

INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION

B.TECH-1ST SEM (CSE+EE+AEIE)-THEORY

PAPER NAME : PHYSICS-I

PAPER CODE : BS-PH-101(For CSE)

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

PAPER NAME : CHEMISTRY-I

PAPER CODE : BS-CH-101(For EEE& AEIE)

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

PAPER NAME : MATHEMATICS

PAPER CODE: BS-M101-IA (For CSE)

Answer the following questions.

1 a) Find a basis of R^3 containing the vectors $(1, 1, 0)$, $(1, 1, 1)$.

b) Test the convergence of $\int_0^1 \frac{dx}{x(1-x)}$

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

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

3.a) If $A = \begin{pmatrix} 1 & 0 & 2 \\ 0 & -1 & 1 \\ 0 & 1 & 0 \end{pmatrix}$, then verify that A satisfies its own characteristic equation. Hence find A^{-1} and A^3 .

b) Given the system of equations:

$$x + 4y + 2z = 1$$

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

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

Find for what values of k and m the system has (i) a unique solution (ii) no solution (iii) many solution

4. a) Establish a relation between Beta and Gamma function. .

b) Find the reduction formula for $\int_0^{\frac{\pi}{2}} \sin^m x \cos^n x \, dx$; $m (> 1)$, $n (> 1)$ being positive integers.

5. a) Show that the transformation $T: R^2 \rightarrow R^3$ defined by $T(x, y) = (x - y, x + y, y)$ is a liner transformation.

b) Determine the values of a, b such that $\lim_{x \rightarrow 0} \frac{x(1+a \cos x) - b \sin x}{x^3} = 1$

NAME : MATHEMATICS

PAPER CODE: BS-M102-1B (For EEE & AEIE)

1. If $u = x^2 - 2y, v = x + y + z, w = x - 2y + 3z$ find $\frac{\delta(u,v,w)}{\delta(x,y,z)}$.
2. Expand the following function in power of x , in infinite series $\log(1+x), -1 < x \leq 1$
3. If $u = \tan^{-1} \frac{x^2+y^2}{x+y}$, show that $x \frac{\delta u}{\delta x} + y \frac{\delta u}{\delta y} = \frac{1}{2} \sin 2u$
4. Find inverse of $= \begin{bmatrix} 1 & -2 & 2 \\ 2 & -3 & 6 \\ 1 & 1 & 7 \end{bmatrix}$.
5. Test the convergence of the series $\sum_{n=1}^{\infty} \frac{n!2^n}{n^n}$.

PAPER NAME: BASIC ELECTRICAL ENGG.-I

PAPER CODE: ES-EE-101

1. Write about Nodal Analysis with an example.
2. Short Note: Voltage regulation, Transformer efficiency.
3. What is the Peak Value, RMS value ?
4. Discuss about the mesh analysis of a circuit.
5. What is Ideal Transformer? Write the characteristics of its.

B.TECH-1ST SEM (CSE+EE+AEIE)-PRACTICAL

PAPER NAME : PHYSICS-I LAB

PAPER CODE : BS-PH-191(For CSE)

A) Answer any TWO of the following question:

2×20=40

1. Determination of thermal conductivity of a bad conductor by Lees and Charlton's method.
2. Determination of dispersive power of the material of given prism.
3. Determination of young's modulus by Flexure method and calculation of bending moment and shear force at a point on beam.
4. Determination of wavelength of light by Newton's ring method.
5. Use of carry foster's bridge to determine unknown resistance.

PAPER NAME : CHEMISTRY-I LAB

PAPER CODE : BS-CH-191(For EEE& AEIE)

- A. Define alkalinity of water. Name two acid-base indicators.
- B. Write down the theory of conductometric titration of strong acid against strong base.
- C. Define conductance. Draw the conductometric titration curve of strong acid against strong base.
- D. Define pH. Write down the theory of pH-metric titration.

PAPER NAME : BASIC ELECTRICAL ENGINEERING LAB

PAPER CODE : BS-EE-191

A) Answer any TWO of the following question:

2×20=40

1. Calibration of ammeter and Wattmeter.
2. Determination of steady state and transient response of R-L, R-C and R-L-C circuit to a step change in voltage.
3. Determination of steady state response of R-L and R-C and R-L-C circuit and calculation of impedance and power factor.
4. Determination of resonance frequency and quality factor of series and parallel R-L-C circuit.

