . 0	<i>d</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. Illustrate the database characteristics. How they are different from File systems.
- 2. Illustrate about integrity and key constraints with suitable examples?
- 3. How to represent generalization, specialization and aggregation using ER Diagrams. Explain with suitable ER diagram.
- 4. Define normalization? What are the steps in normalization? What are the advantages of normalized relation over un normalized relation?
- 5. Explain 1NF, 2NF and 3NF with suitable example and illustrate the problems with these normalizations.
- 6. Demonstrate the data base design with E/R Model for Student Management System.

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

- 1. Detailed describe about OSI model.
- 2. Discuss about Various Connection Topology in network.
- 3. What are the various Protocols and Standards in computer network.
- 4. Briefly discuss about Logical addressing IPV4 and IPV6.
- 5. Write about connectionless unreliable transport protocol and its services.
- 6. Explain concepts of Cryptography.

PAPER NAME: IMAGE PROCESSING PAPER CODE: PEC-IT 601D

- 1. Enlist various fundamental steps in Digital Image Processing with neat block diagram.
- 2. Explain in detail about basic gray level transformations.
- 3. Explain Huffman coding with any one example.
- 4. Write short notes on Opening and Closing.
- 5. Explain pseudo color image processing and pseudo color coding approaches.
- 6. Describe arithmetic coding with an example for compression of image.

PAPER NAME: PATTERN RECOGNITION PAPER CODE: PEC-IT602D

- 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. Given

- 2. Solve the system of linear equations by Gauss-Seidel method
 - a. $20X_1+5X_2-2X_3=14$ b. $3X_1+10X_2+X_3=17$
 - c. $X_1-4X_2+10X_3=23$
- 3. Approximate the area under the curve y = f(x) between x = 0 and x=8 using Trapezoidal Rule with n = 4 subintervals. A function f(x) is given in the table of values.

X	0	2	4	6	8
f(x)	3	7	11	9	3

4. Evaluate $\int_0^1 e^x dx$, by Simpson's $\frac{1}{3}$ rule.

5. Write down the Newton's backward Interpolation Formula.

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

- 1. With an example explain the steps of ER to Relational Mapping Algorithm.
- 2. List and briefly explain the various attribute Data Types and Domains in SQL.
- 3. With a neat diagram, explain Three Tier Architecture Database Applications and briefly explain the advantages of three tier Architecture.
- 4. Write SQL queries to implement aggregate functions by using student database?
- 5. Define normalization? What are the advantages of normalized relation over in normalized relation?
- 6. Draw and explain three level architecture of database system.

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

- 1. Study of different types of Network cables and practically implement the cross-wired cable and straight through cable using clamping tool.
- 2. Study of following Network Devices in Detail
 - Repeater
 - Hub
 - Switch
 - Bridge
 - Router
 - Gate Way
- 3. Study of network IP
 - Classification of IP address
 - Sub netting
 - Super netting
- 4. Performing an Initial Router Configuration.

B.TECH-6TH SEM - EE & EEE- THEORY PAPER NAME: POWER SYSTEM-II PAPER CODE: PC-EE/EEE 601

- 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?
- 7. What do you understand by sequence network? What is their importance in unsymmetrical fault calculation?
- 8. When will you go for idmt and dtoc relays?
- 9. What is different between resistance grounding system and resistance earthling system?
- 10. How many methods uses for the load flow solution?

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. 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?
- 7. What is the significance of CPU unit?
- 8. What is the definition of Microprocessor? Explain briefly.
- 9. Explain the different functions of Microprocessor.
- 10. What is the significance of CISC architecture?

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

- 1. Using the compound matrix derived the Thevenin theorems.
- 2. Briefly describe Electromagnetic Microphone.
- 3. Describe singly- excited system.
- 4. Derive the expression for flux linkage space phasor.
- 5. Derive an expression for corona in HVDC line.
- 6. Give an expression of power control in HVDC system.
- 7. Write down the advantage and limitation of HVDC transmission
- 8. Derive the equation of charging current and line loss of an unloaded transmission line.
- 9. Describe the effect of capacitance in transmission line by a single method.
- 10. How Does A Generator Work?

