INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION

B.TECH-3RD SEM-CSE & IT - THEORY

PAPER NAME: ANALOG & DIGITAL ELECTRONICS
PAPER CODE: ESC-301

1. What is the importance of Operational Amplifier?
2. Explain the operation of shunt voltage regulator using transistor.
3. Write short note on class B Amplifier.
4. Draw the circuit of OPAMP.
5. Draw the circuit of monostable multivibrator using. What is the duty cycle of a monostable multivtibrator?

PAPER NAME: DATA STRUCTURE & ALGORITHMS
PAPER CODE: PCC-CS-301

1. a) State and explain different types of string functions with example.
   b) Explain dynamic memory allocation and releasing dynamically allocated memory.
2. a) Explain in detail array of structure and pointer to structure.
   b) State and explain various modes of file opening and file closing.
3. What do you mean by pre-processor? Explain in detail macros.
4. a) Define array. Explain different types of array in detail.
   b) State and explain various types of standard function with example.
5. a) State and explain different phases used in user defined function.
   b) Explain function with return and function with arguments with example.

PAPER NAME: COMPUTER ORGANIZATION
PAPER CODE: PCC-CS-302

1) What do you mean by pipeline hazards?
2) Describe structural hazards
3) Describe RISC and CISC with the help of block diagram.
4) Compare RISC and CISC.
5) What do you mean by hardware and micro program control unit?

PAPER NAME: MATHEMATICS-III
PAPER CODE: BSC-301

Answer the following

1. Solve $\frac{dy}{dx} + \frac{1}{x} sin2y = x^3 cos^2 y$.
2. Show that curl grad $f = 0$ where $f = x^2y + 2xy + z^2$
3. Solve $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = x^2e^{3x}$
4. Find the maximum and minimum value of the function $x^3 + y^3$ - 3axy
5. Test the convergence of the series $\sum_{n=1}^{\infty} \frac{n!2^n}{n^n}$.
6. If $u = x^2 - 2y, v = x + y + z, w = x - 2y + 3z$ find $\frac{\delta(u,v,w)}{\delta(x,y,z)}$.

PAPER NAME: ECONOMICS FOR ENGINEERS
PAPER CODE: HS-MC-301

1. What is inflation? Differentiate inflation and deflation. Discuss various causes and effects of inflation.
2. Explain decision making process in details. Discuss any one estimating model.

3. What are the advantages and disadvantages of Net Present Value, Internal Rate of Return, Pay Back Period, Accounting Rate of Return and Profitability Index?
4. Define Time Value of Money. Discuss its importance. List out different types of engineering costs.
5. What are the difference between risk and return? Give examples of indirect and direct cost and also state their differences.

B.TECH-3RD SEM-CSE – PRACTICAL

PAPER NAME: DATA STRUCTURE & ALOGORITHM LAB
PAPER CODE: PCC-CS-391

1. Bubble Sort using C.
2. Stack Push-Pop operation using C
3. Linear Search using C.
4. Binary Search using C

PAPER NAME: COMPUTER ORGANISATION LAB
PAPER CODE: PCC-CS-392

1.Design an Adder/Subtract or composite unit.
2. Design a BCD adder.
3. Design of a Carry-Look-Ahead Adder circuit.
4. Use a multiplexer unit to design a composite ALU.

PAPER NAME: IT WORKSHOP
PAPER CODE: PCC-CS-393

- Python program to add two numbers
- Maximum of two numbers in Python
- Python Program for factorial of a number
- Python Program for simple interest
- Python Program for compound interest

PAPER NAME: ANALOG & DIGITAL ELECTRONICS LAB
PAPER CODE: ESC-391

1. Explain the characteristics of full wave rectifier circuit & draw the necessary waveform.
2. Briefly explain the characteristics curves of FET with necessary Diagram.
3. Explain the input & output characteristics BJT for CE, & CC configuration with neat sketch.
4. Draw and explain the basic Logic gates & universal logic gates.

B.TECH-3RD SEM - EE & EEE - THEORY

PAPER NAME: ELECTRIC CIRCUIT THEORY
PAPER CODE: PC-EE/EEE-301

1. Determine the condition of Reciprocity and Symmetry in Z-parameter representation.
2. Calculate the different parameters in h- parameter representation.
3. State the Superposition theorem. Explain the steps to solve a problem using this theorem.
4. State the Norton's theorem.
5. Explain the mesh analysis to find the loop currents in a circuit.
6. Explain KVL & KCL with proper example.

PAPER NAME : ANALOG ELECTRONICS
PAPER CODE: PC-EE / EEE-302

1. What is the importance of bleeder resistance?
2. Explain the operation of shunt voltage regulator using transistor.

3. Write short note on colpitt oscillator.
4. Draw the circuit of current to voltage converter using OPAMP.
5. Draw the circuit of monostable multivibrator. What is the duty cycle of a monostable multivtibrator?
6. What are the differences between the Astable & Bi stable multivibrator?

PAPER NAME: ELECTROMAGNETIC FIELD THEORY
PAPER CODE: PC-EE/EEE-303

1. Find the directional derivative of $\emptyset = x^2yz + 4xz^2$ at (1,-2,-1) along the direction $2\hat{\imath} - \hat{\jmath} - 2\hat{k}$.
2. What is diamagnetic material? Derive Langevin's formula for the molecular diamagn--etic susceptibility. Why diamagnetic susceptibility is negative?
3. What do you mean by Larmor Precession? Define magnetization and show that $\vec{B} = \mu_0 (\vec{H} + \vec{M})$, the symbols have their usual significance.
4. An ac voltage source is connected across the two plates of an ideal parallel plate capacitor. If the applied ac voltage $V = V_0 \sin wt$, then verify that the displacement current in the ideal capacitor is equal to the conduction current through the wire.
5. Distinguish between polar and axial vector with example.

PAPER NAME: ENGINEERING MECHANICS
PAPER CODE: ES-ME-301

1. A simply supported beam 8m span carries a uniformly distributed load of 3 KN/m over a length of 3m.A point load of 2KN & 3 KN acting at distances 3m & 5m from the left hand support respectively. Draw the SF &BM diagram of the beam.
2. Given initial velocity v_0 & angle of projection Θ of a projectile. Find the equation that defines y as a function of x. Eliminate time from the kinematic equation. State and prove varignon's Theorem of coplanar forces.
3. Define bending moment & shear force at any section of the beam. Explain the term point of contraflexure. Calculate the shear force & bending moment diagram of a simply supported beam carried an udl of w kg/m run for a length of L meter.
4. Draw the shear force & bending moment diagram of a simply supported beam carrying point loads of 10 KN &15 KN at a distance of 2m & 3.5m from the left & right support for a length of 8m of the beam.
5. Determine the horizontal force P to be applied to a block weighing 2500N to hold it in position,the inclined plane is smooth & makes $30^0$with the horizontal.

PAPER NAME : MATHEMATICS-III
PAPER CODE: BS-M301

Long Answer Type Questions

(1) a) Write down the polynomial(interpolation formula) of degree three relevant to the data:

X	-1	0	1	2
f (x)	1	1	1	-5

b) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that

(i) exactly two will be defective (ii) none will be defective (iii) at least two will be defective.

2. a) Prove that the nth order divided difference of a polynomial of degree n is constant.

b) Evaluate $\int_0^1 (4x - 3x^2)dx$, *taking 10 intervals, by simpson's one − third rule.* Compute the exact value and find the absolute and relative errors in your result.

3.a) 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?

b) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that
(i) exactly two will be defective (ii) none will be defective (iii) at least two will be defective.

PAPER NAME: BIOLOGY FOR ENGINEERS
PAPER CODE: BS-EE/EEE-301

(1) Explain the concept of taxonomic hierarchy.
(2) Write a short note on gene mapping
(3) Write a short note on sterilization.
(4) Write a note on sterilization.
(5) State the law of segregation

PAPER NAME : INDIAN CONSTITUTION
PAPER CODE: MC-EE/EEE-301

1. Describe the Fundamental rights of Indian Citizen mention in our Constitution.
2. Write down the role and power of Governor of any state.
3. Describe the organization of Supreme court.
4. What is Habeas Corpus? What is the importance of Directive Principle Of State Policy?
5. Describe about the Jurisdiction and power of the High Court.

B.TECH-3RD SEM - EE & EEE – PRACTICAL

PAPER NAME: ELECTRIC CIRCUIT THEORY LAB
PAPER CODE: PC-EE/EEE-391

A) Answer any TWO of the following question: 2x20=40

1. Transient response in R-L and R-C Network: Simulation/hardware
2. Transient response in R-L-C Series & Parallel circuits Network: Simulation/hardware
3. Determination of Impedance (Z) and Admittance(Y) parameters of two port network
4. Frequency response of LP and HP filters
5. Frequency response of BP and BR filters

PAPER NAME : ANALOG ELECTRONICS LAB
PAPER CODE: PC-EE / EEE-392

1. Explain the characteristics of full wave rectifier circuit & draw the necessary waveform.
2. Briefly explain the characteristics curves of FET with necessary Diagram.
3. Explain the input & output characteristics BJT for CE, & CC configuration with neat sketch.
4. Explain the characteristics of full wave rectifier circuit & draw the necessary waveform.