PAPER NAME : WORKSHOP PRACICE

PAPER CODE : ES-ME-192 (For CSE)

A) Answer any TWO of the following question:

2×20=40

1. What are common materials used for pattern making? Discuss advantages and disadvantages of wood using pattern making.
2. Classified drill. Sketch a twist drill and named it various parts.
3. What are the procedures commonly done in bench working and fitting shop describe briefly.
4. Differentiate between the following –
 - i. Mallet and Hammer
 - ii. Tapping and Dieing

PAPER NAME : WORKSHOP PRACICE

PAPER CODE : ES-ME-191 (For AEIE & EEE)

A) Answer any TWO of the following question:

2×20=40

1. Write the following letters in 6:5ratio,single stroke type with letter height of 18mm.

ENGINEERING

2. Divide a circle of 70mm diameter in to 24 equal sectors using the set square only.
3. Construct a vernier scale to read cm and up to 4m having a scale factor .04. Mark a distance of 2.36m on it.
4. Construct an ellipse having major axis 100 mm and minor axis 70 mm.

B.TECH-3RD SEM-CSE - 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 multivibrator?

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 $\frac{dy}{dx} + \frac{1}{x} \sin 2y = x^3 \cos^2 y$.
2. Show that $\text{curl grad } f = 0$ 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 & ALGORITHM 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 multivibrator?
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 $\phi = x^2yz + 4xz^2$ at $(1, -2, -1)$ along the direction $2\hat{i} - \hat{j} - 2\hat{k}$.
2. What is diamagnetic material? Derive Langevin's formula for the molecular diamagnetic 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 $V = V_0 \sin \omega t$, 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° 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 INTEGRATED 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 Multivibrator?

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

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

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. Prove $\gamma_x = \gamma_o = \gamma_n$ where γ_x = side rake, γ_o = 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 first 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

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 ORIENTED 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: ARTIFICIAL 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 ORIENTED 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-EE501

- (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 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-EE503

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-EE504

- 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-EE501B

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-EE501B

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-EE591

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

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-EE593

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-EE594

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 $\phi = x^2yz + 4xz^2$ at $(1, -2, -1)$ along the direction $2\hat{i} - \hat{j} - 2\hat{k}$.
2. What is diamagnetic material? Derive Langevin's formula for the molecular diamagnetic 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 $V = V_0 \sin \omega t$, 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-EI504B

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 \varnothing 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 350x450mm 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? Derive 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 $\gamma=19 \text{ KN/m}^3$, $\phi=34^\circ$, $c=0$, $N_c=12.2$, $N_\gamma=7.9$, $N_q=13.7$, $S_c=10.2$, $S_\gamma=6.9$, $S_q=12.7$,
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 98th 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 aggregate.
- 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/mm² 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 exit 2.83% 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 overcome 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/m³ . 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 its 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 plumber block

B.TECH-7TH SEM-CSE-THEORY

PAPER NAME: SOFTWARE ENGINEERING

PAPER CODE: CS-701

1. What is DFD? Draw a DFD for Hospital management system
2. What is McCall's quality model? Explain the different factor associated with this model?
3. What is the difference between Cohesion and coupling? With proper example explain why a good system requires high cohesion low coupling?
4. What is testing? What is the importance of testing? What are terms related to testing?
5. What is use case diagram? Draw a use case diagram for ATM system.

PAPER NAME: COMPILER DESIGN

PAPER CODE: CS702

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: ARTIFICIAL INTELLIGENCE

PAPER CODE: CS-703C

1. Describe 15-puzzle algorithm.
2. Describe 8-puzzle algorithm using BFS.
3. Describe 8-puzzle algorithm using DFS.
4. Short note: Tic-Tac-Toe.
5. What is AI? Describe with example.

PAPER NAME: DISTRIBUTED OPERATING SYSTEM

PAPER CODE: CS-704A

- 1) What is distributed operating system?
- 2) Explain about Distributed file system.
- 3) What is replication? Describe Quorum algorithm.
- 4) Explain location transparency and name resolution in DFS.
- 5) Explain Suzuki-Kasami's broadcast algorithm.

PAPER NAME: INTERNET TECHNOLOGY

PAPER CODE: CS-705A

- 1) What is the meaning of HTTP in World Wide Web environment?
- 2) Compare between SAX and DOM?
- 3) What are the differences between static mapping and dynamic mapping?
- 4) Explain the life cycle of java applet.
- 5) Differentiate between virus and worm?

