INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION

B.TECH-5TH SEM-CSE-THEORY

PAPER NAME: SOFTWARE ENGINEERING
PAPER CODE : ESC 501

1. Describe the System Development Life Cycle (SDLC) and outline each phase.
2. Explain technical feasibility in system development and how it assesses the required hardware, software, and technical skills for successful implementation.
3. Describe the cost-benefit analysis process in system development and explain how it compares a project's expected costs with its anticipated benefits?
4. Explain the purpose of a context diagram and a Data Flow Diagram (DFD) in system design. Discuss the differences between DFD levels (e.g., level 0, level 1) and their roles in system analysis.
5. Describe the purpose and construction of a decision tree in system design.
   Provide an example of a decision tree used in a real-world application.
6. What is information hiding in software design, and why is it important?
   Explain its role in improving system maintainability and security.
7. What is a test case, and how is it specified in software testing?
   Describe the components of a test case, including test inputs, execution conditions, and expected results.
8. Describe the role of metrics, monitoring, and control in managing software projects. Explain how metrics are used to track progress, quality, and performance.
9. Discuss the role of staffing in software project management, including recruiting, assigning, and managing team members based on skills and project needs.
10. What is QA in software development, and what are key practices like continuous integration and automated testing?.

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

1. Differentiate between top down and bottom up parsing.
2. Construct an FA equivalent to the regular expression (0+1)*(00+11)(0+1)*
3. Discuss in about left recursion and left factoring with examples.
4. Construct the predictive parser for the following grammar S->(L)/a L->L,S/S
5. Check whether the following grammar is SLR (1) or not. Explain your answer with Reasons.
   S→ L=R S→R L→*R L→id R→L
6. Explain the various phases of a compiler in detail.
7. Construct an FA equivalent to the regular expression 10+(0+11)0*1
8. Define Regular expression. Explain the properties of Regular expressions.
9. Construct the LR Parsing table for the following grammar: E + T | T→E T * F | F→T (E)/id →F
10. Construct an LALR Parsing table for the following grammar: E-> E+T |T T-> T*F|F F->id

PAPER NAME: OPERATING SYSTEMS
PAPER CODE: PCC-CS 502

1. Explain how semaphores can be used to deal with n-process critical section problem?
2. Describe the differences among long-term scheduling. short-term, and medium-term scheduling.
3. What are the components of process control block? Explain.
4. Explainhow can a system recover from a deadlock?
5. Explain the Resource-Allocation Graph Algorithm for deadlock prevention.
6. Explain the different file access methods in detail.

7. Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 1, 2, 3,7, 6, 3, 2, 1, 2, 3, 6. How many page faults would occur for the LRU, FIFO,LFU and optimal page replacement algorithms assuming twoand five frames?
8. What are the semaphores? How do they implement mutual exclusion?
9. Explain Virtual Memory anddiscuss the benefits of virtual memory technique.
10. What is a Critical Section problem? Give the conditions that a solution to the criticalsection problem must satisfy.

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

1. Explain briefly class, public, static, void, main, string[] and system.out.println() keywords.
2. Explain an example of exception handling in the case ofdivision by zero.
3. Explain the polymorphism and overloading with an example.
4. What is Console class? Define the basic characteristics of object oriented programming.
5. What is a Java Priority queue? Describe the structure of a typical Java program with an example.
6. What is an array? How do you declare the array in java? Give examples.
7. How it differs from Applet. Give an example where interface can be used to support multiple inheritances.
8. What is Swing in Java? Distinguish between Byte Stream Classes and Character Stream Classes.
9. What are similarities and difference between Array List and Vector? Explain. What is different between Iterator and List Iterator?
10. What is the difference between init( ) and start ( ) methods in an Applet? When will each be executed?

PAPER NAME: INTRODUCTION OF INDUSTRIAL MANAGEMENT (HUMANITIES III)
PAPER CODE: HS-MC501

1. Difference between formal and informal Organization?
2. Short Note on Span of Control
3. Write in Brief about Organizational Culture
4. What is Performance Appraisal?
5. Explain different terms used in Network Diagram.
6. Describe the importance of Division of Labor.
7. Short note on ABC analysis.
8. Describe the benefits of Supply Chain Management.
9. Discuss about Floats and its types.
10. Explain about Centralization and Decentralization in industrial management.

PAPER NAME: THEORY OF COMPUTATION
PAPER CODE: PEC-IT501A

1. Describe the process of converting an NFA with ε-transitions to a DFA. What is the role of ε-closure?
2. What is the significance of the Kleene star in regular expressions? Provide an example of its usage.
3. Convert to a DFA for the language of strings over {0, 1} where the number of 1s is a multiple of 3. Illustrate the DFA and explain its construction.
4. Define and provide an example of a Context-Free Grammar (CFG). Convert this CFG to Chomsky Normal Form (CNF).
5. Explain how to convert a CFG to an equivalent PDA. Provide a step-by-step example with a CFG of your choice.
6. Discuss the CYK algorithm for parsing context-free grammars. Use the CYK algorithm to parse the string 'abbb' with the CFG: $S \rightarrow aSb \mid bSa \mid \varepsilon$.
7. Convert the following CFG to Chomsky Normal Form (CNF):
   $S \rightarrow AB \mid a$
   $A \rightarrow AA \mid b$
   $B \rightarrow bB \mid a$

8. Explain the equivalence between PDAs and context-free grammars. How can a PDA be converted to a CFG?
9. Describe a Universal Turing Machine and its purpose. How does it differ from a standard Turing machine?
10. What is the difference between P and NP problems? Briefly describe the significance of this distinction.

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

1. Describe the fundamental rights & duties in Indian Constitution?
2. Difference between Fundamental right and duties?
3. List out the sources of Indian Constitution?
4. Describe the power & function of president as per Indian Constitution?
5. Discuss the role & functions of the collector in a district administration?
6. Role & importance of municipalities in the local administration?

B.TECH-5TH SEM-CSE-PRACTICAL

PAPER NAME: SOFTWARE ENGINEERING LAB
PAPER CODE: ESC591

1. Develop various design diagrams to model the software system.
2. How did you develop the class diagrams, and what are the key classes and their relationships?
3. How did you create and use the use case diagrams to represent user interactions with the system?
4. Can you describe the functional requirements of the system and how they address the needs of the users?
5. What infrastructure (hardware, software, network) is required for the successful execution of the project?
6. How did you use design patterns in your system design, and what specific patterns did you apply?
7. What tools or software did you use for data modeling, and how did they facilitate your design process?