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

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

B.TECH-3RD SEM-AEIE - THEORY

PAPER NAME : MATHEMATICS-III

PAPER CODE: BS-M-301

Long Answer Type Questions

(1) a) Write down the polynomial(interpolation formula) of degree three relevant to the data:

X	-1	0	1	2
f (x)	1	1	1	-5

b) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that

(i) exactly two will be defective (ii) none will be defective (iii) at least two will be defective.

2. a) Prove that the nth order divided difference of a polynomial of degree n is constant.

b) Evaluate $\int_0^1 (4x - 3x^2)dx$, *taking 10 intervals, by simpson's one − third rule.* Compute the exact value and find the absolute and relative errors in your result.

3.a) 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?

b) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that

(i) exactly two will be defective (ii) none will be defective (iii) at least two will be defective.

4. a) 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) A random variable X has the following probability mass function

X	0	1	2	3	4	5	6	7
P(X=k)=f(x)	0	k	2k	2k	3k	k^2	$2k^2$	$7k^2+k$

i) Find k ?

ii) Obtain the distribution function F(x).

PAPER NAME : NETWORK ANALYSIS

PAPER CODE: PC-EI-301

1. Determine the condition of Reciprocity and Symmetry in Z-parameter representation.
2. Calculate the different parameters in h- parameter representation.
3. State the Superposition theorem. Explain the steps to solve a problem using this theorem.
4. State the Norton's theorem.
5. Explain the mesh analysis to find the loop currents in a circuit.

PAPER NAME : SENSORS AND TRANSDUCERS

PAPER CODE: PC-EI-302

1. What are the characteristics of smart cities?
2. What is the importance of sensor nodes?
3. Describe different components of sensor system?
4. What are the fundamental features of WSN?
5. Explain working principle with neat diagram for flow measurement using Pitot tube.

PAPER NAME :ANALOG INTIGRATED CIRCUIT

PAPER CODE: PC-EI-303

1. What is the importance of Operational Amplifier?

2. Explain the operation of shunt voltage regulator using transistor.
3. Write short note on class A Amplifier.
4. Draw the circuit of OPAMP.
5. What is the duty cycle of a Monostable Multivtibrator?

PAPER NAME : DIGITAL ELECTRONIC CIRCUITS
PAPER CODE: PC-EI-304

1. What is the difference between Logic symbol and truth table of the different logic gates?
2. Differentiate 1's complement over 2's complement.
3. Briefly explain the difference between the octal and decimal number system.
4. What do you mean by – Logic Gates in Digital?
5. Draw the circuit diagram of A/D converter.

PAPER NAME : ENVIRONMENTAL SCIENCE
PAPER CODE: MC-ES-301

A. What is environmental degradation? How can it be prevented?
B. Discuss in details the energy resources
C. Discuss the basic concepts related to environmental perspective.
D. Describe the different laws of limiting factors.
E. Describe nitrogen cycle with block diagram.
F. Describe the energy flow in the ecosystem.

B.TECH-3RD SEM-AEIE - PRACTICAL

PAPER NAME : CIRCUIT & NETWORK LAB
PAPER CODE: PC-EI-391

A) Answer any <u>TWO</u> of the following question: 2x20=40

1. Transient response in R-L and R-C Network: Simulation/hardware
2. Transient response in R-L-C Series & Parallel circuits Network: Simulation/hardware
3. Determination of Impedance (Z) and Admittance(Y) parameters of two port network
4. Frequency response of LP and HP filters
5. Frequency response of BP and BR filters

PAPER NAME : SENSORS AND TRANSDUCERS LAB
PAPER CODE: PC-EI-392

1. Explain the characteristics of LDR.
2. Briefly Explain about the measurement of strain gauge.
3. Explain with neat diagram of temperature measurement using AD590 IC sensor.
4. Briefly narrate a load cell with tensile & compressive load.

PAPER NAME : ANALOG CIRCUIT DESIGN LAN
PAPER CODE: PC-EI-393

1. Explain the operation of half wave rectifier.
2. Explain the Biasing of the Semiconductor with neat sketch.
3. What is the difference between Zener Breakdown & Avalanche Breakdown?

4. Briefly describe the operations of MOSFET and CMOS.

PAPER NAME : DIGITAL CIRCUIT DESIGN LAN
PAPER CODE: PC-EI-394

1. Explain the operation of Flash type ADC?
2. Explain the Boolean - algebra in Digital Electronics.
3. Sketch with neat diagram of Logic Gates for Digital signals?
4. Draw & Explain the circuit diagram of A/D converter.

B.TECH-3RD SEM-ME-THEORY
PAPER NAME: MATHEMATICS-III
PAPER CODE : BSM-301

1.a) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that
a) exactly two will be defective b) none will be defective c) at least two will be defective.

b) If the random variable X takes the value 1, 2, 3, 4 such that $2p(x=1) = 3p(x=2) = p(x=3) = 5p(x=4)$, find the probability distribution of X.

2.a) Solve the heat equation $\frac{\partial u}{\partial t} = \frac{\partial^2 u}{\partial x^2}$ subject to the boundary conditions u(0, t) = 0, u(1, t) = 2t and initial condition u(x,0) = x/2.

b) Prove that $P_n(x) = \frac{1}{n!\,2^n}\frac{d^n}{dx^n}(x^2-1)^n$.

3. a) Solve $\frac{\partial^2 u}{\partial t^2} = c^2\frac{\partial^2 u}{\partial \partial^2}$, $x > 0, t > 0$, if u(x,0) = 0, $\frac{\partial u}{\partial t}u(x,0) = 0$,
u(0,t) = F(t), $u(\infty, t) = 0, t \geq 0$

b) Find a power series solution of the equation $(1+x^2)\frac{d^2y}{dx^2} + x\frac{dy}{dx} - y = 0$,using the Frobenius method.

PAPER NAME:-BIOLOGY
PAPER CODE : BS-BIO-301

(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.

PAPER NAME : BASIC ELECTRONICS ENGINEERING
PAPER CODE : ES-ECE-301

1. What is the characteristic of a Semiconductor Diode? Draw the graph of V-I Characteristics of it.
2. What are the advantages & Disadvantages of a Half wave Rectifier over Full wave?
3. Explain how a Diode can be used as a switch?
4. What is capacitor Filter Circuit?
5. Draw and Explain the operation of a silicon controlled Rectifier

PAPER NAME: ENGINEERING MECHANICS
PAPER CODE: ES-ME-301

1. A simply supported beam 8m span carries a uniformly distributed load of 3 KN/m over a length of 3m.A point load of 2KN & 3 KN acting at distances 3m & 5m from the left hand support respectively. Draw the SF &BM diagram of the beam.

2. Given initial velocity v_0 & angle of projection Θ of a projectile. Find the equation that defines y as a function of x. Eliminate time from the kinematic equation. State and prove varignon's Theorem of coplanar forces.
3. Define bending moment & shear force at any section of the beam. Explain the term point of contraflexure. Calculate the shear force & bending moment diagram of a simply supported beam carried an udl of w kg/m run for a length of L meter.
4. Draw the shear force & bending moment diagram of a simply supported beam carrying point loads of 10 KN &15 KN at a distance of 2m & 3.5m from the left & right support for a length of 8m of the beam.
5. Determine the horizontal force P to be applied to a block weighing 2500N to hold it in position,the inclined plane is smooth & makes $30^0$with the horizontal.

PAPER NAME: THERMODYNAMICS
PAPER CODE: PC-ME-301

1. Derive the expression for COP in case of heat pump.
2. Derive the 2^{nd} law of thermodynamics.
3. Discuss the concept of PMM1 .
4. Show that work is a path function and not the property of system.
5. Derive the expression for the work done for closed system for all possible proceses.