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. 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. Discuss Economic Decision Trees.
- 7. Discuss Direct and Indirect Costs.
- 8. Discuss Recurring and Nonrecurring Costs
- 9. Discuss Joint Probability Distributions
- 10. Discuss Cash Costs vs. Book Costs

PAPER NAME: DIGITAL SIGNAL PROCESSING PAPER CODE: OE-EE-601A (ONLY FOR EE)

- 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.
- 9. What is DTFT? Explain briefly.
- 10. Explain the differences between current C-MOS well and N-MOS Well.

PAPER NAME: DATABASE MANAGEMENT SYSTEM PAPER CODE: OE-EEE-601B (ONLY FOR EEE)

- 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.
- 7. What is an attribute? What are the various types of attribute?
- 8. Write a short note on RBAC models.
- 9. Write a short note on DAC models.
- 10. Write a short note on MAC models.

B.TECH-6TH SEM - EE & EEE- PRACTICAL PAPER NAME: MICROPROCESSOR & MICROCONTROLLER LAB PAPER CODE: PC-EE/EEE 692

- 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: ELECTRICAL & ELECTRONIC DESIGN LAB PAPER CODE: PC-EE/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/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?
- 7. Direct and Indirect Costs
- 8. Recurring and Nonrecurring Costs
- 9. Joint Probability Distributions
- 10. Cash Costs vs. Book Costs

PAPER NAME: BIOMEDICAL INSTRUMENTATION PAPER CODE : PC-EI 602

- 1. Describe different components of sensor system?
- 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.
- 7. What do you mean by Bio Medical Instrumentation?
- 8. States the difference between measurement and instrumentation?
- 9. Explain the principle of operation of a paramagnetic oxygen analyzer with a neat sketch.
- 10. What are the fundamental features of WSN?

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.
- 7. What is DFT? Explain briefly.
- 8. Explain the differences between current DFT and FFT.
- 9. What is DTFT? Explain briefly.
- 10. Explain the differences between current C-MOS well and N-MOS Well.

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
- 7. Role of Function of the Governor
- 8. Role and Power of Supreme Court Judge
- 9. Function of IPS
- 10. Function of Lok Sabha

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

- 1. Differentiate between Natural (Human) Intelligence & Artificial Intelligence.
- 2. How Artificial intelligence, Machine Learning, and Deep Learning differ from each other?
- 3. Explain the term of "Q-Learning."
- 4. Differentiate between Supervised and Unsupervised learning.
- 5. How we do mapping between facts and representation?
- 6. Explain the structure of Intelligent Agent.
- 7. Write a short notes on
 - (a) Prim's algorithm (b) Kruskal algorithm
- 8. Write a short notes on(a) Prim's algorithm(b) Kruskal algorith

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?
- 7. Tell me the mechanism behind the turbine meter?
- 8. How to choose differential range?
- 9. What is the working of rota meter?
- 10. Do you know how is automatic reference junction compensation carried out in temperature recorders?

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

- 1. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
- 2. Derive a PLA programmed table for the combinational circuit that a square a 3 bit number
- 3. What is cell library? Briefly narrate about a load cell with tensile & compressive load.
- 4. Draw & explain the suitable & necessary waveforms of a Programmable Logic Array.
- 5. Explain with neat diagram of temperature measurement using AD590 IC sensor.
- 6. Draw & explain the differences between the working principles of current source and sink & also explain the Different Applications of Instrumentation engineering in Industrial field.

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-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?
- 7. Tell me the mechanism behind the turbine meter?
- 8. How to choose differential range?
- 9. What is the working of rota meter?
- 10. Do you know how is automatic reference junction compensation carried out in temperature recorders?

PAPER NAME: COMPUTER NETWORK 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: INFORMATION THEORY & CODING PAPER CODE: PE-EC-603D

- 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.
- 7. Compare AM and FM with respect to broadcast band and intermediate frequency.
- 8. Define sampling theorem.
- 9. What is white noise & What is noise temperature?
- 10. Define DSSS and draw its frequency spectrum.