B.TECH-7TH SEM-CSE-PRACTICAL

PAPER NAME: SOFTWARE ENGINEERING LAB

PAPER CODE: CS-791

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

PAPER NAME: ARTIFICIAL INTELLIGENCE LAB

PAPER CODE: CS-793C

1. Write a prolog program to reverse a number.
2. Write a prolog program of palindrome number.
3. Write a prolog program of factorial.
4. Write a prolog program to display Fibonacci sequence.

PAPER NAME: INTERNET TECHNOLOGY LAB

PAPER CODE: CS-795A

1. Create a banner using Applet
2. Display clock using Applet
3. Create different shapes using Applet
4. Fill colors in shapes using Applet

B.TECH-7TH SEM-ECE-THEORY

PAPER NAME: WIRELESS COMMUNICATION AND NETWORK

PAPER CODE: EC-701

1. Write the difference between GSM and CDMA.
2. What is cordless telephony system?
3. What are the main advantage of CDMA ?
4. Write the short note of GSM.
5. What is WAE? Draw its model.

PAPER NAME: MICROELECTRONICS & VLSI DESIGNS

PAPERCODE: EC 702

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

PAPER NAME: COMPUTER NETWORKS

PAPER CODE: EC703C

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: EMBEDDED SYSTEMS

PAPER CODE: EC-704B

1. Draw and explain the small signal model of BJT.
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. What is embedded system? Write its advantages.

PAPER NAME: POWER ELECTRONICS

PAPER CODE: EC-705D

- 1) What is SIT?
- 2) Describing the switching characteristics of power MOSFETs.
- 3) What is a cycloconverter? What benefits does it offer in comparison to inverter?
- 4) Explain are the different types of thyristor protection. Explain briefly about di/dt protection.
- 5) Write down the advantage and disadvantage of IGBT.

B.TECH-7TH SEM-ECE-PRACTICAL

PAPER NAME: VLSI DESIGN LAB

PAPER CODE: EC-792

1. Explain the Design of a NAND Gate using spice.
2. Explain the Design of a CMOS XOR Gate using spice.
3. Explain the Design of a NOR Gate using spice.
4. Explain briefly about the Design of an inverter using spice.

PAPER NAME: COMPUTER NETWORK LAB LAB

PAPER CODE: EC-793C

1. Write a simple TCP program using C.
2. Write a simple UDP program using C.
3. Write a message sending program using C.
4. Write a program echo server using thread.

PAPER NAME: POWER ELECTRONICS LAB

PAPER CODE: EC-795D

A) Answer any TWO of the following question:

2x20=40

1. Study of the characteristics of an Triac.
2. Study of different triggering circuits of an SCR
3. Study of firing circuits suitable for triggering SCR in a single phase full controlled bridge.
4. Study of the operation of a single phase full controlled bridge converter with R and R-L load.
5. Study of performance of a Cycloconverter (simulation).
6. Study of performance of three phase AC controller with R and R-L load (simulation).

B.TECH-7TH SEM-CE-THEORY

PAPER NAME: ENVIRONMENTAL ENGINEERING

PAPER CODE: CE-701

1. What are the various types of surface water sources?
2. Differentiate between BOD & COD.
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: WATER RESOURCE ENGINEERING

PAPER CODE: CE-702

1. Write short notes on rain gauge.
2. Write down short notes on five types of irrigation efficiency.
3. What is waterlogging? What are the measures adopted to prevent it?
4. What is ground water flow? State Darcy's law related to it.
5. What are non-modular, semi modular and modular outlet? Explain with example.

PAPER NAME: ADVANCED HIGHWAY & TRANSPORTATION ENGINEERING

PAPER CODE: CE-703C

1. Define Urban roads and discuss about their types.
2. define-runway, taxiway, apron and terminal building of airport.
3. What is Kerbs? Discuss about their types.
4. What is rotary and interchange? Explain with diagram.
5. What is traffic speed, traffic volume and traffic density?

OR

PAPER NAME: SOIL STABILISATION & GROUND IMPROVEMENT TECHNIQUE

PAPER CODE: CE-703B

1. What are the new materials available for stabilization of expansive soil?
2. Which kind of parameters is better for using in soil stabilization?
3. Why optimum moisture content is used for preparing stabilized samples?
4. What is the effect of Magnesium carbonate in soil stabilization?
5. Why preparing soil specimens at maximum dry density and optimum moisture content?

PAPER NAME: HYDRAULIC STRUCTURES

PAPER CODE: CE-704B

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.