PAPER NAME : MANUFACTURING PROCESSES
PAPER CODE : PC-ME-302

1. a) Define cutting speed, feed and depth of cut including their units in case of shaping machine.
   b) Find the time required on a shaping machine for completing one cut on a plate 200mmx300mm if the cutting speed is 10mm**/** unit. The return to cutting time ratio is 2:3. Assume approach =50mm, over travel =25mm, allowance on either side of the plate width =5mm and feed/ cycle = 1mm.Explain various types of chips.
2. Define rake angle , clearance angle , cutting edge angle, inclination angle and nose radius.
3. How to specify a lathe. Describe various lathe parts.
4. Proved $\gamma_x=\gamma_o=\gamma_n$ where γ_x = side rake, γ_0= orthogonal rake. γ_n= normal rake.
5. a) Draw and levelling geometry of drilling cutter.
   b) Find the time required on a shaping machine for completing one cut on a plate 200mmx300mm if the cutting speed is 10mm**/** unit. The return to cutting time ratio is 2:3. Assume approach =50mm, over travel =25mm, allowance on either side of the plate width =5mm and feed/ cycle = 1mm.
   c) What are the different between up milling and down milling.

B.TECH-3RD SEM-ME-PRACTICAL
PAPER NAME : PRACTICE MANUFACTURING PROCESSES
PAPER CODE : PC-ME-391

1. Name and explain four operations that can be performed on a lathe machine. Write function of
2. lead screw and feed rod of a lathe machine.
3. Explain working principle of lathe machine. Explain the term cutting speed, feed, depth of cut, in relation to turning.
4. Write short note any two
   I. Welding cables
   II. Electrode holder
   III. Ground clamp
   IV. Touch and with draw

B.TECH-3RD SEM-CE-THEORY
PAPER NAME: BIOLOGY FOR ENGINEERS
PAPER CODE : CE(BS) 301

Answered the all questions given below:

(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 frist and second law of thermodynamics.
(5) Discuss two mechanism of enzyme action.

PAPER NAME: ENGINEERING MECHANICS
PAPER CODE : CE(ES) 301

1. Discuss about i) Angular Acceleration ii) Amplitude iii) Simple Harmonic Motion.
2. Discuss about i) Parallelogram law of forces,ii) Lamis Theorem.iii) Varignon"s principle of moments.
3. Discuss about i) Mechanical Advantage ii)Efficiency of the machine iii) Reversible Machine.
4. ABCD is rectangle, in which AB= CD =100 mm and BC=DA=80mm.Forces of 100N each act along AB and CD and forces of 50 N each at along BC and DA. Find the resultant moment of the two couples.
5. Find the centre of gravity of a channel section 100mm x 50mm x 15mm.

PAPER NAME : ENERGY SCIENCE & ENGINEERING
PAPER CODE : CE(ES) 302

1. Differentiate between renewable energy & non renewable energy.
2. Write a short note on Carbon footprint.
3. What is green building concept? Explain its importance.
4. How can sustainable development be defined
5. What are the different types of coal mining?

PAPER NAME: MATHEMATICS-III
PAPER CODE: CE(BS)302

1. Prove that the number of internal vertices in a binary tree is one less than the number of pendant vertices.
2. Apply convolution theorem to find inverse Laplace transform of $\frac{s}{(s^2+9)^2}$
3. What is the solution of the recurrence relation
$a_n - 6a_{n-1} + 9a_{n-2} = 0$ with initial conditions $a_0=1; a_1 = 6$
4. Every subgroup of a cyclic group is cyclic.
5. Show that the set of rational numbers other than 1, Q' forms a group under the binary operation * defined by a*b = a + b –ab : a,b $\in Q$.

PAPER NAME: HUMANITIES-I
PAPER CODE: CE-HS-301

1. What is communication? What makes technical communication different from general communication?
2. Write Short note about: Informal channel of communication and Downward communication.
3. Write a job application for the post of Junior Engineer to the HRA in an M.N.C with your c.v.
4. Discuss about good manners and positive behaviour for interview.
5. Assume that you are the Managing director of Innovation software limited. You have to write a memo to all your sales staff informing them that the company has decided to give an incentive at the rate of five percent to all the sales staff from July 2019.

PAPER NAME: INTRODUCTION TO CIVIL ENGINEERING
PAPER CODE: CE-HS-302

1. Write short notes on Coulombs Law and Angle of Internal Friction.
2. Write down a short note about different types of rocks.
3. How does the architecture play a crucial role in civil engineering?

4. a) What is void ratio and porosity of soil? What are the range of these two parameters?
   b) Write down short notes about various types of foundation with neat sketch. Such as, Isolated foundation, Combined foundation, Raft foundation, Grillage foundation, Pile foundation.
5. Write down the kind of work done by the following software. (i) MATLAB (ii) MIKE 21 (iii) AUTOCAD (iv) ArcGIS (v) GEOSTUDIO

B.TECH-3RD SEM-CE-PRACTICAL

PAPER NAME: BASIC ELECTRONICS
PAPER CODE: CE-ES-391

1. Briefly explain the operation of Bridge rectifier with neat sketch.
2. Explain the circuit diagram of Full-Wave rectifier.
3. Draw the V-I characteristic of a Diode & explain.
4. Draw and explain the CB Configuration of BJT.

PAPER NAME: BIOLOGY LAB
PAPER CODE: CE-ES-393

1. How new plant development by tissue culture.
2. Explain mean , mode, median and standard deviation with an example.
3. Explain the process of DNA replication.
4. Write a short note on Ecosystem.

B.TECH-3RD SEM-ECE-THEORY

PAPER NAME: ELECTRONICS DEVICES
PAPER CODE: EC 301

1. What is Diode? Explain its characteristics.
2. Briefly explain the operation of half wave rectifier.
3. What do you mean by – Doping of the Semiconductor?
4. What is the difference between Zener Breakdown & Avalanche Breakdown?
5. Draw the V-I characteristic of a Diode & explain.

PAPER NAME: DIGITAL SYSTEM DESIGN
PAPER CODE: EC 302

1. Briefly explain the De Morgan's statement.
2. Explain Binary number system.
3. Briefly explain the difference between the octal and Hexa- decimal number system.
4. What do you mean by – Logic Gates in Digital?
5. What is the difference between Logic symbol and truth table of the different logic gates?

PAPER NAME: SIGNALS & SYSTEM
PAPER CODE: EC 303

1. State and prove Sampling theorem.
2. What is aliasing effect? How can we overcome from this effect?
3. What do you mean by even and odd signal? Explain with an example.
4. State the condition required for existence of Fourier Transform.

5. Define energy and power signal. Write various forms of Fourier series representation for continuous time periodic signal.

PAPER NAME: NETWORK THEORY
PAPER CODE: EC 304

1. Define various Theorems of Networks.
2. What is Laplace transformation? Draw and explain the working principle of 2-port Networks.
3. What are the major advantages of Fourier transform over Laplace transformation?
4. With diagram, explain the operation of various types of connected graphs.
5. Briefly discuss about LTI Systems.

PAPER NAME: DATA STRUCTURE & ALGORITHM
PAPER CODE: ES-CS 301

1. a) State and explain different types of string functions with example.
   b) Explain dynamic memory allocation and releasing dynamically allocated memory.
2. a) Explain in detail array of structure and pointer to structure.
   b) State and explain various modes of file opening and file closing.
3. What do you mean by pre-processor? Explain in detail macros.
4. a) Define array. Explain different types of array in detail.
   b) State and explain various types of standard function with example.
5. a) State and explain different phases used in user defined function.
   b) Explain function with return and function with arguments with example.

PAPER NAME: PROPABILITY & STATISTICS
PAPER CODE: BS-M301

(1) a) Write down the polynomial(interpolation formula) of degree three relevant to the data:

X	-1	0	1	2
f (x)	1	1	1	-5

b) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that

(i) exactly two will be defective (ii) none will be defective (iii) at least two will be defective.

2. a) Prove that the nth order divided difference of a polynomial of degree n is constant.

b) Evaluate $\int_0^1 (4x - 3x^2)dx$, *taking 10 intervals, by simpson's one − third rule.* Compute the exact value and find the absolute and relative errors in your result.

3. a) 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?

b) The probability that a pen manufactured by a company will be defective is 1/10. If 12 such pens are manufactured, find the probability that

(i) exactly two will be defective (ii) none will be defective (iii) at least two will be defective.

B.TECH-3RD SEM-ECE-PRACTICAL

PAPER NAME: ELECTRONICS DEVICE LAB
PAPER CODE: EC391

1. Briefly explain the operation of Bridge rectifier with neat sketch.
2. State the operations of Doping in the Semiconductor.

3. Explain the circuit diagram of Full-Wave rectifier.
4. Explain the operations of the frequency response of an Amplifier.

PAPER NAME: DIGITAL SYSTEM DESIGN LAB
PAPER CODE: EC392

1. Sketch with neat diagram of Logic Gates for Digital signals?
2. Explain the operation of Flash type ADC?
3. Explain the Boolean - algebra in Digital Electronics.
4. Sketch with neat diagram of Logic Gates for Digital signals?

