INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION

DIPLOMA-5TH SEM-CST-THEORY

PAPER NAME: SOFTWARE ENGINEERING

PAPER CODE: SE

1.What is 4Ps of software project management?
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 the use case diagram for ATM system.

PAPER NAME :JAVA PROGRAMMING

PAPER CODE: JP

1. Write a program finds the number is prime or not. Example 1003 is prime or not.
2. List any eight controls from java.awt package.
3. Explain use of command line arguments.
4. Explain about try-catch functionality in Exception Handling.
5. Write a Java program using recursion n terms of Fibonacci series.

PAPER NAME :OPERATING SYSTEM

PAPER CODE: OS

1. Explain the process of Deadlock Recovery.
2. Explain Mutual Exclusion.
3. Explain the classical Dinning Philosophers problem.
4. How will you check to see if the algorithm can prevent deadlock?
5. What two advantages do threads have over multiple processes?

PAPER NAME: THEORY OF COMPUTATION

PAPER CODE: TOC

1. What is Mealy machine? What is Moore machine? Transforming a Mealy machine into Moore Machine
2. Remove the null productions from the following grammar

   S -> ABAC
   A ->aA / ϵ
   B ->bB / ϵ
   C -> c

3. Explain Chomsky Normal Form. Convert the following grammar into Chomsky Normal Form S -> S(S)/ ϵ.
4. Describe Turing Machine. What do you mean by lossy and lossless decomposition in Turing machine.
5. Give a DFA accepting the string over alphabet $\sum$0,1, such that in each string number of 0's divisible by 3 and the number of 1's is divisible by 5.

PAPER NAME: MULTIMEDIA & ANIMATION TECHNOLOGY

PAPER CODE: MAT

1) Explain the Animation Technique.
2) Explain Nyquist sampling theorem.
3) Explain MIDI specification.
4) Explain the application of multimedia.
5) What is MPEG. Explain with brief.

DIPLOMA-5TH SEM-CST-PRACTICAL

PAPER NAME :JAVA PROGRAMMING LAB
PAPER CODE: LJP

1) Java Program to Swap Two Numbers
2) Java Program to Check Whether a Number is Even or Odd
3) Java Program to Check Whether an Alphabet is Vowel or Consonant
4) Java Program to Find the Largest Among Three Numbers

PAPER NAME :OPERATING SYSTEM LAB
PAPER CODE: LOS

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: MULTIMEDIA & ANIMATION TECHNOLOGY
PAPER CODE: LMAT

1. Use of different tools of Photoshop.
2. Use of Color tool of Photoshop.
3. Use of blending modes of Photoshop.
4. Learn Toning Tool, Different Media, Color models.
5. Use of different effects of Photoshop.

DIPLOMA-5TH SEM-EE-THEORY

PAPER NAME: POWER ELECTRONICS & DRIVES
PAPER CODE:PED

(1) Describe the principal of step-down chopper. Derive an expression for the output voltage in terms of input voltage and duty cycle. State the assumption made.
(2) Describe single PWM inverter.
(3) Explain the working of a single phase full bridge inverter (voltage source type) with RLC under damped type of load. Draw the relevant waveform and comment whether forced commutation is necessary for this type of load, if the inverter circuit mentioned above is constructed with SCR as switching element.
(4) What is the function of a Cycloconverter. What are the advantages of cycloconverter over an inverter?
(5) Short Note on DIAC, TRIAC & SCS.

PAPER NAME: MICROPROCESSOR & MICROCONTROLLER
PAPER CODE: MPMC

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

PAPER NAME: SWITCHGEAR & PROTECTION
PAPER CODE: SP

1. Explain with sketches and their R-X diagrams for the following distance relays.
   a) Impedance relay
   b) Mho relay
2. Write a short note on the following.
   a) Combined leakage and overload protection for transformers.

b) Earth-fault protection for transformers.

3. Describe the following system of bus-bar protection.
   a) Differential protection.
   b) Fault-bus protection.
4. Write a short note on PT.
5. What is surge diverter? Discuss the construction, principle and working of a valve type arrester.