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

1. Write a script that recursively lists all files in a directory and subdirectories, and logs the file names and their permissions.
2. Demonstrate how to create a zombie process and how to handle it.
3. Demonstrate how to send signals to processes using the kill command and handle the signals in the process using the signal() system call.
4. Write a program that demonstrates process synchronization using semaphores, where one process writes to a shared memory segment, and another process reads from it.
5. Write a program to cancel a thread using pthread_cancel() and handle thread cancellation cleanup.
6. Create a named pipe (FIFO) and demonstrate communication between two separate programs using the FIFO.
7. Write a program to implement a counting semaphore using semget(), semop(), and semctl() functions.

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

1. Write a java method to find minimum value in given two values.
2. Write a simple java program to create threads.
3. Write about some Java's built in exceptions.
4. With an example, demonstrate the concept of thread synchronization.
5. Write an applet code to demonstrate parameter passing to applet.
6. Write the step wise procedure to create and run an applet.
7. List the event classes and Listener Interfaces.

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

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

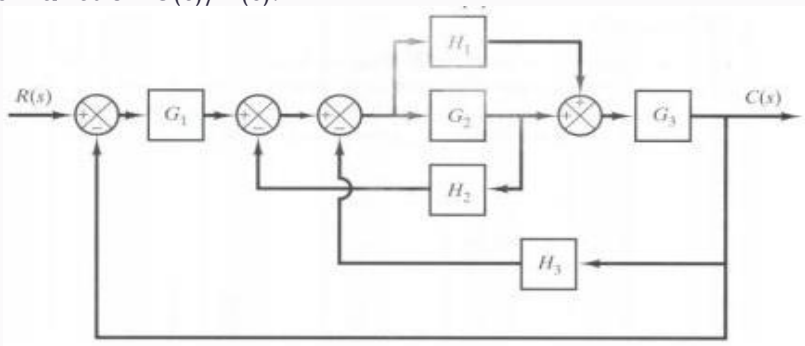
1. Write short notes on Switched Reluctance Motor.
2. Write short notes on Permanent Magnet machines.
3. Write short notes on Brushless DC machines.
4. Write short notes on Hysresis motor.
5. Write short notes on Stepper Motor.
6. Write short notes on Tacho Generator.

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

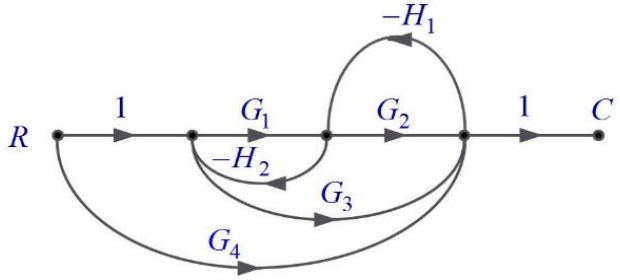
1. What is Transmission System and Distribution System in Power system?
2. Draw the flow diagram of Transmission And Distribution System from the Generating Station to Consumers. Write down the advantages of AC transmission.
3. Write down briefly about the classification of Transmission System (according to the distance or line voltage).
4. What do you mean by Conventional And Non-conventional Energy source with proper examples?
5. Write down on the different types of insulator used in overhead transmission lines with proper diagram.
6. Write a short note with mathematical expression on :
   a) Voltage Regulation, b)Transmission Efficiency.

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

1. Using the block diagram reduction technique to simplify the block diagram shown below and obtain the closed-loop transfer function C(s)/R(s).



2. Describe about the regulators.
3. Discuss the advantages and disadvantages an open-loop and a closed-loop control system.
4. Solve the below problem using the mason's gain formula and obtain the transfer function.



5. Discuss the elementary concepts of sensitivity and robustness.
6. What are translational systems, rotational systems, spring, mass and dashpot in control system?

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

1. Write down the application of HVDC transmission.
2. Write down the application of Static Circuit Breaker.
3. Write down the application of UPS.
4. Write down the application of Static VAR controller.
5. Write down the application of Resonant DC link inverter.

PAPER NAME: RENEWABLE & NON CONVENTIONAL ENERGY SOURCES
PAPER CODE: PE-EE/EEE 501C

1. Explain the availability of geothermal energy.
2. What is wind energy and how do wind turbines work?
3. What is the working principle of VAWT?
4. What materials are solar collectors?
5. What are the advantages of non-conventional energy over conventional energy?

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

1. Define Object-Oriented Programming (OOP) in the context of Java. Describe the core principles of OOP and how they are implemented in Java..
2. Create a Java class Person with attributes name, age, and address. Implement getter and setter methods for these attributes and a constructor to initialize them.
3. Explain the concept of encapsulation in Java. Provide an example of a Java class that demonstrates encapsulation through private attributes and public methods.
4. Design a base class Animal with a method make Sound(). Create derived classes Dog and Cat that override the make Sound() method. Provide a sample program that demonstrates polymorphic behavior.
5. Create a Java program that demonstrates single inheritance with a base class Employee and a derived class Manager. Include attributes and methods relevant to each class.
6. Explain the difference between method overriding and method hiding in Java. Provide examples to illustrate both concepts.
7. Write a Java program that uses method overriding to achieve runtime polymorphism. Implement a base class Animal with a method eat(), and create derived classes Herbivore and Carnivore that override the eat() method.
8. Create a Java program that demonstrates compile-time polymorphism using method overloading in a class Printer with overloaded print() methods for different data types.
9. Create a class Person with a method get Description(). Derive two classes Student and Teacher from Person, and override get Description() in each derived class to provide specific descriptions.
10. Create a Java program that demonstrates the use of static methods and variables in a class Utility. Include a static method for calculating the factorial of a number and a static variable to count the number of method calls.

B.TECH-5TH SEM - EE & EEE- PRACTICAL
PAPER NAME: ELECTRIC MACHINE-II LAB
PAPER CODE: PC-EE/EEE 591

1. Different methods of starting of a 3-phase cage induction motor & their comparison [DOL, Auto transformer & Star-delta]
2. Study of equivalent circuit of three phase Induction motor by no load and blocked rotor test.
3. Study of performance of wound rotor Induction motor under load.
4. Study of performance of three phase squirrel- cage Induction motor –determination of iron-loss, friction & windage loss.

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

1. Determination of the generalized constants A.B, C, D of long transmission line and regulation of a 3-Φ transmission line model.
2. Study of distribution system by network analyzer.
3. Measurement of earth resistance by earth tester.
4. Determination of dielectric strength of insulating oil.

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

1. Familiarization with MAT-Lab control system tool box, MAT-Lab- simulink tool box & PSPICE.
2. Simulation of Step response & Impulse response for type-0, type-1 & Type-2 system with unity feedback using MATLAB & PSPICE.
3. Determination of Root locus, Bode plot, Nyquist plot using MATLAB control system tool box for a given system &stability by determining control system specification from the plot.
4. Determination of PI, PD and PID controller action of first order simulated process.