OR

PAPER NAME: ADVANCE STRUCTURAL ANALYSIS

PAPER CODE: CE-704A

1. Describe plane stress and plain strain cases, giving stress and strain matrices for each case.
2. Write the principal of minimum potential energy.
3. What do you understand by a shape function in FEM? Explain with an example.
4. Compare stiffness and flexibility methods of analysis.
5. What do you understand by beams on elastic foundations?

PAPER NAME: ENGINEERING MATERIALS

PAPER CODE: CE-705A

1. What is corrosion? Explain the different mechanism of corrosion. Discuss the method of preventing corrosion.
2. What is 18-4-1 high speed steel? What is the maximum solubility of carbon in iron?
3. What are the refractory material? State their basic properties and use.
4. What is cast iron and how it is manufactured. Mentioned its important characteristic and use.
5. Distinguish between white and grey cast-iron. Distinguish between high carbon steel and alloy steel

B.TECH-7TH SEM-CE-PRACTICAL

PAPER NAME: ENVIRONMENTAL ENGINEERING LAB

PAPER CODE: CE-791

(Answer any two questions)

1. Determination of BOD for given sample of water.
2. Determination of concentration of chlorine in a given sample of water.
3. Determination of turbidity for a given sample of water.

PAPER NAME: CIVIL ENGINEERING PRACTICE LAB

PAPER CODE: CE-792

(Answer any two questions)

1. Design a water distribution network system.
2. Give a brief history of soil data test report as carried out in site investigation..

3. Explain the design procedure of a flexible pavement.

PAPER NAME: MATERIAL TESTING LAB

PAPER CODE: CE-793A

(Answer any two questions)

1. To study the impact testing machine and perform the izod impact tests.
2. Why impact test is required for material testing? What is notch sensitivity?
3. To study the impact testing machine and perform the charpy impact tests.
4. What is impact energy? Write use of impact properties?

B.TECH-7TH SEM-EE-THEORY

PAPER NAME: ELECTRIC DRIVE

PAPER CODE: 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: UTILIZATION OF ELECTRIC POWER

PAPER CODE: EE-702

- 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
 - iii) Carbon arc lamp
- 5.Explain with a neat diagram the principle of operation of a sodium vapour lamp. Mention its use.

PAPER NAME: POWER SYSTEM-III

PAPER CODE: EE-703A

- 1.What is FACTS? What are its advantages?
- 2.Briefly describe SVC and STATCOM connected FACTS controllers for power system.
- 3.What is penalty Factor?
- 4.Why is it necessary to consider the transmission loss in optimum scheduling?
- 5.Discuss about thermal power scheduling.

PAPER NAME: POWER GENERATION & ECONOMICS

PAPER CODE: EE-704C

1. Explain the difference between the unit commitment and the economic dispatch problem.
2. Discuss the basic principle of the dynamic programming method in solving the unit commitment problem.
3. What is the cost of power generation in thermal power plant?
4. Discuss the economic justification of the thermal power plants.
5. Discuss the various types of unit commitment method.

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.

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.

PAPER NAME: COMPUTER NETWORK LAB

PAPER CODE: EE792A

1. Write a simple TCP program using C.
2. Write a simple UDP program using C.
3. Write a message sending program using C.
4. Write a program echo server using thread.

PAPER NAME: ELECTRICAL SYSTEM DESIGN –I LAB

PAPER CODE: EE782

A) Answer any TWO of the following question:

2x20=40

1. Designing an iron core (with air gap) inductor with specified operating dc current and minimum inductance.
2. Design and validation of a variable voltage stabilized DC power supply using a linear Regulator, power transistor, zener diode. All the components, viz the transformer, heat-sinks, electronic components and filter should be completely specified.
3. Designing a heating element with specified wattage, voltage and ambient temperature.
4. Design and validation of the electronic commutation system for a permanent magnet fractional hp motor.

B.TECH-7TH SEM-AEIE-THOERY

PAPER NAME: TELEMETRY & REMOTE CONTROLL

PAPER CODE: EI-701

1. Draw and explain the block diagram of PCM transmitter and receivers.
2. What is commanding ? Why is it used in PCM system?
3. Draw the scheme of a WDM system for optical fibre telemetry.
4. How is synchronization done in TDM system?
5. Explain with a circuit diagram for synchronization pulse generation with input blank space.