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.
- 7. Write short note on i)inline function ii) this pointer

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?
- 7. Direct and Indirect Costs
- 8. Recurring and Nonrecurring Costs
- 9. Joint Probability Distributions
- 10. Cash Costs vs. Book Costs

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
- 7. Harmony in the Nature
- 8. Natural acceptance of human values
- 9. Holistic perception of harmony at all levels of existence
- 10. Definitiveness of Ethical Human Conduct

B.TECH-6TH SEM-CE-THEORY PAPER NAME: CONSTRUCTION ENGINEERING & MANAGEMENT PAPER CODE: CE(PC)-601

- 1. Write a short note on PERT.
- 2. Explain the function and objectives and function of construction management?
- 3. Write note on Bar chart and limitations of bar chart.
- 4. Write in detail about the project cost analysis
- 5. Differentiate between A-O-A and A-O-N network.
- 6. Write a short note on CPM.

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

- 1. In a Block Development meeting you are required to draw up a preliminary estimate of a School Building for 600 students in order to assess the amount of fund. The following particulars are collected by you:-
- 2. Carpet area for per student = 1.40 sq. m with an area of corridor, veranda, lavatories etc be 25% and for walls 20% to that of plinth area of the building.
- 3. Consider, Plinth area rate = Rs. 1100/sq m, cost of water supply = 5%, sanitation= 6%, electrification=10%, cost of approach road and boundary wall=3% of the building cost.
- 4. Differentiate between Revised & Supplementary Estimate and briefly discuss it.
- 5. Calculate the volume and price of cement, coarse aggregates and fine aggregates in a concrete mix volume (1:2:4) of 49 cubic meter. Rate of materials: Cement= Rs. 180/bag, Coarse Aggregate= Rs. 900/cu.m, Fine Aggregate= Rs. 220/ cu.m.
- 6. What are Lump Sum Item, Supplementary Item and Substituted item? Briefly explain with example.
- 7. Write down the approximate rate of the following item:
- 8. Sand, Cement, Stone Chips, Tor steel up to 16 mm dia, Cement Primer, Ordinary Mason.

9. What is the difference between centre line method and long & short wall method?

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

- 1. Define specific yield and specific retention..
- 2. Draw a neat sketch of canal head works and define any two component parts.
- 3. Describe about site selection of Dam.
- 4. Describe with a neat sketch the working of a float type rain gauge
- 5. Define term aquifier, aquifuge, aquiclude.
- 6. Explain briefly various method of rain water harvesting.

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

- 1. What is the difference between rivet and bolted connection?
- 2. Write down the mechanical properties of steel.
- 3. Why eccentric connection is needed for the rivet connections.
- 4. Why the eccentric connection is needed for the bolt connection.
- 5. Write down the design step of gantry girder.

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

- 1. Explain the concept of earth pressure at rest with relevant formula.
- 2. A retaining wall 4m high has a smooth vertical back. The backfill has a horizontal surface in level with the top of the wall. There is uniformly distributed surcharge load of 36kn/m² intensity over the backfill. The unit weight of the backfill is 18kn/m³, its angle of shearing resistance is 30⁰ and cohesion is zero. Determine the magnitude and point of application of active pressure per metre length of the wall.
- 3. What is Rankin's trial wedge concept? Explain with diagram.
- 4. What is the difference between design of anchored bulkhead by free and fixed earth method?
- 5. What is bulkhead and cofferdam? Mention its types.
- 6. Draw the soil pressure diagram on strutted excavation.

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

- 1. What is moment distribution method?
- 2. What is slope deflection method?
- 3. Why plastic analysis is needed for beams?
- 4. Why plastic analysis needed for portal frames?
- 5. What is the difference between stiffness and flexibility approach?

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

- 1. Discuss and draw the process of communication model.
- 2. Define communication. Mention different types of communication.
- 3. State some basic e-mail etiquettes.
- 4. Write in detail barriers to communication.
- 5. Suppose you are interested in doing a short term course in Public Speaking for personality enrichment. Now write a letter to the Director, Personal centre, Section 21 Chandigarh, inquiring about the details of the course & terms & conditions.

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.
- 7. What is rapid prototyping. What types of model used in rapid prototyping.
- 8. What is FMS . Describe about FMS.
- 9. Describe about GT.