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

1. Study of the characteristics of an SCR.
2. Study of the characteristics of a Triac.
3. Study of different triggering circuits of an SCR.
4. Study of performance of single phase controlled converter with and without source inductance (simulation).

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.
6. Design a square footing of a column of size 300 mm × 300 mm carrying an axial compressive force. The footing will be placed on a soil having bearing capacity of 120 KN/m2. Use M20 concrete and Fe415 grade steel. Apply ' 'Limit state method of design' ' as per IS 456.
7. Calculate the load carrying capacity of a RCC column of dimension 250 × 400 reinforced with 8 nos 16 Fe415 HYSD bars. Effective length of the column = 5m. Apply 'Limit state method of design' as per IS 456.
8. Find M_u of a T beam with the following data. b_f=1250mm,D_f=100mm,b_w=250mm,d=650mm,A_{st}= 2800 mm^2, f_y=415 N/mm^2, f_{ck}= 20 N/mm^2.
9. A beam 300x1010mm effective has a span of 7m. Total load on the beam is 45KN/m. Tensile steel is 6-22mmØ bars. If concrete M15 and mild steel are used. Design shears reinforcement.
10. Design a column footing with the following data. Load on column=1600 KN, column size=500x500mm, bearing capacity of soil= 300 KN/m^2. Concrete M20 and steel Fe 415.

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.
6. Describe Bligh's creep theory of seepage flow.
7. What are the effects of construction of a weir on a river regime?
8. What is earthen dam? List the types of earthen dam.
9. Differentiate high and low gravity dam.
10. What is exit gradient and explain Khosla's theory for determination of pressure and seepage flow.

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

1. Prove that for a linear elastic structure the flexibility matrix is symmetric.
2. A latticed framework steel bridge of 60 m span and 6 m width is to be built at Shimla. *PQR* consultancy has cracked the contract of this project. In *PQR* consultancy, team *A* and team *B* has been assigned to analyze and optimize the structure. Team *A* has chosen rolled I-section whereas team *B* opted for wide-flanged I-section. Both the team calculated the design wind pressure as 1006 N/m2. Which team will be able to minimize the wind force? Explain with proper calculations.
3. Write down difference between determinate structures and in determinate structures. What do you mean by free body diagram? Explain in detail.
4. Define ultimate stress, breaking stress, percentage elongation and percentage reduction in area.
5. Calculate design wind forces (only the along wind) using the gust factor approach on a steel multistorey building 60 m tall and of size 20 m × 10 m as shown in figure below, to be constructed in Mumbai, about 500 m from the sea shore. Assume the average storey height to be 3 m. The frames are to be spaced at 5 m c/c in both directions. The building has its smaller dimension facing the sea.
6. 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.
7. 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?
8. 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, $\emptyset$=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?
5. Explain the Swedish slip circle method for (Φ_u=0) analysis.
6. A new canal is excavated to a depth of 5m below ground level, through a soil having the following characteristics: c=14 KN/m^2,Φ=15^0,e=0.8 and G=2.70.the slope of banks is 1 in 1.calculate the factor of safety with respect to cohesion when the canal runs full. If it is suddenly and completely emptied what will be the factor of safety?
7. What is pile driving? State the various types of hammer used for pile driving.

8. Classify the various types of piles with relevant diagram.
9. What is plastic equilibrium of soil? Explain the terms 'elastic settlement', 'consolidated settlement', 'friction piles', 'end bearing piles'., 'Tension cracks'.
10. A retaining wall 10 m high retains a cohesionless soil having a surcharge load of 40 kN/m^2 and having 2 different strata. The properties of two strata are given below.

Strata 1	Strata 2
Depth : GL to 4 m deep	Depth: 4m to 10m below GL
Unit Weight: 16.5 kN/m^3	Unit Weight: 19kN/m^3
Angle of internal friction: 35^o	Angle of internal friction: 47^o

Calculate the total active earth pressure on the retaining wall and point of application of pressure per meter length of wall. Assume other data if required.

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.
6. What is the difference between sewage, sullage & garbage?
7. What is noise pollution? Explain in details about its effects.
8. List the various tests used to purify water.
9. What is filtration, coagulation & disinfection?
10. What is activated sludge process and trickling filter process?

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

1. Explain the PIEV theory. Draw the line diagram.
2. What is SSD? Explain with relevant formula. What is lag distance and what is breaking distance?
3. (i) Calculate the safe stopping sight distance for design speed of 60kmph for a two-way traffic in a two-way lane. Assume co-efficient of friction as 0.4 and reaction time of driver is 3 sec.
   (ii) Write down the expression for calculating Overtaking sight distance and state the different parameters.
4. What is superelevation and why it is provided? Design the rate of superelevation for a horizontal curve of radius 450m and speed of 90kmph.
5. The speed of overtaking and overtaken vehicle are 70and 40 km ph respectively on a two way traffic road the average acceleration during overtaking may be assumed as 0.99m/sec^2
6. What are transition curves? Explain summit and valley curve with figures.
7. Explain 'ESWL' briefly explain the graphical method determination of 'ESWL'
8. What are the basic requirements of an ideal highway alignment?
9. Compute the equivalent radius of resisting section of 20cm thick slab given that the radius of contact area wheel load is 15 cm.
10. (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 & duties in Indian Constitution?
2. Difference between Fundamental right and duties?
3. List out the sources of Indian Constitution?
4. Describe the power & function of president as per Indian Constitution?
5. Discuss the role & functions of the collector in a district administration?
6. Role & importance of municipalities in the local administration?

B.TECH-5TH SEM-CE-PRACTICAL

PAPER NAME: RC STRUCTURE SESSIONAL
PAPER CODE: CE(PC)-591

1. Design a column of size 450 mmx600mm and having 3m unsupported length. The column is subjected to a load of 2000 kn and is effectively held in position but not restrained against rotation. Use M20 concrete and Fe 415 steel.
2. Design a simply supported R.C.C slab to carry a uniformly distribution load of 2 kn/m2 (including its self weight) over an effective span of 3.5 m. Use M20 concrete and Fe 415 steel

PAPER NAME: SOIL MECHANICS LAB
PAPER CODE : CE(PC)594

1. Determine shear strength parameters of soil by direct shear test.
2. Perform triaxial test to determine shear strength parameters of soil.