PAPER NAME: ANALYTICAL INSTRUMENTATION

PAPER CODE: EI-702

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: PROCESS CONTROLL-II

PAPER CODE: EI-703

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: MICROELECTRONICS & VLSI

PAPER CODE: EI-704B

1. What is cell library?
2. Why VLSI design flow is often called as cycle? Explain.
3. a) What do you mean by CMOS Transmission Gates:
2 input NAND gate
2 input OR gate
4. What is ASIC? Give its classification. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
5. What is PLA? Explain briefly.

PAPER NAME: COMPUTER NETWORKING

PAPER CODE: EI-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.

B.TECH-7TH SEM-AEIE-PRACTICAL

PAPER NAME: TELEMETRY & REMOTE CONTROL LAB

PAPER CODE: EI-791

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

PAPER NAME: MICROELECTRONICS & VLSI LAB

PAPER CODE: EI-794B

1. Explain the Design of an inverter using spice.
2. Briefly discuss the operation of solar cell with necessary suitable diagrams.

3. Explain the Design of a NOR Gate using spice.
4. Briefly discuss the operation of Photo- Diode with necessary suitable diagrams.

PAPER NAME: COMPUTER NETWORK LAB
PAPER CODE: EI-795A

1. Write a simple TCP program using C.
2. Write a simple UDP program using C.
3. Write a message sending program using C.
4. Write a program echo server using thread.

B.TECH-7TH SEM-ME-THOERY
PAPER NAME: POWER PLANT ENGINEERING
PAPER CODE: ME-701

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 induced 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 height 42m. 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.

PAPER NAME: ADVANCED MANUFACTURING TECHNOLOGY
PAPER CODE: ME-702

1. Explain Magnetorheological abrasive flow finishing process with suitable diagram.
2. What is Laminated Object Manufacturing? Explain the process with sketches.
3. Describe with neat sketch the working principle of Electro discharge machining (EDM)?
4. Describe with neat sketch the working principle of Laser beam machining (LBM)?
5. Write down the advantages wire cut EDM over conventional EDM.

PAPER NAME: RENEWABLE ENERGY SYSTEMS
PAPER CODE: ME-703B

1. What are Renewable sources of energy? What are sources of Renewable and their on field application?
2. What is Extraterrestrial Solar Radiation? Explain the method of Measurement and Estimation of Solar Radiation. If necessary derive the.
3. What is Biomass? What are Types of Biogas Plant? Explain anyone with Detail and neat sketch.
4. What is a Solar cell? Explain the Working Principle and application.
5. Explain Flat Plate Collectors, its principle, heat transfer analysis and area of application with neat sketch.

PAPER NAME: ADVANCE WELDING TECHNOLOGY

PAPER CODE : ME-704B

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: OPERATIONS RESEARCH

PAPER CODE: ME- 705C

1. A company has 4 to do 3 jobs. Each job can be assigned to only one machine. The cost of each job of each machine is given below. Determine the job assignments that will minimize the total cost.

	W	X	Y	Z
A	18	24	18	32
B	8	13	17	18
C	10	15	19	22

2. Find the initial solution to the following TP using VAM.

	A	B	C	D	Supply
X	3	3	4	1	100
Y	4	2	4	2	125
Z	1	5	3	2	75
Demand	120	80	75	25	300

3. Obtain the dual of the following LPP

$$\text{Max } Z = x_1 - x_2 + 3x_3$$

Subjected to the constraints

$$2x_1 - x_2 + 3x_3 + x_4 = 1$$

$$x_1 + x_2 - x_3 + x_4 = 3$$

$$x_1, x_2, x_3 \geq 0$$

4. The following table shows the jobs of a network along with their time estimates. The time estimates are in days.

Job	1-2	1-6	2-3	2-4	3-5	4-5	5-8	6-7	7-8
a	3	2	6	2	5	3	1	3	4
m	6	5	12	5	11	6	4	9	19
b	15	14	30	8	17	15	7	27	28

- i. Draw the project network
- ii. Find the critical path
- iii. Find the probability of the project being completed in 31 days.

5. Solve the following LPP

$$\text{Maximize } Z = x_1 + 2x_2 + 3x_3 - x_4$$

Subjected to

$$x_1 + 2x_2 + 3x_3 = 15$$

$$2x_1 + x_2 + 5x_3 = 20$$

$$x_1 + 2x_2 + x_3 + x_4 = 10$$

B.TECH-7TH SEM-ME-PRACTICAL

PAPER NAME: ADVANCE MANUFACTURING LAB

PAPER CODE : 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.
Write the part programming for the component shown in figure below. Keeping maximum depth of cut 2 mm. (All dimension are in mm)