PAPER NAME :UTILIZATION,TRACTION HEATING &DRIVES

PAPER CODE :UTHD

(1) What are the various factors which decide the choice of an electric drive for industrial application?
(2) Discuss the advantages of electric drives. State the component parts of electric drive
(3) What is meant by the term "adhesive weight"?
(4) What is meant by stroboscopic effect? How this effect is eliminated in fluorescent tube lightings?
(5) What is specific energy consumption? Write the factors affecting specific energy consumption.

PAPER NAME: ILLUMINATION ENGINEERING

PAPER CODE:IE

1 What is Photometry? What are the different methods to measure luminous intensity? Discuss any one.
2 Discuss working principle and application of Lux meter.
3 Write short notes on followings:
   (a) Black body radiation
   (b) Fluorescent lamp
   (c) LED
   (d) LASER
   (e) Luminance
4 What is colorimetric? What are the different colorimetric instruments are there? Discuss any one.
5 What is the basic concept of "human eye as an optical system".

DIPLOMA-5TH SEM-EE-PRACTICAL

PAPER NAME: POWER ELECTRONICS & DRIVES LAB

PAPER CODE:LPED

1) To fabricate an op-amp integrator, determine its amplitude, phase relation with input, duration of output pulse compared to input for a square wave input.
2) To fabricate with IC-555 – A stable multi-vibrator & to determine duration of high pulse, low pulse and duty cycle.
3) To study fully controlled full wave rectifier using SCR.
4) To study DC chopper circuit using SCR.
5) To perform speed control of DC series motor using SCR.

PAPER NAME: MICROPROCESSOR & MICROCONTROLLER LAB

PAPER CODE: LMPMC

1. Draw and explain the architecture of 8085 microprocessor.
2. Explain the various Addressing-Modes of 8085 microprocessor.
3. Explain the operations of a Microcontroller.
4. Differentiate between Microprocessor & Microcontroller.
5. Explain different Applications of 8085 microprocessor.

PAPER NAME: SWITCHGEAR & PROTECTION LAB

PAPER CODE: LSP

1. To demonstrate HRC fuse, MCB & ELCB and explain the functions of various components.
2. To Identify the components of MOCB,ABCB,SF6 types of circuit breakers with their specifications.
3. To test percentage Differential Protection of Transformer Using Transformer Differential Relay (Electromagnetic/Microprocessor based).
4. To demonstrate the operation of single phasing preventer by creating single phasing fault for a given 3-ph induction motor with D.O.L. starter.

PAPER NAME: ILLUMINATION ENGINEERING LAB
PAPER CODE: LIE

1. To measure illuminance (daylight & artificial light) at different points of a classroom by Luxmeter & draw – (i) Variation of Illuminance characteristics with distance and (ii) Isolux plot.
2. To study the technical data of different types of lamps available in the market & draw their connection diagram.
3. To study the different lighting accessories, ignitor & electronic ballasts required for different types of lamps – Sodium vapour, Mercury vapour, Metal halide, CFL, Fluorescent lamp.
4. To study the different luminaries available in the market for various types of lamps with their technical specifications, their design consideration, Indian standard recommendation.

PAPER NAME : UTILIZATION,TRACTION HEATING & DRIVES LAB
PAPER CODE : LUTHD

1) To determine Illumination of a surface for a Drawing Room by means of lux meter.
2) To determine candle power of a lamp in comparison to standard C.P. of lamp by optical bench method.
3) To verify the Inverse Square Law and compare the difference in output luminescence of incandescent, fluorescent and compact fluorescent lamps.
4) To Study of Sodium vapour lamp, Mercury vapour lamp, CFL with their connections and the technical specification.
5) To study of different current collectors used for drawing current from O.H. system for traction (using models and block diagram).

DIPLOMA-5TH SEM-CE-THEORY

PAPER NAME: BUILDING SERVICES & ENTREPRENEURSHIP DEVELOPMENT
PAPER CODE: BSED

1. Write short notes on i) Plain Sedimentation ii) Two pipe system
2. Write short note on following:-
3. Discuss about different types of pipes.
4. Discuss about different types of joints in pipe fittings with neat sketch.
5. What is the general requirement of fire protection?