PAPER NAME: DATA STRUCTURE LAB
PAPER CODE: ES-CS391

1. Bubble Sort using C.
2. Stack Push-Pop operation using C
3. Linear Search using C.
4. Binary Search using C

PAPER NAME: ENVIRONMENTAL SCIENCE
PAPER CODE: EC381

1. Write a short note on Grassland ecosystem.
2. Enumerate the concept of Environment destruction.
3. Discuss the causes and effects Ozone layer Destruction.
4. Write a short note on renewable and non-renewable resources.
5. Mention The Importance of population study in environmental engineering.

B.TECH-5TH SEM-CSE-THEORY

PAPER NAME: SOFTWARE ENGINEERING
PAPER CODE : ESC 501

1. a) What is SRS? Write down the features of a good SRS.
b) A project was estimated to be 500 KLOC. Calculate the effort development time, average Staff size and productivity level for the Semi detached model Organic model
2. What is the difference between Cohesion and coupling? With proper example explain why a Good system requires high cohesion low coupling?
3. What is testing? What is the importance of testing? What are terms related to testing?
4. Differentiate between black box testing and white box testing. What is acceptance testing?
5. a) Define DFD. Explain all the symbols present in DFD.
b) What is software crisis? How it can be avoided?

PAPER NAME: COMPILER DESIGN
PAPER CODE: PCC-CS 501

1. Describe about Cross compiler with example.
2. How the following statement is translated via the different phases of compilation? Explain.
   MOTION = DISTANCE + RATE * DISPLACEMENT + 70.
3. What is an operator precedence parser? List the advantages and disadvantages of operator precedence parser.
4. What do you mean by Thomson Construction? Explain with an example.
5. What is type checking? Differentiate between Dynamic and Static type checking.

PAPER NAME: OPERATING SYSTEMS

PAPER CODE: PCC-CS 502

1. Consider a system with a 32bit logical address space, a two level paging scheme, 4 byte page table entries, 1 kb pages and a 4 entry TLB. The page table base register access time is 0ns, TLB access time is 10ns and memory access time is 100ns.
   i) How many address bits are needed for the page offset?
   ii) How much memory in bytes is required to store the outer page table entirely in main memory?
2. What is the problem of fragmentation and how can it be solved?
3.
   a) Briefly explain the critical section problem.
   b) Mention the criteria which must be satisfied to solve the critical section problem.
   c) What is semaphore? What are the alternatives?
   d) Briefly explain the role of semaphore in relation to critical section problem.
   e) Differentiate between pre-emptive and non pre-emptive scheduling of processes.
4.
   a) Describe the task of long term, short term and medium term scheduler with diagram.
   b) Consider the following set of processes. CPU burst times of them are given bellow in milliseconds.

process	Burst time	Arrival time
P1	3	1
P2	8	0
P3	1	2
P4	5	4
P5	2	5

   the gnat chart and calculate average waiting time, average turnaround time for
   i) FCFS
   ii) R.R scheduling where time quantum q=2 milliseconds.
   iii) SRTF

5. What is deadlock? Describe the necessary and sufficient conditions for the occurrence of deadlock. "All unsafe states may not lead to deadlock". Why or why not?

PAPER NAME: OBJECT OREINTED PROGRAMMING
PAPER CODE: PCC-CS 503

1. What is the difference between an Inner class and a Sub class?
2. What are the various access specifiers for java classes?
3. What are literals in java? What is the difference between java and c++ in respect of language functions?
4. What is parametric and non –parametric constructor? Explain both with a suitable program.
5. What is string buffer class? Explain with a suitable program.

PAPER NAME: INTRODUCTION OF INDUSTRIAL MANAGEMENT
PAPER CODE: HS-MC501

1 What is inflation? Differentiate inflation and deflation. Discuss various causes and effects of inflation.

2. Explain decision making process in details. Discuss any one estimating model.

3. What are the advantages and disadvantages of Net Present Value, Internal Rate of Return, Pay Back Period, Accounting Rate of Return and Profitability Index?

4. Define Time Value of Money. Discuss its importance. List out different types of engineering costs.

PAPER NAME: ARTIFICAL INTELLIGENCE
PAPER CODE: PEC-IT501B

1. Define Decision Tree. Describe common decision pruning algorithm.

2. Convert the following English statements to statements in first order logic:
a) Every boy or girl is a child
b) Every child gets a doll or a train or a lump of coal
c) No boy gets any doll
d) No child who is good gets any lump of coal
e) Jack is a boy.
3. Prove of Admissibility and Completeness of A*.
4. What are the Rules of Inference? Define resolution refutation.
5. Compare the depth-first search and breadth-first search algorithms by writing out their advantage and disadvantages.

PAPER NAME: CONSTITUTION OF INDIA
PAPER CODE: MC-CS501

1. Describe the Fundamental rights of Indian Citizen mention in our Constitution.
2. Write down the role and power of Governor of any state.
3. Describe the organization of Supreme court.
4. What is Habeas Corpus? What is the importance of Directive Principle Of State Policy?
5. Describe about the Jurisdiction and power of the High Court.

B.TECH-5TH SEM-CSE-PRACTICAL

PAPER NAME: SOFTWARE ENGINEERING LAB
PAPER CODE: ESC591

1. Draw a DFD of Library Management system (upto 3 levels).
2. Draw a DFD of Hospital Management system (upto 3 levels).
3. Draw an use case diagram of ATM system.

PAPER NAME: OPERATING SYSTEMS LAB
PAPER CODE: PCC-CS 592

1. Addition of two numbers using Linux.
2. Calculate months and days from 98 days Using Linux.
3. Greater of three numbers Using Linux.
4. Check the number is even or odd Using Linux.

PAPER NAME: OBJECT OREINTED PROGRAMMING LAB
PAPER CODE: CS 593

1) Java Program to Print an Integer
2) Java Program to Add Two Integers
3) Java Program to Multiply two Floating Point Numbers
4) Java Program to Find ASCII Value of a character
5) Java Program to Swap Two Numbers

B.TECH-5TH SEM - EE & EEE- THEORY

PAPER NAME: ELECTRIC MACHINE-II
PAPER CODE: PC-EE/EEE 501

(1) Write down the similarities and dissimilarities between a transformer and three phase Induction motor.
(2) Develop the equivalent circuit of a 3 phase Induction motor.
(3) Explain the necessity of starter in Dc motor and describe three point starter with a neat sketch.
(4) Derive the emf equation of dc generator, what is back emf?
(5) Explain the function of commutator in a Dc machine.

PAPER NAME: POWER SYSTEM-1
PAPER CODE: PC-EE/EEE 502

1. Classify various types of substations according to service requirements and explain
2. Discuss the installation and maintenance of gas insulated substations
3. Define corona. What are the different factors affecting corona?
4. What are the advantages and disadvantages of corona?
5. What is tariff? What are the desirable characteristics of tariff? Discuss in details the different types of tariff.

PAPER NAME: CONTROL SYSTEM
PAPER CODE: PC-EE/EEE 503

1. Write short notes on the following
   a) *AC* servomotor
   b) Necessity of PID control
2. What is SISO & MIMO system?
3. Write the advantages & disadvantages of closed control loop system ?
4. State the Mason's gain formula. State the Routh-Hurwitz criterion formula.
5. Write short notes on the following
   c) *AC* Tachometer
   d) Synchro Transmitter

PAPER NAME: POWER ELECTRONICS
PAPER CODE: PC-EE/EEE 504

1) Draw the *V-I* characteristics of a thyristor? What is the effect of gate current on the characteristics? Explain.
2) Discuss gatetriggering of a thyristor.
3) Draw and explain dynamic or switching characteristics of an SCR.
4) What is a cycloconverter? What benefits does it offer in comparison to inverter?
5) With the help of schematic diagram and relevant waveforms, explain the operation of 3phto 1phcycloconverter.

PAPER NAME: POWER PLANT ENGINEERING
PAPER CODE: PE-EE/EEE 501B

1. What is the source of tidal energy? Discuss its advantages and disadvantages.
2. Discuss different bio-mass energy resources. Explain single dome system.
3. What are the major applications of geothermal energy and explain various types of geothermal resources.
4. What are the different between water tube and fire tube boiler. Name different stages of coal handling plant.
5. What do you understand by the load curve? What information is conveyed by a load curve?

PAPER NAME: OBJECT ORIENTED PROGRAMMING
PAPER CODE: OE-EE/EEE 501B

1. What is the difference between an Inner class and a Sub class?
2. What are the various access specifiers for java classes?
3. What are literals in java? What is the difference between java and c++ in respect of language functions?
4. What is parametric and non –parametric constructor? Explain both with a suitable program.
5. What is string buffer class? Explain with a suitable program.

