INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION
DIPLOMA-1ST SEM – (CST+EE+ME+CE+ETCE)-THEORY
PAPER NAME : MATHEMATICS-I
PAPER CODE: MATH-I

Answer the following

1. Find dy/dx when y=xlogx.

2. Prove that if the roots of the equation $(a^2 + b^2)x^2 - 2(ac + bd)x + (c^2 + d^2) = 0$ are equal then $ad=bc$.

3. Evaluate $\int \frac{dx}{e^x + e^{-x}}$

4. Find the vertex, axis, focus, length of latus -rectum, equation of directory, coordinates end points of the latus-rectum and tangent at the vertex of the parabola $x^2 + 2y - 8x + 26 = 0$.

5. If $x^p y^q = (x + y)^{p+q}$, then find $\frac{d^2y}{dx^2}$.

6. x=acost, y=bsint   then find dy/dx

7. A particle acted on by constant forces $2\hat{i} + \hat{j} - 2\hat{k}$, $\hat{i} - 2\hat{j} + 3\hat{k}$, and $3\hat{i} + \hat{j} + 5\hat{k}$ is displaced from the point (2, 3, 4) to the point (5, 6, 2). Find the work done by the forces.

PAPER NAME : APPLIED PHYSICS-I
PAPER CODE : APHY-I

1) What is dimensional formula? Describe the dimensional equations and their applications.

2) Discuss the terms in measurement:

(a) Least Count (b) Absolute Error (c) Relative Error (d) Significant Figures

3) Explain the terms:-

a) Laws of limiting friction b) Law of conservation of mechanical energy

4) Define contact force. What are nuclear forces?

5) Define the terms:-

a) Angular velocity b) Tangential acceleration

6) Explain the terms a) Angle of friction b) Impulsive force.

7) What is the principle of circular turning and banking of roads? What are centripetal forces?

PAPER NAME : APPLIED CHEMISTRY
PAPER CODE : ACHEM

1. Explain Bohr's atomic model.
2. Write down the electronic configuration of 24^{cr} and 29^{cu}.
3. State Aufbau principle and Hund'srule
4. State Pauli Exclusion Principle with one example.
5. What is hydrogen bond? Explain inter and intra molecular H-bonding.

PAPER NAME: COMMUNICATION SKILL IN ENGLISH
PAPER CODE: CS

1) Mention some barriers of effective communication.

2) Draw the model of communication.

3) What are 7 Cs for effective communication?

4) Differentiate between soft skills and hard skills.

5) Write a job application letter attaching your C.V. in an MNC for the post of "Junior Engineer". The Candidate should have good academic record, good communication skills with 1 yr experience.

6) Suppose you have been asked by the Principal of your institute to investigate the facilities available in the library. Now write a report making with some recommendations.

7) As the head of an MNC write a memo to all its employees about a short term change of duty hours.

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DIPLOMA-1ST SEM – (CST+EE+ME+CE+ETCE)-PRACTICAL

PAPER NAME : APPLIED PHYSICS-I lab
PAPER CODE : LAPHY-I

1) Describe the dispersive power of the material of a prism.
2) Discuss about the Thermo-Electric power of given thermocouple.
3) Explain about the specific charge of electron (e/m) by JJ Thompson's method.

PAPER NAME : APPLIED CHEMISTRY LAB
PAPER CODE : LACHEM

1. Write down the confirmatory test of Sulphide ion.
2. Write down the Confirmatory Test of Nitrate ion.
3. Write down the Confirmatory Test of Copper ion.
4. Write down the Confirmatory Test of Nickel ion.

PAPER NAME : COMMUNICATION SKILLS IN ENGLISH-LAB
PAPER CODE : LCS

1) What is Proxemics? Cite one example.

2) Mention types of Listening.
3) Write some Do's and Don'ts of Group Discussion.

PAPER NAME: ENGINEERING GRAPHICS
PAPER CODE: EG

1. Write the following letters in 6:5ratio,single stroke type with letter height of 18mm.
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. Construct an ellipse having major axis 100 mm and minor axis 70 mm.
4. The major and minor axes of an ellipse are 80mm and 60mm respectively. Draw half of the ellipse by concentric circle method and other half by oblong method.

PAPER NAME: ENGINEERING WORKSHOP
PAPER CODE: EW

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

DIPLOMA-3RD SEM-CST-THEORY
PAPER NAME: COMPUTER PROGRAMMING
PAPER CODE: COPC201

1. Define array. Explain different types of array in detail.
2. What will be the value of the variables at the end in each of the following code statements:

        int a=4^4
        int a=23.34
        a = 10 b = a + a++

         a=-5

        b=-a

3 What do you mean by Dangling Pointer Variable in C Programming?

4. What do you mean by the Scope of the variable? ...

5. What are static variables and functions?

1. What is PEP 8 and why is it important?
2. What is Scope in Python?
3. What are lists and tuples? ...
4. What are the common built-in data types in Python?
5. What is pass in Python?
6. Define pandas dataframe. Explain the steps to create 1D, 2D and 3D arrays.