PAPER NAME: ENVIRONMENTAL ENGINEERING LAB
PAPER CODE : CE(PC)595

1. Determination of turbidity for an assumed sample of water.
2. Determination of pH for an assumed sample water.

PAPER NAME: TRANSPORTATION ENGINEERING LAB
PAPER CODE : CE(PC)596

1 Describe the softening point test.
2. Describe the crushing strength test of aggregate.

PAPER NAME: COMPUTER APPLICATION IN CE
PAPER CODE : CE(PC)597

1. Explain truncation errors in detail.
2. Give algorithm for Secant and Bairstow's method.
3. Write short note on linear algebraic equations.
4. Write short note on non - linear Regression analysis and its application areas.
5. What is the use of backward, forward and central difference relations in numerical differentiations?

B.TECH-5TH SEM-ME-THEORY

PAPER NAME: HEAT TRANSFER
PAPER CODE : PC-ME501

1. Derive the expression of thermal resistance offered by a spherical wall of uniform thermal conductivity during steady state heat conduction without heat generation.
2. What is Biot and Fourier number? Explain their physical significance.
3. Explain the velocity distribution in a hydrodynamic boundary layer for fluid flow along a flat plate.
4. What is gray body? How does emissivity vary for a gray surface and for a real surface?
5. Air at 27^0C and 1 atm pressure flows over a heated plate with a velocity of 2 m/s. the plate is at uniform temperature of 60^0C. calculate the heat transfer rate from first 0.2 m of the plate. Assume the required properties of the air at atmospheric pressure.
6. Derive an expression of temperature distribution and heat loss for with insulated tip.
7. Show that emission power of a black is π–times the intensity of radiation.
8. A fin has 5 mm diameter and 100 mm length. The thermal conductivity of fin is 400 W/mK. One end of the fin is insulated at 130^0C and its remaing surface is exposed to ambient air at 30^0C. if the convection heat transfer coefficient is $40W/m^2K$, calculate the rate of heat loss from the fin.
9. For a radiation shield, show that

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'.
6. What is the assumption of Plasticity theory?
7. a) Explain stress Displacement Relations and Hooke's law.
   b)Derive Compatibility equations
8. a) Explain Airy's stress function.
   b). Derive solutions for axisymmetric problems for Plane stress and plane Strain.
9. a)How to calculate the torque of a thin- walled sections
   b)Derive the expressions for Bending of Bar under transverse load at one end
10. a) Explain the significance of the theories of failure.
    b) Explain in detail the term 'Anisotropic Plasticity'

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

1. What are the difference between flywheel and governor? What is the sensitiveness of governor?
2. 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.
3. 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.

4. Describe Hartnell governor function and deduce a relation to find the stiffness of spring.
5. Show that the ratio of successive amplitudes of oscillations is constant in damped vibratory system.
6. What do you mean by whirling of shafts? Explain critical speed.
7. Explain in what way the gyroscopic couple affects the motion of an aircraft while taking a turn.
8. A small turbine rotor & its shaft are equivalent to a shaft of 200 cm long & 20 cm dia. It carries three discs weighing 200kg, 350kg, & 475kg at 35cm ,43cm& 60cm from left end bearing. The total deflection under the loads are found to be 0.022cm, 0.015cm& 0.013cm respectively. Neglect the weight of the shaft, determine the critical speed by energy method & compare it with the Dunkerley's method.
9. Establish an expression for the natural frequency of free transverse vibration s for a simply supported beam carrying a number of point loads, by
   a) energy method ; b) Dunkerley's method
10. A weight of 40 kg suspended from a spring produces a static deflection of 1.2 cm & when in motion it experiences a viscous damping force with value of 20 kg at a velocity of 25 cm/s. calculate the periodic time of Damped vibration. If the weight is then subjected to a periodic disturbing force having a maximum value of 25 kg & making 2 cycles/s, find the amplitude of ultimate motion.
11. Define magnification factor. Deduce an expression for the magnification factor. What do you understand by over damped, under damped & critical damped vibration.

PAPER NAME: HUMANITIES-I
PAPER CODE : HM-HU501

1. Give examples of Business Ethics.
2. What are the typical components of technical reports?
3. Briefly discuss about the importance of Group Discussion Skill.
4. Differentiate between general and technical communication.
5. How is “Language” a tool of communication?
6. What is an API document?
7. State the role and responsibility of an engineer.
8. Write a short note on Perception.

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

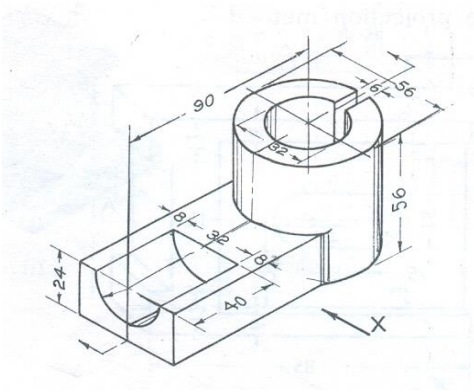
1. Describe the fundamental rights & duties in Indian Constitution?
2. Difference between Fundamental right and duties?
3. List out the sources of Indian Constitution?
4. Describe the power & function of president as per Indian Constitution?
5. Discuss the role & functions of the collector in a district administration?
6. Role & importance of municipalities in the local administration?

B.TECH-5TH SEM-ME-PRACTICAL
PAPER NAME: MECHANICAL ENGINEERING LABORATORY I (THERMAL)
PAPER CODE: PC-ME591

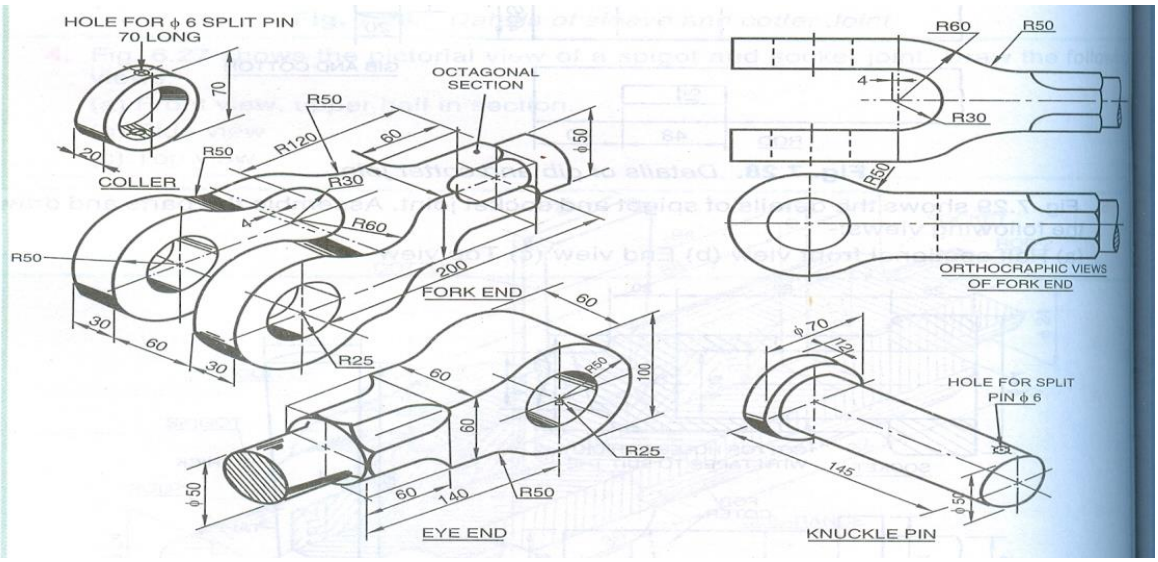
1. Explain the thermal conductivity and specific heat of given objects.
2. Determine the calorific value of a given fuel and its flash & fire points.
3. Determine the p-V diagram and the performance of a 4-stroke diesel engine.
4. Determine the convective heat transfer coefficient for flow over a heated plate.
5. Determine the performance characteristics of a vapour compression system