B.TECH-5TH SEM - EE & EEE- PRACTICAL

PAPER NAME: ELECTRIC MACHINE-II LAB
PAPER CODE: PC-EE/EEE 591

A) Answer any TWO of the following questions: 2x20=40

1) Different methods of starting of a 3-phase cage induction motor & their comparison [DOL, Auto transformer & star-delta]
2) Determination of equivalent circuit parameters of a single phase induction motor
3) To study the performance of induction generator
4) Load test on wound rotor Induction motor to obtain the performance characteristics.
5) Speed control of 3 phase squirrel cage induction motor by different methods & their comparison [voltage control & frequency control].

PAPER NAME: POWER SYSTEM-1 LAB
PAPER CODE: PC-EE 592(FOR EE ONLY)

A) Answer any TWO of the following questions: 2x20=40

1) Study of different types of insulator.
2) Active & reactive power control of alternator.
3) Determination of the generalized constants A,B,C,D Of long transmission line
4) Dielectric constant, tan delta, resistivity test of transformer oil.
5) Dielectric strength test of insulating oil.

PAPER NAME: CONTROL SYSTEM LAB
PAPER CODE: PC-EE 593/PC-EEE 592

A) Answer any TWO of the following question: 2x20=40

1. Familiarization with MATLAB control system toolbox, MATLAB-SIMULINK toolbox and PSPICE.
2. Study of step response for first and second order system with unity feedback with display on CRT screen and calculation of parameters for different system designs.
3. Simulation of impulse response for types 0, 1 and 2 with unity feedback using MATLAB and PSPICE.
4. Determination of root-locus, Bode plot, Nyquist plot using MATLAB toolbox for a given second order transfer function and listing of the specifications.
5. Determine the effect of P, I, D actions on first order simulated process and obtaining the system transfer functions from Bode plot.

PAPER NAME: POWER ELECTRONICS LAB
PAPER CODE: PC-EE 594/PC-EEE 593

A) Answer any TWO of the following question: 2x20=40

1. Study of characteristics of an SCR.
2. Study of the operation of a single phase full controlled bridge converter with R and RL load.
3. Study of the characteristics of a Triac.
4. Study of the performance of a single phase half controlled symmetrical bridge converter with R and RL load.
5. Study of the performance of a single phase half controlled asymmetrical bridge converter with R and RL load.
6. Study of different triggering circuit of an SCR.

B.TECH-5TH SEM-AEIE -THEORY

PAPER NAME:CONTROL SYSTEM
PAPER CODE : PC-EI501

1. Write short notes on the following

a) *AC* servomotor
b) Necessity of PID control

2. What is SISO & MIMO system?
3. Write the advantages & disadvantages of closed control loop system ?
4. State the Mason's gain formula. State the Routh-Hurwitz criterion formula.
5. Write short notes on the following
   a) *AC* Tachometer
   b) Synchro Transmitter

PAPER NAME: COMMUNICATION TECHNIQUES
PAPER CODE : PC-EI502

1. Compare AM and FM with respect to broadcast band and intermediate frequency.
2. Define sampling theorem.
3. What is noise temperature?
4. What is white noise?
5. Define AM and draw its frequency spectrum.

PAPER NAME: ELECTROMAGNETIC THEORY
PAPER CODE : PC-EI 503

1. Find the directional derivative of $\emptyset = x^2yz + 4xz^2$ at (1,-2,-1) along the direction $2\hat{\imath} - \hat{\jmath} - 2\hat{k}$.
2. What is diamagnetic material? Derive Langevin's formula for the molecular diamagn--etic susceptibility. Why diamagnetic susceptibility is negative?
3. What do you mean by Larmor Precession? Define magnetization and show that $\vec{B} = \mu_0 (\vec{H} + \vec{M})$, the symbols have their usual significance.
4. An ac voltage source is connected across the two plates of an ideal parallel plate capacitor. If the applied ac voltage $V = V_0 \sin wt$, then verify that the displacement current in the ideal capacitor is equal to the conduction current through the wire.
5. Distinguish between polar and axial vector with example.

PAPER NAME: OPTICAL INSTRUMENTATION
PAPER CODE : PE EI 501

1. What is step-index Fiber? Write its advantages.
2. What are the physiological effects of electrical current?
3. Briefly explain Instrumentation Techniques in optical.
4. What is light emitting diode?
5. What is attenuation?

PAPER NAME: EMBEDDED SYSTEM
PAPER CODE : PE-EI503

1. What is embedded system? Write its advantages.
2. Draw NAND, NOR gate using CMOS logic design.
3. Explain the difference between avalanche and zener breakdown.
4. State the moor's law and state the advantage of scaling in MOSFET in VLSI and design.
5. Draw and explain the small signal model of BJT.

PAPER NAME: OBJECT ORIENTED PROGRAMMING
PAPER CODE : OE-EI501

1. What is the difference between an Inner class and a Sub class?
2. What are the various access specifies for java classes?
3. What are literals in java? What is the difference between java and c++ in respect of language functions?
4. What is parametric and non –parametric constructor? Explain both with a suitable program.

5. What is string buffer class? Explain with a suitable program.

B.TECH-5TH SEM-AEIE -PRACTICAL

PAPER NAME:CONTROL SYSTEM LAB

PAPER CODE : PC-EI591

A) Answer any TWO of the following question: 2x20=40

1. Familiarization with MATLAB control system toolbox, MATLAB-SIMULINK toolbox and PSPICE.
2. Study of step response for first and second order system with unity feedback with display on CRT screen and calculation of parameters for different system designs.
3. Simulation of impulse response for types 0, 1 and 2 with unity feedback using MATLAB and PSPICE.
4. Determination of root-locus, Bode plot, Nyquist plot using MATLAB toolbox for a given second order transfer function and listing of the specifications.
5. Determine the effect of P, I, D actions on first order simulated process and obtaining the system transfer functions from Bode plot.

PAPER NAME: OBJECT ORIENTED PROGRAMMING LAB

PAPER CODE : OE-EI591

1) Java Program to Print an Integer
2) Java Program to Add Two Integers
3) Java Program to Multiply two Floating Point Numbers
4) Java Program to Find ASCII Value of a character
5) Java Program to Swap Two Numbers

PAPER NAME: INDUSTRIAL INSTRUMENTATION LAB

PAPER CODE : PC EI 592

1. Explain different types of sensors with suitable diagram.
2. Explain the characteristics of LDR With neat sketch.
3. Briefly explain about the measurement of strain gauge.
4. Explain with neat diagram of temperature measurement using AD590 IC sensor.

B.TECH-5TH SEM-CE-THEORY

PAPER NAME: DESIGN OF RC STRUCTURE

PAPER CODE: CE(PC)-501

1. Discuss about Bond stress and Two way slabs.
2. What is moment of resistance? Find the moment of resistance of a beam 450x600 mm effective, reinforced on tension side with four 20mm Ø bars. Assume concrete M15 and mild steel.
3. An R.C.C. beam is constructed with M15 grade concrete and mild steel. The size of the beam is 350x 450mm effective .If it is subjected to a factored moment of 50 KN-m. Find the area of steel required.
4. A doubly reinforced beam 250x 600mm overall has to resist a factored moment of 200 KN-m. Find amount of steel required on compression and tension side, if cover on the both sides is 50mm. Concrete M15 and mild steel.
5. Design a RCC slab of dimension 4 m × 5 m whose adjacent edges are continuous and remaining two edges are discontinuous, against a live load of 4·5 KN/m2 M20 concrete and Fe 415 grade steel should be used. Apply 'Limit state method of design' as per IS 456.

PAPER NAME: ENGINEERING HYDROLOGY

PAPER CODE: CE(PC)-502

1. Write short notes on Float type Rain gauge and Tipping bucket type rain gauge.
2. Describe about Aquifers and their types.
3. What are the causes for failure of a dam?
4. State the factors governing for selection of a Barrage.

5. Define fish ladder and ogee spill way.

PAPER NAME:STRUCTURAL ANALYSIS-I
PAPER CODE : CE(PC)503

1. Write down difference between determinate structures and in determinate structures.
   What do you mean by free body diagram? Explain in detail.
2. Define ultimate stress, breaking stress, percentage elongation and percentage reduction in area.
3. a) Write down the assumptions of bending theory of thin plates. Draw the shear force and bending moment diagram for cantilever beam with gradually varying load.
   b) Determine the rotation and deflection at the free end of the cantilever beam subjected to u.d.l over an entire span.
4. a) What is membrane theory of shell?
   b) What are the assumptions taken in slope deflection method? Dereive the slope deflection equations.
   c) Derive the equations of membrane theory of cylindrical shell. What is stiffness of a spring?
5. Derive the stiffness matrix of a 3 noded two dimension truss element from first principle using Finite Element formulation .state the assumptions in the theory of bending.