1. How do you implement stack using queues?
2. What is the requirement for an object to be used as key or value in HashMap?

3. What is binary tree data structure? What are the applications for binary trees

4. What are the scenarios in which an element can be inserted into the circular queue?
5. Differentiate between top down and bottom up approach of problem solving.
6. Write an algorithm/pseudocode to convert a given infix expression to postfix expression? Trace the steps involved in converting the given infix expression((A +B)^C)-((D*C)/F) to postfix expression.

1. What is the easiest way to determine cache locations in which to store memory blocks?
2. What is a virtual memory on a computer?
3. Can you state some of the common rules of assembly language?
4. What is a RAID system?
5. What are the two hardware methods to establish a priority? Explain each method.
6. What are the steps involved in an instruction cycle?

1. How can we compare between two algorithms written for the same problem?
2. Explain the Divide and Conquer Algorithmic Paradigm. Also list a few algorithms which use this paradigm.

3. Describe the Linear Search Algorithm.
4. Write an algorithm to reverse a linked list.
5. Design an algorithm that find minimal spanning tree in polynomial Time.

PAPER NAME: COMPUTER PROGRAMMING LAB
PAPER CODE: COPC211

1. Develop a program to solve simple computational problems using arithmetic expressions and the use of each operator leading to the simulation of a commercial calculator.
2. Develop a program to compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages?

3. Develop a program to find the reverse of a positive integer and check for palindrome or not Display appropriate messages?

4. Introduce 1D Array manipulation and implement Binary search

5. Write a C program to print Fibonacci series using recursion.

PAPER NAME: SCRIPTING LANGUAGES LAB
PAPER CODE: COPC213

1. Write a TCL script to find the factorial of a number.
2. Write a TCL script that multiplies the number from 1 to 10.
3. Write a Ruby script to find the greatest of three numbers.
4. Write a TCL script to Copy a file and translate to native format.
5. Write a TCL script for sorting a list using a comparison function.

PAPER NAME: DATA STRUCTURES LAB
PAPER CODE: COPC215

1. Write the C program to insert a node in circular singly list .
To create a 2D array of numbers and calculate & display the row & column sum and the grand total.

2. Suppose you are given with the in-order and pre-order sequence of a binary tree.

In-order: B   C   A   E   D   G   H   F   J

   Pre-order: A   B   C   D   E   F   G   H   J

3. Construct the binary tree from these two.
4. Write think binary search method can be used to insert elements into its correct place in the destination list.

5. Write the recursive C function to count the number of nodes present in a binary tree.
6. Write a recursive C function to calculate the height of a binary tree.

DIPLOMA-3RD SEM-CE-THEORY
PAPER NAME: CONSTRUCTION MATERIALS
PAPER CODE: CE-PC-301

1. Write short notes on paints and varnishes.
2. Discuss about different types of lime.
3. Write short notes on i) Blast furnace slag cement ii) High alumina cement
4. What do you mean by load bearing wall and partition wall?
5. What is hydration? Factors affecting hydration of cement.
6. Write down about the function of initial ingrefdients of cement.
7. What is painting? Difference between paint and distemper.
8. What is the method to paint an existing surface?
9. What is hardwood and softwood? Explain with example.
10. Write short notes on veneer and plywood.

PAPER NAME: BASIC SURVEYING
PAPER CODE: CE-PC-302

1. What are WCB & RB?
2. The length of the offset is 15m and the scale of the plan 10m to 1cm.If the offset is laid out 3^0 from it's true direction, find the perpendicular displacement of the plotted point on the paper.
3. What is the principle of chain surveying?
4. What is well & ill conditioned triangle?
5. What are the sources of error in chaining.
6. The sides of a triangle are 12.0,16.5 and 23.0 m. Respectively. Examine whether the triangle is well-conditioned.
7. Write short notes on any four of the following:
       a) Levelling staff
       b) Compensating and cumulative error in chaining
       c) Optical square
       d) Fly levelling
         e) Isogonic and agonic lines

PAPER NAME: MECHANICS OF MATERIALS
PAPER CODE: CE-PC-303

1. How would you find out the moment of inertia of a plane area?
2. State and prove the theorem of perpendicular axis applied to moment of inertia.
3. Describe the method of finding out the moment of inertia of a composite section.
4. State clearly the Hooke's law?
5. Find the radiis of gyration of a body having MOI 20kg-m^2 and mass 4kg..
6. Draw the stress-strain curve of mild steel.