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

- 1. Define Stress Concentration. State the Method By which we reduce the effect of Stress concentration. What are the General Considerations in Machine Design. State the Classification of machine Design in Brief.
- 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.
- 7. Explain the process of general costing method any components.

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?
- 7. A centrifugal pump is to discharge 0.215 m³/s at a speed of 1500 rpm against a head of 30m. The impeller diameter is 300mm, its width at outlet is 50mm, & manometric efficiency is 75 %. Determine the vane angle at the outer periphery of the impeller.
- 8. Define & explain hydraulic efficiency, mechanical efficiency & overall efficiency of a turbine.
- 9. Explain the specific speed of turbine. Draw the performance characteristic curve of Pelton turbine, Francis turbine, Kaplan turbine

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 $2x_{1+}4x_2 \le 12$ $2x_1+2x_2=10$ $5x_1 + 2x_2 \ge 10$ $x_{1,x_{2}=0}$

- 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 4mins. 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-8TH SEM-CSE & IT-THEORY PAPER NAME: INTERNET OF THINGS PAPER CODE: PEC-CS 801E/ PEC- IT801D

- 1. Explain with neat diagram, The one M2M IoT Standardized Architecture.
- 2. Explain genesis of IoT in Detail.
- 3. What is IoT? Explain Evolutionary Phases of the Internet.
- 4. Describe Important Characteristics of Sensors in IoT.
- 5. Explain the data acquiring and storage mechanism for IoT.
- 6. Explain in detail, Impact of IoT in Real World .
- 7. What does IOT and Digitization mean? Elaborate on this concept.
- 8. Describe recent trends in smart sensor for day to day life.
- 9. Explain convergence of IT and OT. And differentiate between IT and OT.

PAPER NAME: BIG DATA ANALYTICS PAPER CODE: OEC-CS801A/ OEC- IT801A

- 1. Explain in detail about Writable Collections in Hadoop.
- 2. With a neat diagram explain the Pig architecture in detail?
- 3. Explain the steps used to configure the XML files?
- 4. Explain the work flow of MapReduce process with a suitable example.
- 5. Describe with an example why Generic Writable is required and also illustrate the usage of Generic Writable.
- 6. Demonstrate the implementation of map reduce concept with suitable example.
- 7. Discuss Hadoop YARN in detail with failures in classic MapReduce.
- 8. 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.
- 9. What are the advantages of Hadoop? Explain Hadoop Architecture and its Components with proper diagram.

10. 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/ OEC- IT802A

- 1. Discuss the important components of an ERP system. Differentiate between traditional EDI and open ED.
- 2. With the help of any example of web site, explain the perspectives of the buyers and sellers in a B2B e-commerce web site.
- 3. What is MIME? When is it used? Explain how security is implemented in MIME.
- 4. What are the key technologies for B2B e-commerce? Explain architectural models of B2B e-commerce.
- 5. Discuss in detail about the security issues for which electronic cash is transferred over internet with an example.
- 6. Explain briefly the role of e-commerce in the supply chain management with suitable example.
- 7. Relationship between E Commerce & Networking
- 8. Advantages & Disadvantages of E Commerce
- 9. Rules & Regulations for Controlling E Commerce

B.TECH-8TH SEM-CE-THEORY PAPER NAME: PROFESSIONAL PRACTICE,LAW ÐICS 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.
- 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 ?
- 9. Find out the expression for average direct voltage of a 3-phase full wave bridge converter with no ignition angle delay.
- 10. What are the precautions needed for series & parallel connections of thyristor.

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.
- 9. Draw the flow chart for AC/DC load flow.
- 10. What are the advantages and disadvantages of HVDC system over A.C. transmission system?

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.
- 9. Briefly explain the differences between the core & cladding by using neat sketch.
- 10. What are the various Instrumentation Techniques in optical?

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 ?
- 9. Find out the expression for average direct voltage of a 3-phase full wave bridge converter with no ignition angle delay.
- 10. What are the precautions needed for series & parallel connections of thyristor.