PAPER NAME:SOIL MECHANICS-II
PAPER CODE : CE(PC)504

1. Discuss about retaining wall and their types.
2. A footing of 2 m square is laid at a depth of 1·3 m below the ground surface. Determine net ultimate bearing capacity using IS code method. Given γ=19 KN/m^3, Ø=34^0, c=0, N_C=12.2, N_γ=7.9, Nq=13.7, S_C=10.2, Sγ=6.9, Sq=12.7,
3. What is the design method of anchors for bulkhead?
4. What is site investigation and soil exploration?

PAPER NAME: ENVIRONMENTAL ENGINEERING-II
PAPER CODE : CE(PC)505

1. Discuss about Centrifugal pump and Air lift pump.
2. Discuss about system of sewerage.
3. What is the method for hydraulic design of pressure pipes?
4. What are the factors affecting demand?
5. List the mitigation measures to remove air pollution.

PAPER NAME: TRANSPORTATION ENGINEERING
PAPER CODE : CE(PC)506

1. What are transition curves? Explain summit and valley curve with figures.
2. Explain 'ESWL' briefly explain the graphical method determination of 'ESWL'
3. What are the basic requirements of an ideal highway alignment?
4. Compute the equivalent radius of resisting section of 20cm thick slab given that the radius of contact area wheel load is 15 cm.
5. (i) What are the tests done to judge the toughness, strength and hardness of a highway aggregate?
   (ii) Draw the structure of a flexible pavement showing its different layers.
   (iii) What is the 98^{th} percentile speed of a highway and what is its value?

PAPER NAME: CONSTITUTION OF INDIA
PAPER CODE : CE(MC)501

1. Describe the Fundamental rights of Indian Citizen mention in our Constitution.
2. Write down the role and power of Governor of any state.
3. Describe the organization of Supreme court.
4. What is Habeas Corpus? What is the importance of Directive Principle Of State Policy?

5. Describe about the Jurisdiction and power of the High Court.

B.TECH-5TH SEM-CE-PRACTICAL

PAPER NAME: RC STRUCTURE SESSIONAL

PAPER CODE: CE(PC)-591

1. Design any type of single reinforced beam in L.S.M.
2. Design a two way slab in any method.
3. Discuss about slump test.
4. Discuss about compressive strength test.

PAPER NAME:SOIL MECHANICS LAB

PAPER CODE : CE(PC)594

1. Write the determination procedure of natural moisture content.
2 Write the determination procedure of grain size distribution.
3. Write the determination procedure of Atterberg limits(liquid limit, Plastic limit, Shrinkage limit.
4. Write the determination procedure of shear strength.

PAPER NAME: ENVIRONMENTAL ENGINEERING LAB

PAPER CODE : CE(PC)595

1. Write the determination procedure of turbidity for a given sample water.
2. Write the determination procedure of pH value of water.
3. Write the determination procedure of hardness of water.
4. Write the determination of B.O.D. for a given sample.

PAPER NAME: TRANSPORTATION ENGINEERING LAB

PAPER CODE : CE(PC)596

1.Write Determination procedure of crushing strength test of aggregate.
2.Write Determination procedure of impact strength test of aggregate.
3.Write Determination Procedure of Los Angeles test of aggregrate.
4.Write determination procedure of Penetration Test,

PAPER NAME: COMPUTER APPLICATION IN CE

PAPER CODE : CE(PC)597

1. a) What is a Function? Give an example.
   b) What is recursion? Write the difference between recursion and iteration.
   c) Write a program to print the Fibonacci series up to N
2. a) What is string in C?
   b) Explain working principle of any four string function.
   c) What do you mean by calloc() and malloc()?
   d) Write a program to print the following pattern

B.TECH-5TH SEM-ME-THEORY

PAPER NAME:-HEAT TRANSFER

PAPER CODE : PC-ME501

1) Derive 1-D equation and also write expression for 2-D and 3-D equation.
2) Explain Critical thickness of insulation and derive with neat sketch.
3) Explain the Fourier's law for Isotropic materials.
4) Define Radiation and law of Radiation.
5) Explain Emissive Power, intensity of radiation, irradiation, and radiosity in detail and if necessary derive its expression.

PAPER NAME: SOLID MECHANICS
PAPER CODE : PC-ME502

1. Explain the stress at a point with suitable figure?
2. Define elasticity and Plasticity.
3. Explain Plane stress and Plain strain.
4. Explain principal Plane with derivation.
5. Explain the term 'condition of pure shear'.

PAPER NAME: KINEMATICS & THEORY OF MACHINES
PAPER CODE: PC-ME503

1. Show that the ratio of successive amplitudes of oscillations is constant in damped vibratory system

2. What are the difference between flywheel and governor? What is the sensitiveness of governor?
3. A punching machine carries out 8 holes per min. Each holes of 45 mm diameter in 35 mm thick plate requires 15 Nm of energy/mm^2 of the seared area. The punch has a stroke of 85mm. Find the power of the motor required if the mean speed of the flywheel is 20 m/s. If total function speed is not exit2.83% of the mean speed. Determine the mass of the flywheel.
4. The arms of a Hartnell governor are of equal length. When the sleeve is in the mid position, the masses rotated in a circle with a diameter of 300 mm (the arms are vertical in the mid position) . Neglecting friction, the equilibrium speed for this position each 400 rpm. Maximum variation of speed taking friction into account, is to be 2.5% of the mid position speed or a maximum sleeve movement of 30 mm. The sleeve mass is 4 kg and the friction at the sleeve 35N. Assuming that the power of the governor is sufficient to over cum the friction by 1.5% change of speed on each side of the mid position, find (neglecting obliquity effect of arms), the
   I. Mass of each rotating ball
   II. Spring stiffness
   III. Initial compression of spring.
5. The torque developed by an engine is given by the following equation:
   $T= 20250 + 4200 \sin 2\alpha - 2500 \cos 2\alpha$
   Where T is the torque in N-m and α is the crank angle from the inner dead centre position. The resisting torque of the machine is constant throughout the work cycle. The coefficient of speed fluctuation is 0.03. The engine speed is 350 rpm. A solid circular steel disk, 60 mm thick, is used as a flywheel. The mass density of steel is 7800 kg/m^3 . Calculate the radius of flywheel disk.

PAPER NAME: HUMANITIES
PAPER CODE: HMHU501

1. What is communication? What makes technical communication different from general communication?
2. Write Short note about: Informal channel of communication and Downward communication.
3. Write a job application for the post of Junior Engineer to the HRA in an M.N.C with your c.v.
4. Discuss about good manners and positive behaviour for interview.
5. Assume that you are the Managing director of Innovation software limited. You have to write a memo to all your sales staff informing them that the company has decided to give an incentive at the rate of five percent to all the sales staff from July 2019.

PAPER NAME : ESSENCE OF INDIAN KNOWLEDGE TRADITION
PAPER CODE : MC501

A. Define traditional knowledge and it's characteristics.
B. Define Systems of traditional knowledge protection.
C. Define TheBiologicalDiversityAct2002.
D. Traditional societies depend on it for their food and healthcare needs-Discuss it.

B.TECH-5TH SEM-ME-PRACTICAL

PAPER NAME: MECHANICAL ENGINEERING LABORATORY I (THERMAL)
PAPER CODE: PC-ME591

1. Determination of dryness fraction of steam by combined separating and throttling calorimeter. What is dryness fraction? What is superheated vapour? What do you understand by triple point ? Draw the phase equilibrium diagram for a pure substance on T-S plot with relevant constant property lines.
2. Determination of thermal conductivity of a metal rod. What is steady and unsteady heat transfer? Write the assumption of Fourier law. Define critical thickness of insulation.
3. Determination of thermal conductivity of an insulating powder. What is conduction? State Fourier's law of conduction. Define Thermal conductivity. Explain conduction mechanism of solid, liquid and gas.

PAPER NAME: MACHINE DRAWING-II
PAPER CODE: PC-ME592

1. Draw the assembly drawing of protective type flange coupling.
2. Draw the cross head & connecting rod of steam engine.
3. Draw detail drawing of plummer block

B.TECH-5TH SEM-ECE-THEORY

PAPER NAME: ELECTROMAGNETIC WAVE
PAPER CODE: EC 501

1. Describe the classification of random processes according to state space and parameter space.
2. Mention the Digital transmission components.
3. Describe Pulse Amplitude Modulation (PAM).
4. Give the geometrical representation of BPSK signal.
5. Mention error probability of MSK signal.

PAPER NAME: COMPUTER ARCHITECTURE
PAPER CODE: EC 502

1) What do you mean by pipeline hazards?
2) Describe structural hazards
3) Describe RISC and CISC with the help of block diagram.
4) Compare RISC and CISC.
5) What do you mean by hardware and micro program control unit?