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

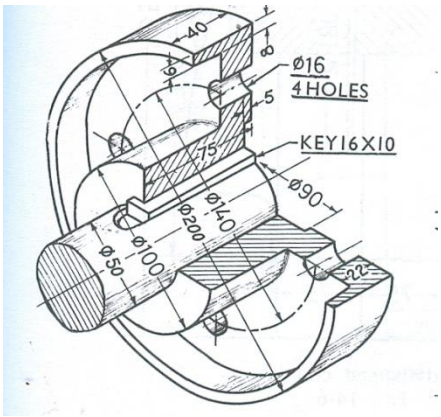
1. Draw an orthographic view of the following figure.



2. Draw the assemble front view of the following figures



3. Draw the front view and side view of the following figure



B.TECH-5TH SEM-ECE-THEORY

PAPER NAME: ELECTROMAGNETIC WAVE
PAPER CODE: EC 501

1. What is Cartesian coordinate system? Describe the circular cylindrical coordinate system and spherical polar coordinate system.
2. Explain the differential length, area and volume in Cartesian coordinate systems, circular cylindrical coordinate system and spherical polar coordinate system.
3. What is Del operator? How is it useful in defining gradient of a scalar, divergence of a vector and curl of a vector?
4. Explain Gauss divergence theorem and Stoke's theorem in terms of divergence and curl of a vector.
5. What is Coulomb's law in electrostatics? Derive the expression for the force between two point charges in terms of Coulomb's law.
6. Describe the Electric Flux Density.
7. Explain reflection and refraction of plane waves at dielectric interface.

PAPER NAME: COMPUTER ARCHITECTURE
PAPER CODE: EC 502

1. Explain the basic structure of a computer system. Describe the roles of the CPU, memory, and I/O devices.
2. Describe the function of the ALU (Arithmetic Logic Unit) and the CU (Control Unit) in a CPU. How do they interact with each other?
3. Describe the operation of a branch predictor. Create a simple example of how branch prediction affects pipeline performance.
4. What are pipeline hazards? Describe the types of hazards (data, control, and structural) and how they can be mitigated.
5. Describe the design and operation of a two-level cache hierarchy (L1 and L2). Include a discussion on cache coherency and consistency issues.
6. What is multithreading in the context of CPU architecture? Describe the difference between simultaneous multithreading (SMT) and coarse-grained multithreading.
7. Discuss the concept of instruction-level parallelism (ILP). How does it differ from thread-level parallelism (TLP)?
8. Compare RISC and CISC architectures in terms of instruction set complexity, execution time, and system performance. Provide examples of processors that use each architecture.
9. Describe the function of a memory management unit (MMU) in a computer system. How does it handle address translation and protection?
10. Explain the concept of SIMD (Single Instruction, Multiple Data) and its applications in vector processing. Provide examples of SIMD instructions.

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

1. Draw & explain about the various Digital-Encoding Techniques.
2. What are the differences between the DM & DPCM?
3. Briefly explain about White-noise & Shot-noise.
4. What is the significance of NF in various communication systems?
5. Define FM and draw its frequency spectrum.
6. What do you mean by FDM accesses in communication?
7. What are the differences between the FDMA & TDMA?

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

1. Discuss the operations of various Time-variant & In-variant System.
2. Briefly explain on different components of DSP
3. Explain the fundamental difference between the DTFT & DFT.
4. Explain Transfer Function. What is Z-Transformation?
5. What is the fundamental difference between ASP & DSP?
6. Explain various FFT techniques.
7. What are the differences between the LT & FT?

PAPER NAME: POWER ECLECTRONICS
PAPER CODE: PE-EC505C

1. Write down the application of HVDC transmission.
2. Write down the application of Static Circuit Breaker.
3. Write down the application of UPS.
4. Write down the application of Static VAR controller.
5. Write down the application of Resonant DC link inverter.

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

1. Describe the function of Human Resource Management.
2. Explain the process of Human Resource Planning.
3. Discuss about the areas of Training.
4. Explain the importance of Industrial Relations.
5. Write a short note on Industrial Disputes.
6. Explain the prevention of Industrial Dispute.

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

1. Write the difference of “Verbal and Non-verbal communication.
2. How can we make an effective use of body language?
3. State some do’s and don’ts of facing an interview.
4. Briefly explain how can you defend for cyber security?
5. Describe the term “Email” briefly.
6. Briefly explain the steps for preparing a good CV?

B.TECH-5TH SEM-ECE-PRACTICAL
PAPER NAME: ELECTROMAGNETIC WAVE LAB
PAPER CODE: EC 591

1. Plotting of Standing Wave Pattern along a transmission line when the line is open-circuited, short-circuited and terminated by a resistive load at the load end.
2. 2.Study of Smith Chart on MATLAB Platform
3. To study and plot the radiation pattern of dipole antenna
4. To study and plot the radiation pattern of folded dipole antenna
5. To study and plot the radiation pattern of 3 – element Yagi Uda antenna
6. To study the Radiation pattern, Gain and Directivity of Pyramidal Horn Antenna

PAPER NAME: DIGITAL COMMUNCATION LAB
PAPER CODE: EC 592

1. Study of PAM & Demodulation.
2. Study of PCM & Demodulation
3. Study of BPSK Modulator & Demodulator.
4. Study of BFSK Modulator & Demodulator.
5. Study of BFSK Demodulator
6. Study of BPSK Demodulator
7. Study of Delta Modulator & Demodulator

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

1. Determine the various sequences of different signals
2. Z-transform of various sequences
3. Study the convolution theorem
4. Discrete Fourier transform
5. Demonstrate sampled sinusoidal signal/'sampling of a analog signal'
6. Inverse discrete Fourier transform(IDFTS)

B.TECH-7TH SEM-CSE-THEORY
PAPER NAME: CLOUD COMPUTING
PAPER CODE: PEC-CS 701B

1. Formulate stage-by-stage evolution of cloud with neat sketch andformulate any three benefits, drawbacks achieved by it in the bankingand insurance sectors.
2. Discuss the underlying parallel and distributed computing principlesadopted by cloud in the IT sector and brief the drawbacks incurred.
3. What is IAM and detail the segregation roles carried out by IAM whenservices of multiple organizations are maintained within the samegeographical location?
4. Detail the structure of Openstack and explain each of its components.
5. Elaborate the working of MapReduce with an example.
6. Write detailed steps to set the google app engine environment forexecuting any program of your choice.
7. Outline the various levels of virtualization with an example for eachcategory.