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.
- 9. What is DTFT? Explain briefly.
- 10. Explain the differences between current C-MOS well and N-MOS Well.

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.
- 9. Briefly explain the differences between the core & cladding by using neat sketch.
- 10. What are the various Instrumentation Techniques in optical?

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 preferred in power plant.

B) How the fan or blower in forced draught differently installed as compared to induce draught system & why? State three advantages of mechanical draught.

2. A) Define boiler efficiency. When is boiler efficiency termed as overall efficiency of the boiler plant?B) A boiler generates 9 kg of steam per kg of coal burnt at a pressure of 12 bar, from feed

Having temperature of 80° c. The efficiency of boiler is 85%, factor of evaporation is 1.25, & Specific heat of steam at constant pressure is 3.3KJ/KgK.Calculate:

- i) Degree of superheat & temperature of steam generated
- ii) Calorific value of coal in kj/kgk
- iii) Equivalent evaporation in kg of steam per kg of coal
- 3. 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 equivalent to the volume of air supplied & complete combustion of fuel. Find the percentage of excess air supplied.
- 4. A) Derive an expression for the maximum blade efficiency in a single stage impulse turbine. B) In a single stage impulse turbine, the mean dia of the blade ring is 1m & the rotational speed Is 3500r.p.m. The steam is ejected from the nozzle at 250m/s & the nozzle angle is30⁰. The Blades are equiangular. If the friction loss in the blade is 19% of the kinetic energy corresponding To the relative velocity at the inlet to the blades, what is the power developed when the axial Thrust is on the blade is 90N.

A) Define speed ratio, blade velocity coefficient, blade efficiency & stage efficiency in connection With steam.

B) The following data refer to a particular stage of a parson's reaction turbine:

Speed of the turbine =2500r.p.m.;Mean dia of the rotor is 1.5m;

Stage efficiency = 85%; Blade outlet angle = 25° ; Speed ratio=0.8.

Determine the available isentropic enthalpy drop in the stage.

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 station

- ii) Energy supplied per year
- iii) Demand factor
- iv) Power station use factor

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

- 1. What are roles of suppliers and customer in JIT system
- 2. What are steps for ISO 9000 registration?
- 3. Describe the five step road map for implementing six-sigma.
- 4. What are requirement for planning preventive maintenance?
- 5. Write short note on (a) Total Productive maintenance (b) breakdown maintenance.
- 6. How the standard time of maintenance is calculated. Define motion study .state the different charts which are used for motion study.
- 7. 7How work measurement is done?

- 8. Write a short note on Gantt chart and Line balancing. What do you mean by dispatching? Describe the importance of follow up section.
- 9. Define production control. What are different techniques of production technique? State the functions Estimating Department .Explain inventory management.
- 10. Write a short note on automated guided vehicles systems.
- 11. Write a short notes on (a) Margin of safety , (b) Angle of incidence
- 12. Explain the different material handling equipment.

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

- 1. Write a short Note on primary and Secondary sources of energy with essential example.
- 2. Draw typical model of Energy Action Play in India
- 3. What is life Cycle Costing? What is the formula and why we require life cycle costing?
- 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 notes on (1) Methods of Improving the of Power factor (2) Heat Wheels
- 8. Write a Short Notes (a) Waste heat Exchanger (b) Heat Pipe (C) Industrials Insulation

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.
- 7. Explain Drivers Behind New Network Architectures.

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 Natura l(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.
- 7. What are the characteristics of a communication system?
- 8. States the difference between AM and FM?
- 9. Describe different components of Mobile communication Networking.
- 10. What are the fundamental features of Hand-off?

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.
- 7. Write a short note on: (i) Hydrometer
- 8. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
- 9. What is DFT? Explain briefly.
- 10. states the difference between Power signal and Energy signal

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.
- 7. Explain the construction and working of solar power plant.
- 8. What are the different types of tidal power plants?
- 9. Layout and working principle of a Diesel turbine power plant.
- 10. Layout of Hydro & 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?
- 7. Why do entrepreneurs fail in their venture, according to Peter Drucker?
- 8. Types of supervision
- 9. Importance of controlling
- 10. Concept of Managerial Effectiveness.