PAPER NAME: DIGITAL COMMUNCATION AND STOCHASTIC PROCESS
PAPER CODE: EC-503

1. Draw & explain about the various Digital-communication systems.
2. What are the differences between the TDMA & FDMA?
3. What is Gaussian-noise? Briefly explain.
4. What is the significance of noise in various communication systems?
5. Define FM and draw its frequency spectrum.
6. What do you mean by multiple accesses in communication?

PAPER NAME: DIGITIAL SIGNAL PROCESSING
PAPER CODE: EC-504

1. Discuss the operations of LTI System. What do you mean by DSP?
2. What are different components of ADE?
3. Explain the fundamental difference between the FFT & DFT.

4. Explain Transfer Function. What is DFT?
5. What is the fundamental difference between ASP & DSP?
6. Explain various Digital signal processing techniques.

PAPER NAME: POWER ECLECTRONICS
PAPER CODE: PE-EC505C

1. Draw and explain the switching characteristics of power MOSFET.
2. Explain with necessary waveforms, the principle of operation of an RC triggering circuit for triggering of SCR.
3. Draw and explain dynamic or switching characteristics of an SCR.
4. Explain the principle of operation of step- up chopper with *R* load. Deduce the expression of *O*/*P* voltage of such chopper.
5. Draw the *V-I* characteristics of a thyristor ? What is the effect of gate current on the characteristics ?

PAPER NAME: HUMAN RESOURCE MANAGNMENT
PAPER CODE: OE-EC506C

1. What is Human Resource Planning
2. What is Human Resource Development
3. Difference between HRD AND HRP?
4. What is recruitment
5. What is the difference between recruitment and selection?

PAPER NAME: EFFECTIVE TECHNICAL COMMUNICATION
PAPER CODE: MC-HU 501

1. Give a brief idea about technical communication.
2. Differentiate between General and Technical Communication.
3. State some barriers to effective communication.
4. What are the 5 c's of a good business letter?
5. Write short notes on:- i) Leaflets ii) Brochures.

B.TECH-5TH SEM-ECE-PRACTICAL

PAPER NAME: ELECTROMAGNETIC WAVE LAB
PAPER CODE: EC 591

1. Draw and explain Constellation diagram.
2. Generation and detection of Coherent Binary FSK signals.
3. Mention someBasic concept of OFDM.
4. Power spectra of QPSK signals.
5. Uniform and non-uniform quantization.

PAPER NAME: DIGITAL COMMUNCATION LAB
PAPER CODE: EC 592

1. Draw & explain the block diagram of BFSK.
2. Draw & explain the block diagram of Delta-Modulation & De-Modulation.
3. Draw & explain the operations of CDMA
4. Draw & explain the operations of GSM.
5. Draw & explain the working operations of WAE model.

6. Draw the block diagram of cellular phone and explain. Deduce the significance of the term GPRS network.

PAPER NAME: DIGITIAL SIGNAL PROCESSING LAB
PAPER CODE: EC 593

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-7TH SEM-CSE-THEORY

PAPER NAME: CLOUD COMPUTING
PAPER CODE: PEC-CS 701B

1. What are the advantages of Cloud Computing?
2. Describe the different cloud service models?
3. What are some of the popularly used cloud computing services?
4. Define Hybrid Cloud
5. What is the difference between the Hybrid Cloud and Hybrid IT?

PAPER NAME: CYBER SECURITY
PAPER CODE: PEC-CS702E

1. Describe about Cross compiler with example.
2. How the following statement is translated via the different phases of compilation? Explain.
   MOTION = DISTANCE + RATE * DISPLACEMENT + 70.
3. What is an operator precedence parser? List the advantages and disadvantages of operator precedence parser.
4. What do you mean by Thomson Construction? Explain with an example.
5. What is type checking? Differentiate between Dynamic and Static type checking.

PAPER NAME: OPERATION RESEARCH
PAPER CODE: OEC-CS 701A

1. Solve the following LP problem graphically:

Maximize $z = -x_1 + 2x_2$

Subject to $x_1 - x_2 \leq -1$

$0.5x_1 + x_2 \leq 2$

And $x_1, x_2 \geq 0$

2. Write the dual of the following primal problem

Maximize $Z = 3x_1 + x_2 + 2x_3 - x_4$

Subject to the constraints

(i) $2x_1 - x_2 + 3x_3 + x_4 = 1$

(ii) $x_1 + x_2 - x_3 + x_4 = 3$

And $x_1, x_2 \geq 0$ and x_3, x_4 unrestricted in sign.

3. Write down the advantages and limitation of Linear Programming.
4. A retailer purchases cherries every morning at Rs 50 a case and sells them for Rs 80 a case. Any case remains unsold at the end of the day can be deposed of the next day at a salvage value of Rs 20

per case(thereafter they have no value). Past sales have ranged from 15 to 18 cases per day. The following is the record of sales for the past 120 days.

Cases sold	: 15	16	17	18
Number of days:	12	24	48	36

Find out how many cases should the retailer purchase per day in order to maximize his profit.

5. Write down the queuing model for {(M/M/1) : (^{N}/FCFS)}.

PAPER NAME: PROJECT MANAGEMENT & ENTREPRENEURSHIP
PAPER CODE: HSMC 701

1) What are the Contributions of entrepreneurs to the society?
2) Briefly describe the Qualities of a prospective Entrepreneur
3) Explain in brief the Achievement motivation theory of entrepreneurship – Theory of McClelland,
4) Explain the Steps of Innovation Management
5) SIDBI

B.TECH-7TH SEM-CE-THEORY

PAPER NAME: METRO SYSTEM & ENGINEERING
PAPER CODE: CE-OE 701A

1. What is bridge? Discuss about the classification of Bridge with sketch.
2. Write short notes on i) Submersible Bridge ii) Afflux iii) Skey Bridge iv) Semi through Bridge
3. What is culvert? Discuss about the different type of culverts with sketch.
4. Discuss about the components of a bridge with sketch.
5. What is pier? Discuss about the different types of piers.

PAPER NAME: HYDRAULIC STRUCTURES
PAPER CODE: CE-PE 701C

1. What is the difference between gravity and embankment dam?
2. Write short notes on stilling basins type.
3. What are the necessity and uses of the diversion head works .
4. Discuss about the components of a Dam with sketch.
5. Discuss about the slip circle method .

PAPER NAME: PRESTRESSED CONCRTE
PAPER CODE: CE-PE 702A

1. What is prestressed concrete?
2. What is loss of stress in prestress?
3. What are the advantages of PSC construction .
4. Define pre tensioning and post tensioning.
5. What is the need for the use of high strength concrete and tensile steel in prestressed concrete ? .

PAPER NAME: AIR AND NOISE POLLUTION & CONTROL
PAPER CODE: CE-PE 703A

1. What is air pollution? Discuss about the effect of air pollution.
2. Write the different type of sources of air pollution.
3. Write down the different type of control measures of air pollution.
4. Discuss about Cyclonic scrubbers with neat sketch.
5. Discuss about Bag filter with neat sketch.

PAPER NAME: ADVANCE STRUCTURAL ANALYSIS

PAPER CODE: CE-PE 704B

1. Explain the term: Null Matrix, Transpose of Matrix and band matrix.
2. Derive the strain and strain-displacement relations for small displacement
3. Derive the shape functions for three nodes beam using usual notations.
4. Explain pre-processing and post processing stage in finite element method.
5. Derive the shape functions for constrain triangle with polynomial function

PAPER NAME: PAVEMENT DESIGN
PAPER CODE: CE-PE 705B

1. What are the desirable characteristics of pavement?
2. Explain different types of flexible pavement failure.
3. Explain the various types' rigid pavement failure.
4. Explain IRC recommendation is the design of dowel bar, tie bar.
5. Write Westergaad's load stress equations at critical regions and discuss critical combination of stress

B.TECH-7TH SEM-EE-THEORY

PAPER NAME: ELECTRIC DRIVE
PAPER CODE: PC-EE-701

(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.

PAPER NAME: POWER GENERATION ECONOMICS
PAPER CODE: PE-EE 701C

1. Explain the flat rate tariff. What is the advantage and disadvantage of flat rate tariff.
2. Define the terms 'Load factor' and 'Diversity factor' and
3. Explain the economic implications of these factors on the cost of generation.
4. Explain briefly the various costs which form the total cost of a power system.
5. What is a tariff? Discuss the types of tariffs.

PAPER NAME: COMPUTER GRAPHICS
PAPER CODE: OE-EE 701C

1. Write two techniques for producing color displays with a CRT.
2. Using Bresenhams's algorithm, show how it draws a line whose end point is (4, 4)and (-3, 0).
3. Discuss and explain ellipse generating algorithm.
4. Prove that two successive two-dimensional rotations are additive.
5. Explain Geometric Transformations.