PAPER NAME: CONTRACT & ACCOUNTS
PAPER CODE: CA

1. What is contract? What are the different types of civil engineering contracts?

2. What are the circumstances under which lowest tender may be rejected? What is supplementing tender?

3. Write notes on:
(a) Lump-sum contract
(b) Substituted item
(c) N.I.T.
4. Write briefly on comparative statement and acceptance of tender.

PAPER NAME: TRANSPORTATION ENGG.-II
PAPER CODE: TE-II

1. State the importance of road transportation in India.
2. What is Indian road congress? State its function.
3. Draw the cross section diagram of a pavement.
4. What are the surveys carried out in a road project?
5. Define camber and state its types.

PAPER NAME: DESIGN OF RCC STRUCTURE
PAPER CODE: DRCCS

1. Determine the moment of resistance of a section of width 250mm depth 310mm and 3 no 12 mm dia as bottom reinforcement. Grade of concrete M20 and grade of steel Fe 415. (limit state design method)
2. A doubly reinforced beam 250x 600mm overall has to resist a factored moment of 210 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.
3. Determine depth of neutral axis of a section of width 200mm depth 400mm and 3 no 20 mm dia as a bottom reinforcement. Grade of concrete M15 and grade of steel Fe 250.(limit state design method)
4. Determine the moment of resistance of a section of width 250mm depth 310mm and 3 no 12 mm dia as a bottom reinforcement. Grade of concrete M20 and grade of steel Fe 250. (working state design method)
5. A dog-legged staircase is to be designed between intermediate floors of a residential building, within a stair hall having clear dimensions 5 m × 2·5 m. The stair hall has 4 columns at its corners measuring 250 mm × 400 mm each. The beams at the ends may be considered 250 mm × 350 mm each. Consider floor to floor height = 3·3 m, intensity of live load = 3 KN/m2 on plan area. Riser 150 mm, width of landing and width of flight both = 1200 mm. Show general arrangement of the stair case and design the flights of the staircase.

PAPER NAME:GEOTECHNICAL ENGG. -II
PAPER CODE: GE-II

1. What is general shear failure, local shear failure and punching shear failure?
2. Draw a neat sketch of a pile load test and Explain the load settlement curve obtained

From a pile load Test 3. State the Requisite qualities of Good foundation. Mention the Types of load which are to the taken into consideration of foundation

4. Classify various types of piles based on the type of material used.
5. How piles are classified as per function? Mention the Hiley's formula related to pile foundation. Hints: Hiley formula.

DIPLOMA-5TH SEM-CE-PRACTICAL

PAPER NAME:GEOTECHNICAL ENGG.-II LAB
PAPER CODE: LGE-II

1.Write the determination procedure of natural moisture content.
2.Write the dtermination 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:CIVIL ENGINEERING LAB-III
PAPER CODE: LCE-III

1.Write the procedure of coefficient of discharge for a given Venturimeter.

2.Write the procedure of determination of coefficient of friction.
3.Write the procedure of determination of coefficient sharp edge orifice.
4.Discuss about centrifugal and Reciprocating pump.

DIPLOMA-5TH SEM-ME-THEORY

PAPER NAME: FLUID MECHANICS & MACHINERY

PAPER CODE: FMM

1. A) Explain the various types of fluids. State& explain Newton's law of viscosity. What is dynamic viscosity & kinematic viscosity?
   B) A plate 0.025 mm distance from a fixed plate ,moves at 60cm/s and required a force of 2N per unit area i.e., $2N/m^2$ to maintain this speed . Determine the fluid viscosity between the plates.
2. A)Explain the Pascal`s law. State & prove Pascal's law of fluid pressure.
   B) A Relationship between Bulk Modulus (k) and Pressure (p) for Gas.
   C) Describe the different types of fluid flow process.
3. A)Define atmospheric pressure,Gaugepressure,Vacuum pressure & absolute pressure.
   B) A u-tube containing mercury has its right limb open to atmosphere & left limb connected to a pipe conveying water under pressure, the difference in level of mercury in the two limbs being 200m. If the mercury level in the left limb is 300m below the centre line of the pipe,find the Gauge & absolute pressure in the pipeline.
4. A) StateBernoulli,s theorem & derive it for the frictionless flow with necessary condition
   B) A vertical tapering pipe is 2.5m long. The dia of the pipe is 25 cm at the top end &the 15 cm at the bottom end.If 40 l/s of the water flows through the pipe, find the differen-Ce in pressure between the two ends of pipe, neglect losses.