PAPER NAME: SOFT COMPUTING
PAPER CODE: PEC-CS702B

1. Explain the basic components of a genetic algorithm: crossover, mutation, and selection. Provide examples of how these components work together.
2. Explain the concept of Particle Swarm Optimization and its advantages over other optimization techniques.
3. Describe the simulated annealing technique and its application in optimization problems. Discuss its strengths and limitations.
4. Describe how fuzzy logic is applied in home appliances like washing machines and air conditioners. Provide specific examples of fuzzy logic controllers used.
5. Compare classical AI and neural networks. Describe the structure and function of biological neurons versus artificial neurons.
6. Describe the Perceptron, Adaline, and Madaline networks. Discuss their key characteristics and applications.
7. Describe the concept of neuro-fuzzy modelling and its applications in pattern recognition and classification.
8. Explain the concept of tabu search and its use in solving combinatorial optimization problems. Provide examples.

9. Write a comprehensive essay on the role of soft computing in modern technology, including examples of its application in different fields.
10. Discuss the application of genetic algorithms in search and optimization problems.

PAPER NAME: INTRODUCTION TO PHILOSOPHICAL THOUGHTS
PAPER CODE: OEC-CS 701C

1. Discuss the nature and scope of philosophy in the light if India paradigm.
2. Explain the concept of self.
3. Examine the philosophical ideas propounded by Plato.
4. Write in length about the concept of Purusharthas.

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

1. Describe the MIS in project monitoring.
2. Explain Innovation and Entrepreneurship.
3. Discuss about TRIZ(Theory of Inventive Problem Solving).
4. Write a short note on Idea Management System.
5. Discuss about Organization Breakdown Structure(OBS).
6. Explain the steps of Project Planning.

B.TECH-7TH SEM-CE-THEORY

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

1. Explain the following terms:
2. Camber, Design speed, Super-elevation
3. Differentiate between Design speed and average speed.
4. What is transition curve?
5. Explain with neat sketch, the method of providing super-elevation.
6. What are advantage and disadvantage of traffic rotary?

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

1. If the atmospheric pressure on the surface of an oil tank (sp. gr. 0.8) is 0.1 kg/cm^2, the pressure at a depth of 2.5 m, is?
2. What is the main cause of failure of hydraulic structure?
3. What are components of hydraulic structure?
4. What are hydraulic gradient and total energy line?
5. Write down Bernoulli's equation and Euler's equation in the differential form for the motion of liquid ?

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

1. What is prestressed concrete?
2. What is pre tensioning and post tensioning prestressed concrete?
3. What are advantages of pre tensioning prestressed concrete?
4. What are disadvantages of pre tensioning prestressed concrete?
5. Describe the pretensioning prestressed concrete losses?

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

1. Discuss about the different types of sources of air pollution.
2. Discuss about different forms of air pollutants.
3. Discuss about particulate matter with examples.
4. Discuss about causes of air pollution.
5. Discuss about adverse effect of noise pollution.

PAPER NAME: ADVANCE STRUCTURAL ANALYSIS
PAPER CODE: CE-PE 704B

1. What is finite element method (FEM)?
2. Write down the plate –shell theory?
3. What is flexible matrix method?
4. What is Stiffness matrix method?
5. Write down the advantages of finite element method?

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

1. Explain flexible pavement
2. Discuss Mc Leod method of pavement design in detail.
3. Explain briefly Winkler foundation used in the design of Concrete pavements.
4. Explain the concept of Equivalent Single Wheel Load (ESWL).
5. Distinguish between Dowel and Tie bars used in JPCP.

B.TECH-7TH SEM-EE & EEE-THEORY
PAPER NAME: ELECTRIC DRIVE
PAPER CODE: PC-EE-701/ PE-EEE 701A

1. What do you mean by Electrical Load? Mention different types of Electrical Load with examples.
2. Write down the Function of Electric Drives and Applications.
3. Write down the advantages and disadvantages of Electrical Drives.
4. Write down the definition with mathematical expression on Demand Factor and Load Factor ?
5. Write down the components of Load Torques and its types.
6. Write a short note on : (i) Diversity Factor (ii) Plant Capacity Factor.

PAPER NAME: POWER GENERATION ECONOMICS
PAPER CODE: PE-EE 701C(ONLY FOR EE)

1. Discuss on Transmission loss formulae and its application in economic load scheduling.
2. Discuss on Computational methods in economic load scheduling.
3. Discuss on Active and reactive power optimization.
4. Discuss on concept of load forecasting.
5. Discuss on load forecasting technique and application in power system.

PAPER NAME: ANALOG AND DIGITAL COMMUNICATION
PAPER CODE: PC-EEE 701 (ONLY FOR EEE)

1. What is Frequency-Modulation? Draw its necessary waveform.
2. What are the main advantages of Digital communication over Analog communication?
3. Write the short note of Voltage-controlled oscillator.
4. Draw the block diagram of Mobile communication systems and explain briefly.
5. Write the differences between ASK and BFSK.

PAPER NAME: COMPUTER GRAPHICS
PAPER CODE: OE-EE 701C/ OE-EEE 702B

1. Calculate the area of a polygon with vertices at (1,1),(4,1),(4,5) and (1,5) using the Shoelace formula.
2. Discuss the B-spline Curve and its properties. How does it differ from Bezier curves?
3. Explain the concept of Backface Culling in 3D rendering. Why is it important?
4. Consider the line from (0, 0) to (4, 6).Use DDA algorithm to rasterize this line.
5. Give the matrix representation for 2D Scaling.
6. Write algorithm to clip line using Cohen Sutherland line clipping algorithm.
7. Explain Window to Viewport transformation.
8. Use the Cohen Sutherland algorithm to clip two lines P1(40,15)-P2(75,45) and P3(70,20)-P4(100,10) against a window A(50,10),B(80,10),C(80,40),D(50,40).
9. Derive the expression for decision parameter used in Bresenham's Circle algorithm.
10. Explain graphics pipeline in detail.