PAPER NAME: COMPUTER NETWORK
PAPER CODE: OE-EE 702C

1. Write down the differences between OSI and TCP/IP model.
2. Write the functions of the followings:
   i)Router
   ii)Repeater
3. Briefly explain CSMA/CD
4. Write down the difference between TCP and UDP.
5. Name the flow control mechanism of transport layer protocol. Explain leaky –bucket protocol

PAPER NAME: COMPUTER NETWORK
PAPER CODE: EE 705A

1. Write down the differences between OSI and TCP/IP model.
2. Write the functions of the followings:
   i)Router ii)Repeater
3. Briefly explain CSMA/CD
4. Write down the difference between TCP and UDP.
5. Name the flow control mechanism of transport layer protocol. Explain leaky –bucket protocol.

PAPER NAME: PRINCIPLE OF MANAGEMENT
PAPER CODE: HM-EE 701

1) Define delegation of authority. State various elements of delegation.
2) Define long term plans. Differentiate between standing and special use plans.
3) Explain the various steps of MBO process. Give the limitations of MBO. Explain briefly the concept of leadership.
4) Management is both a science and an art----elucidate.
5) Briefly explain Matrix structure of an organization.

B.TECH-7TH SEM-EE-PRACTICAL
PAPER NAME: ELECTRIC DRIVE LAB
PAPER CODE: EE791

A) Answer any TWO of the following question: 2x20=40

1. Study of Chopper fed DC Drive.
2. Study of AC Single phase motor-speed control using TRIAC.
3. PWM Inverter fed 3 phase Induction Motor control using PSPICE / MATLAB / PSIM Software.
4. Study of V/f control operation of 3 Ph. induction motor drive.
5. Study of permanent magnet synchronous motor drive fed by PWM Inverter using Software.

B.TECH-7TH SEM-AEIE-THOERY
PAPER NAME: DIGITIAL CONTROL SYSTEM
PAPER CODE: PE-EI 702

1. How Can We Calibrate A Positioner? Why is derivative control not used alone?
2. Draw the block diagram of a basic process control loop and describe the function of each block in brief.
3. Explain What Is The Working Principle Of The Magnetic Meter?
4. How to Choose Differential Range? What Is The Working Of Rota Meter?

5. What Is Solenoid Valve? Where It Is Used? What Is Ratio Control System?

PAPER NAME: ANALYTICAL INSTRUMENTATION
PAPER CODE: PE-EI 703

1. List the types of electrodes used for pH measurement.
2. Explain the construction details of one of them.
3. Why is reference electrode required 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.

PAPER NAME: TELEMETRY & WIRELESS SENSOR NETWORK
PAPER CODE: OE-EI 701

1. Why *z*-transform require for discrete data analyses ?
2. Draw the basic block diagram of a fuzzy logic based control system.
3. What is an open control system ? What are the advantages of DCS?
4. Draw and explain the block diagram of a process control loop
5. What is a deadbeat response ?

PAPER NAME: COMPUTER NETWORK
PAPER CODE: ES-CS 701

1. Write down the differences between OSI and TCP/IP model.
2. Write the functions of the followings:
   i)Router ii)Repeater

3. Briefly explain CSMA/CD
4. Write down the difference between TCP and UDP.
5. Name the flow control mechanism of transport layer protocol. Explain leaky –bucket protocol.

B.TECH-7TH SEM-ME-THOERY

PAPER NAME: ADVANCE MANUFACTURING TECHNOLOGY
PAPER CODE: PC-ME 701

1. Discuss the mechanism of material removal for Abrasive jet machining (AJM). State their limitations.
2. Describe with neat sketch the working principle of Electro discharge machining (EDM)?
3. Describe with neat sketch the working principle of Laser beam machining (LBM)?
4. Write down the advantages wire cut EDM over conventional EDM.
5. Write principle & advantages Electro chemical machining (ECM) process.

PAPER NAME: AUTOMOBILE ENGINEERING
PAPER CODE: PE-ME 701A

1. Describe with neat sketches the construction & working function of constant mesh gear box & sliding mesh gear box.
2. Draw the layout of Master vac power assisted brakes. Explain the construction & working of main components of this system.
3. Explain with neat sketch the construction of a propeller shaft. Explain the necessity of differential in automobile
4. Enlist the common troubles experienced in the fuel supply system of an engine. Locate their possible causes & suggest measure to remedy these.
5. Draw the diagram fuel mixing and circuit control system.

PAPER NAME: ADVANCE WELDING TECHNOLOY
PAPER CODE : PE-ME702H

1. Explain the principle of non-vacuum electron beam welding. What are its advantages ?
2. Explain principle and operation of LASER beam welding with its advantages and limitation.
3. Explain the term 'transferred modes' and 'non-transferred modes' used in plasma Arc welding. What is 'Plasma' ? Describe plasma arc welding.
4. The electrode M 32432 P is being used for a certain process. What information do you get from various letters and numbers of the above I. S. Code ?
5. Discuss the mechanism of explosive welding. Write the name of some explosives used. Discuss limitations and applications of explosive welding.
6. Mention normally encountered welding defects and remedial measures taken

PAPER NAME: NON CONVENTIONAL ENERGY SOURCES
PAPER CODE: OE-ME701D

1) Explain the Ocean Thermal Energy Conversion Method.
2) Describe the term the Energy Storage System
3) Write a short Note on Development and role of Renewable Sources of Energy.
4) What is Extraterrestrial Solar Radiation? Explain the method of Measurement and Estimation of Solar Radiation. If necessary derive the expression.
5) Explain solar ponds and Solar Concentrators with neat sketch.

PAPER NAME: ECONOMICS FOR ENGINEERS
PAPER CODE: HM-HU 701

1 Discuss variable cost and fixed cost. What do you know about Sunk cost.
2. Explain End –of –Year convention in details. Discuss Borrowed Money View point.
3. What are the advantages and disadvantages of Net Present Value, Internal Rate of Return, Pay Back Period, Accounting Rate of Return and Profitability Index?
4. Define Annual Cash Flow Analysis. Discuss its importance.
5. What are the difference between risk and return? Give examples of indirect and direct cost and also state their differences.

B.TECH-7TH SEM-ME-PRACTICAL

PAPER NAME: MECHANICAL ENGINEERING LABORATORY III (MANUFACTURING)
PAPER CODE : PC-ME 791

1. What is cutter radius compensation? Discuss when it is used and how it is included in part programming. Explain the term preparatory function and miscellaneous function starting where these are used in part programme
2. What are fixed cycle ? What is the difference between fixed cycle and subroutine ? What is subroutine? What are the parameter required to define and use a Do Loop in part programme.
3. Explain briefly with a neat sketch working principle of USM processes. Write its advantages and disadvantages and application.
4. Describe briefly with a neat sketch working principle EDM processes. Write its advantages and disadvantages and application.
5. Explain briefly with a neat sketch working principle of USM processes. Write its advantages and disadvantages and application.

B.TECH-7TH SEM-EEE-THOERY

PAPER NAME: ANALOG AND DIGITAL COMMUNICATION
PAPER CODE: PC-EEE 701

1. Write the differences between ASK and BFSK.

2. What is Frequency-Modulation? Draw its necessary waveform.
3. What are the main advantages of Digital communication over Analog communication?
4. Write the short note of Voltage-controlled oscillator.
5. What is WWE? Draw its model.

PAPER NAME: ELECTRIC DRIVE
PAPER CODE: PE-EEE-701A

(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.

PAPER NAME: COMPUTER NETWORK
PAPER CODE: OE-EEE 701B

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4. Write down the difference between TCP and UDP.
5. Name the flow control mechanism of transport layer protocol. Explain leaky –bucket protocol

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PAPER CODE: OE-EEE 702B

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2. Using Bresenhams's algorithm, show how it draws a line whose end point is (4, 4) and (-3, 0).
3. Discuss and explain ellipse generating algorithm.
4. Prove that two successive two-dimensional rotations are additive.
5. Explain Geometric Transformations.

PAPER NAME: PRINCIPLE OF MANAGEMENT
PAPER CODE: HM-EEE 701

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2. Define long term plans. Differentiate between standing and special use plans.
3 .Explain the various steps of MBO process. Give the limitations of MBO. Explain briefly the concept of leadership.
4. Management is both a science and an art----elucidate.
5. Briefly explain Matrix structure of an organization.

PAPER NAME: ANALOG AND DIGITAL COMMUNICATION LABORATORY
PAPER CODE: PC-EEE 791

1. Briefly narrate about the principle of VSWR Meter with neat sketch.
2. Study the Pulse Amplitude Modulation Technique with neat sketch of its different waveforms.
3. Explain the operation of solar cell with necessary suitable diagrams.
4. Explain the operation of Photo-Diode with necessary suitable diagrams.
5. Explain the Design of a PLL using VCO & measurement the lock frequency.