PAPER NAME: ADVANCEDMANUFACTURING PROCESSES

PAPER CODE : AMP

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: MEASUREMENT & CONTROL

PAPER CODE: MC

(1) Define open loop and closed loop control system with proper example.
(2) Describe with block diagram the functional elements of a general measurement system.
(3) Describe with block diagram the measurement & control system for heating a room at specific temperature.
(4) Explain the working principle of stroboscopic tachometer.
(5) Sketch & explain the working principle of a Rota meter. Why it is called variable area flow meter?

PAPER NAME :POWER ENGINEERING

PAPER CODE: PE

1. Describe Carnot cycle with gas with the help of P-V and T-S diagram and deduce a formula for its thermal efficiency.
2. Derive the efficiency of Dual cycle with p-v and T-S diagram.Write short note on scavenging and supercharging.
3. A petrol engine working on Otto cycle has a maximum pressure of 50 bar. Heat supplied is 1000KJ/KG. If the pressure ratio during compression 12.286, find the compression ratio and also ration of peak temperature to inlet temperature. Take p_1=1 bar and T_1=27°C

4. List out the Difference between fire tube and water tube boiler .Explain the working principle of water tube boiler with neat sketch.
5. Explain the purpose of reheating steam. Show the flow of a reheat cycle. Draw T-S diagram of a reheat cycle

PAPER NAME : AUTO MOBILE ENGINEERING
PAPER CODE: AE

1.Draw the flow path showing the diesel flow from fuel tank to combustion chamber.
2.Discuss the detail the constructional feature of a clutch plate .Explain clearly the function of each major components of the clutch plate.
3.What are the common types of steering gears? Describe any one in detail with the help of simple sketch.
4.Explain the clearly the necessity of gear box for the transmission in a vehicle.
5. Draw the layout diagram of an air brake system with all units.

DIPLOMA-5TH SEM-ME-PRACTICAL

PAPER NAME: FLUID MECHANICS& MACHINERY LAB
PAPER CODE: LFMM

1. Determination of co-efficient of discharge of venturimeter.
2. Determination of co-efficient of discharge of orifice meter.
3. Performance test on single acting centrifugal pump.

PAPER NAME: ADVANCED MANUFACTURING PROCESS LAB
PAPER CODE : LAMP

1. Discuss the mechanism of material removal for Abrasive jet machining (AJM). State their limitations.
2. Explain with a neat sketch the operation of the canned cycle G81 as per ISO.
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: MEASUREMENT & CONTROL LAB
PAPER CODE: LMC

1. Speed Measurement by using Stroboscope / Magnetic / Inductive Pick Up.
2. Measurement of flow by using Rotameter.
3. Calibration of given LVDT.
4. Temperature control using Thermal Reed switch & Bimetal switch.
5. Temperature measurement using Thermocouple.

PAPER NAME : POWER ENGINEERING LAB
PAPER CODE: LPE

1. To study the Cooling system of IC engine
2. To Study of Four Stroke diesel engine
3. To study the constructional detail and working principle of four stroke petrol

PAPER NAME : AUTO MOBILE ENGINEERING LAB
PAPER CODE: LAE

1. To study and prepare report on the constructional details, working principles and operation of the

following automotive clutches:

a. Coil – Spring clutch
b. Diaphragm spring clutch
c. Double disk clutch

2. To study and prepare report on the constructional details, working principles and operation of the following automotive transmission systems:

a. Synchromesh – four speed range
b. Transaxle with dual speed range
c. Four wheel drive and transfer case
d. Steering column and floor shift- lever

3.To study and prepare report on the constructional details, working principles and operation of the following automotive tyres & wheel:

a. Various types of bias and radial plies tyres
b. Various types of wheels

PAPER NAME : C PROGRAMMING LAB
PAPER CODE: LCP

1. Define array. Explain different types of array in detail.
2. State and explain various types of standard function with example.
3. Write a C language program using recursion n terms of Fibonacci series.
4. Write C Program to implement the following pattern:

```
1
2 3
4 5 6
7 8 9 10
```

5. Write a C program to find the H.C.F and L.C.M of two given numbers.