PAPER NAME: COMPUTER NETWORK
PAPER CODE: OE-EE 702C/ OE-EEE 701B

1. Explain the ISO-OSI model of computer network with a neat diagram.
2. Discuss about Go BACK NARQ & Selective repeat ARQ.
3. Briefly discuss about data link layer design issues?
4. Discuss stop and wait protocol with diagram.
5. Describe sliding window protocol using Go back n.
6. Explain CSMA/CD protocol.
7. Explain the function of ARP & RARP.
8. Describe the role of a DNS on a computer network with reference to its components.
9. Explain the encryption and decryption methods and also discuss Application layer in details.
10. Explain the function of TCP/IP protocol.

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

1. What are the various functions of Management?
2. Explain 14 principles of management by Henry Fayol.
3. What is scientific management? Explain its principles & Features.
4. Write a short note on Advantages of planning.
5. What is planning? Explain steps in planning process.

B.TECH-7TH SEM-EE & EEE -PRACTICAL

PAPER NAME: ELECTRIC DRIVE LAB
PAPER CODE: PC-EE 791(ONLY FOR EE)

1. Study of thysistor controlled DC Drive.
2. Study of Chopper fed DC Drive.
3. Study of AC Single phase motor-speed control using TRIAC.
4. Study of V/f control operation of 3F induction motor drive.

PAPER NAME: ANALOG AND DIGITAL COMMUNICATION LABORATORY
PAPER CODE: PC-EEE 791 (ONLY FOR EEE)

1. Measurement of distortion of the demodulated output with varying modulation index of an AM signal (for both DSB-SC & SSB).
2. Measurement of power of different frequency components of a frequency modulated signal & the measurement of the bandwidth.
3. Study of PAM and demodulation.
4. Study of PWM and demodulation.

B.TECH-7TH SEM-ECE-THOERY

PAPER NAME: MOBILE COMMUNICATION AND NETWORKING
PAPER CODE: PE-EC701C

1. Explain Mobile-Communication Techniques.
2. Discuss BLUETOOTH operations in Mobile-Communication.
3. Explain the difference between Pico-nets and Scatter-nets.
4. Draw & explain the operating principle of a GPRS system.
5. What are the importance of the phenomenon Signal Fading and explain briefly.
6. Discuss various Scintillation Techniques in Communication.
7. What are the differences between the Signal-Interference & Signal-Fading?

PAPER NAME: DIGITAL IMAGE & VIDEO PROCESSING
PAPER CODE: PE-EC702B

1. Explain the concept of image histograms and their significance in image processing.
2. Describe the process of image enhancement using histogram equalization.
3. What is image segmentation, and what are some common algorithms used for it?
4. Discuss the methods used for image interpolation and their applications.
5. What is the difference between spatial domain and frequency domain processing in image processing?
6. What is the role of convolution in image processing, and how is it applied in image filtering?
7. Discuss the principles and applications of image compression techniques.
8. Explain the concept of frame rate and its impact on video quality.
9. How is color representation managed in video processing, and what color spaces are commonly used?
10. Discuss the role of video frame interpolation and its impact on video quality.

PAPER NAME: EMBEDDED SYSTEMS
PAPER CODE: PE-EC703A

1. Explain the term LSI.
2. Draw AND, XOR gate using CMOS logic design.
3. Explain the difference between MSI and VLSI.
4. Draw & explain the operating principle of n-channel Depletion- MOSFET.

5. What are the importance of the phenomenon Hall Effect and explain briefly.
6. Discuss various Micromachining Techniques in Fabrication Technology.
7. What are the differences between the C-MOS & N-MOS Layout Design?

PAPER NAME: PRINCIPLES OF MANAGEMENT
PAPER CODE: HS-HU701

1. What is MBO? & it's limitations?
2. What are the various functions of Management?
3. Explain 14 principles of management by Henry Fayol?
4. What is planning? Explain steps in planning process?
5. Write a short note on Advantages of planning?
6. Define Management
7. What is scientific management? Explain its principles & Features

PAPER NAME: ENTREPRENEURSHIP
PAPER CODE: OE-EC704C

1. Explain New Industrial Policy of 1991.
2. Describe the benefits available to New Entrepreneurs.
3. Discuss about the growth of SSI in India.
4. Short note on Income Tax.
5. ExplainWorking Capital Management
6. Short note on Excise Duty.

B.TECH-7TH SEM-AEIE-THOERY

PAPER NAME: DIGITIAL CONTROL SYSTEM
PAPER CODE: PE-EI 702

1. Describe the feedback control systems for position control.
2. Describe the Speed control of DC motor.
3. Describe the temperature control of alternator.
4. Describe the liquid level control of alternator.
5. Describe the voltage control of alternator.

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

1. Explain the Various components of VLSI system.
2. What are the characteristics of a LSI Sub-Systems?
3. Explain the differences between current VLSI and MSI.
4. Describe different components of Analytical-Instrumentation
5. Draw & Explain the block diagram of Integrated circuit.
6. Explain working principle with neat diagram for the measurement of parameter using Bourdon- tube.
7. Explain briefly on Temperature rating

PAPER NAME: NON-CONVENTIONAL ENERGY SYSTEM
PAPER CODE: OE-EI 702

1. What is the construction and working principle of solar thermal power plant?
2. What are the functions of a solar PV electric plant?
3. What is difference between conventional and non-conventional sources of energy?
4. How is bio energy used to produce electricity?
5. How is electricity generated from tidal energy?

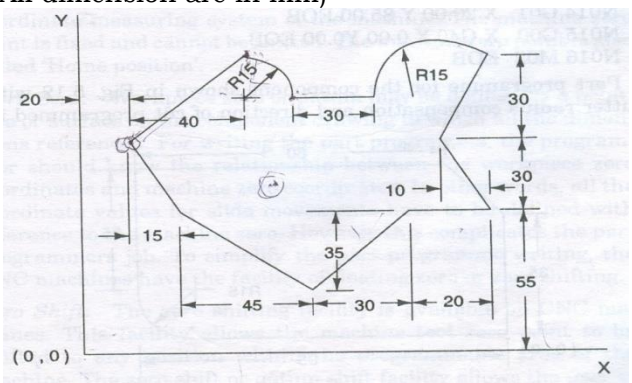
6. What generator is used to generate electricity from wave power?
7. How is geothermal energy generated step by step?
8. What is the principle of solar photovoltaic cell?

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

1. Explain the role of the OSI model in data communication and describe the functions of each of its seven layers.
2. Explain the concept of network addressing. How do IP addresses differ from MAC addresses, and why is each important in a network?
3. Describe the Cyclic Redundancy Check (CRC) technique for error detection. How is the CRC polynomial generated and used to detect errors in transmitted data?
4. What is Code Division Multiple Access (CDMA), and how does it differ from Frequency Division Multiple Access (FDMA) and Time Division Multiple Access (TDMA)? Discuss its advantages and applications.
5. Explain the concept of network switching. Differentiate between circuit switching and packet switching in terms of their operation and use cases?
6. Define Reverse Address Resolution Protocol (RARP). How does RARP help in mapping MAC addresses to IP addresses, and what is its typical use case?
7. Discuss the advantages and disadvantages of using UDP for applications requiring low latency and high-speed data transfer. Provide examples of such applications.
8. Explain the Bluetooth technology. What are its primary applications, and how does Bluetooth facilitate short-range wireless communication between devices?
9. Describe the role of firewalls in network security. How do firewalls protect networks from unauthorized access, and what are the differences between hardware and software firewalls?
10. Explain the Domain Name System (DNS). How does DNS facilitate the resolution of domain names into IP addresses? Discuss the roles of DNS servers (e.g., DNS resolver, authoritative DNS server).

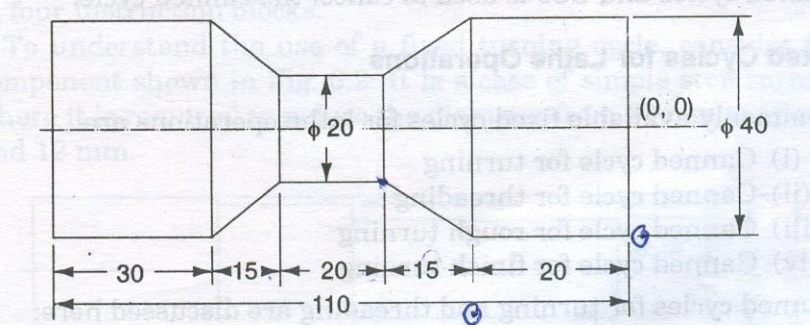
B.TECH-7TH SEM-ME-THOERY
PAPER NAME: ADVANCE-MANUFACTURING TECHNOLOGY
PAPER CODE: PC-ME 701

1. Discuss the mechanism of material removal for Abrasive jet machining (AJM). State their limitations.
2. Write part programming for the component shown in figure below. Diameter of the milling cutter 28 mm. (All dimension are in mm)



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.
6. Write advantages Ultrasonic machining (USM) process.
7. Write down the need of N.T.M process. Write the difference between traditional and nontraditional machining process. Explain with figure the Ultrasonic machining (USM) process with its varies components.
8. Describe with neat sketch the working principle of Laser beam machining (LBM)? Draw the schematic diagram of AJM set up .

9. State the Faraday's' law of electrolysis. Describe with fig. ECM process. Write advantages disadvantages of its.
10. Explain with a neat sketch the operation of the canned cycle G81 as per ISO.
11. Write the part programming for the component shown in figure below. Keeping maximum depth of cut 2 mm. (All dimension are in mm)



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

1. Describe with neat sketches the construction & working function of (a) 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.
6. Describe classification of carburetor. Explain working principle of simple carburetor & Zenith carburetor with neat sketches.
7. Explain advantages and disadvantages of petrol injection system.
8. Explain working principle and line diagram of common rail and individual injection system.
9. Explain various component of water cooling system.
10. With the help of neat sketches, explain the construction & working of (a) A.C. Mechanical fuel pump &(b) S,U. Electrical fuel pump.
11. Explain with neat sketches the final drive also Hotch-kiss drive in automobile system.
12. What is perfect steering. Discuss in detail the Ackermann steering mechanism.

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

1. Explain and draw the Welding Symbol and joint design. Write the Welding Metallurgy and Effect of HAZ using different process parameter and characteristic of weldment.
2. Write short notes on: (*i*) Welding rods (*ii*) Fluxes(*iii*) Gas flames (*iv*) Working of pressure regulators (*v*) Working pressure of gases in H.P and L.P welding and cutting.
3. Write short notes on: (*i*) Welding rods (*ii*) Fluxes (*iii*) Gas flames (*iv*) Working of pressure regulators (*v*) Working pressure of gases in H.P and L.P welding and cutting.
4. Write short notes on the following:(*i*) Hoses(*ii*) Torch tip(*iii*) Welding torch and its parts(*iv*) Welding goggles(*v*) Wire brush (*vi*) Filler rod in gas welding.
5. Write short notes on: (*i*) Forge or smithy welding. (*ii*) Leftward welding. (*iii*) Rightward welding. (*iv*) Vertical welding
6. Explain with neat sketch solid state welding and friction welding.
7. What are different equipment used in Arc welding and also state their application?

8. Write a short note on Welding of plastics and composites materials.
9. What is welding fixtures? What is a HAZ effect and what are process parameters on the characteristics of weldment?
10. Explain the Submerged Arc welding Process with neat sketch.
11. Explain the Friction Stir welding and under water welding process. (only Working Principles)

PAPER NAME: INDUSTRIAL ENGINEERING
PAPER CODE: OE-ME701A

1. How do you apply lean principles to improve process efficiency in an industrial setting?"
2. How do you ensure quality control in manufacturing processes?
3. Explain how you would conduct a time and motion study to optimize labor productivity.
4. Describe a situation where you had to implement a change in a production process. How did you manage the transition?
5. How do you approach cost reduction in a manufacturing environment without compromising product quality?
6. What methods do you use to evaluate and improve supply chain efficiency?
7. How does the company approach continuous improvement, and what role do Industrial Engineers play in this process?
8. What is process analysis, and how is it used?
9. What is processed planning, and how does it differ from process analysis?
10. Explain the concept of total quality control and identify what standards are used in this practice?
11. What are the main two methods for calculating costs in a production environment?
12. What are the three management functions performed in a production facility, and can you briefly describe each one's purpose?
13. What are time studies, and what methods are used in this process?

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

1. Short note – Infinite Analysis Period.
2. Short note – ' End of the year convention '.
3. Difference between - Inflation and Deflation.
4. Explain the importance of Index Number.
5. Graphically represent – NPV and IRR.
6. Discuss the uses of Break-Even Analysis.

B.TECH-7TH SEM-ME-PRACTICAL

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

1. Give Experimental procedure on ECM/ LBM
2. Write different between orthogonal cutting and oblique cutting.
3. Set Programming on CNC Lathe using G and M Codes
4. What is up milling process? Explain with figure. Write the advantage of down milling process.
5. Give the effect of parametric variation in arc welding
6. Study of and Solving problems on geometry of robot manipulator, actuators and grippers
7. Set Programming on CNC Milling Machine using APT