PAPER NAME: BUILDING CONSTRUCTION
PAPER CODE: CE-PC-304

1. List out the different types of doors and windows.

2. Write down the classification of shallow foundation and Deep foundation.

3. Write a Short note on Cofferdam.

4. What is the difference between stone masonry and brick masonry.

5. Describe the types of pointing.

6. Write a short note on Rubble masonry.

PAPER NAME: CONCRETE TECHNOLOGY
PAPER CODE: CE-PC-305

1. Discuss about Bulking of sand with sketch.
2. Discuss about tests of measurement of workability.
3. The field test of cement. Describe Low heat Portland cement.
4. What are the factors that influence the strength of cement concrete ? Discuss about Finess Modulus.
5. Name some empirical tests to measure workability and explain their suitability?
6. State the chemical composition of cement with percentages and role of each ingredient
7. What is segregation, bleeding, curing?
8. What is flakiness index and elongation index?
9. What is quick setting and hydrophobic, coloured cement?
10. State the chemical composition of cement with percentages and role of each ingredient.
11. What is aggregate abrasion and aggregate crushing value?

PAPER NAME: CIVIL ENGINEERING PLANNING AND DRAWING
PAPER CODE: CE-PC-306

A. Discuss about Reducing and enlarging scale.

B. Discuss about diagonal scale.

C. Discuss about aspect and Prospect.

D. Discuss about orientation of building.

PAPER NAME: TRANSPORTATION ENGINEERING
PAPER CODE: CE-PC-307

1. What is an intersection? Explain in detail, the two broad classifications of Intersections

2. What are the types of traffic signs?

3. Distinguish between Cycle and Phase in traffics signal design.

4. What are the advantages and disadvantages of grade separated intersections?

5. Write a short note on Super elevation

6. What is Camber?

DIPLOMA-3RD SEM-CE-PRACTICAL
PAPER NAME: CIVIL ENGINEERING PLANNING AND DRAWING PRACTICES
PAPER CODE: CE-PC-308S

1. What is Auto CAD. write about different types of command.

2. Write down about use of hatch line and hidden line.

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PAPER NAME: CONSTRUCTION MATERIAL LAB
PAPER CODE: CEPC-309S/I
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1. How to identify various sizes of available coarse aggregate from sample of 10kg in Laboratory

2. Describes the various types of brick test

3.Identify the types of glasses from the given sample.

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PAPER NAME: MECHANICS OF MATERIAL LAB
PAPER CODE: CEPC-309S/II
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1. Explain the uses & component of Universal Testing Machine(UTM)

2. Describes the Tension test on mild steel as per IS:432(1)

3. Explain the compression test on sample test piece using compression testing machine .

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PAPER NAME: CONCRETE TECHNOLOGY LAB
PAPER CODE: CE-PC-309S/III
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1.Discuss about the procedure of consistency test of cement.
2.Discuss about the procedure of soundness test of cement.
3.Discuss about the initial setting time test of cement.

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PAPER NAME: TRANSPORTATION ENGINEERING LAB
PAPER CODE: CEPC-309S/IV
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1. How to determine Flakiness and Elongation Index of aggregate.

2. Write down the Aggregate impact Value test

3. Write down the aggregate crushing value test

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DIPLOMA-3RD SEM-ETCE-THEORY
PAPER NAME: COMPUTER PROGRAMMING LANGUAGE
PAPER CODE: COPC201
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1. Write a code in 32-bit x86 machine code to calculate the nth Fibonacci number.
2. Name some modeling languages.
 3. What are string variables? What is the execution of a program?
 4. How to find the missing number in a given integer array of 1 to 100?
5. How to find duplicate numbers in an array if it contains multiple duplicates?

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PAPER NAME: DIGITAL ELECTRONICS
PAPER CODE: DE
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1. Explain Binary number system.

2. Briefly explain the difference between the octal and decimal number system.

3. What do you mean by – Logic Gates in Digital?

4. What is the difference between Logic symbol and truth table of the different logic gates?

5. Draw the circuit diagram of A/D converter.

6. What do you mean by Flash type ADC?

7. Briefly explain the De Morgan's statement.

8. Differentiate 1's complement over 2's complement.

PAPER NAME: ELECTRIC CIRCUITS & NETWORK
PAPER CODE: ECN

(1) State and prove maximum power transfer theorem for dc network.

(2) A 10 µf capacitor in series with 1MΩ resister is connected across 100v dc supply determine
  (a) The time constant of the circuit
  (b) Initial value of charging current.
  (c) The capacitor voltage after a time equal to the time constant
  (d) The circuit current at this time
  (e) The time taken for the capacitor voltage to reach 50v.

(3) A Wheatstone bridge consists of AB=4Ω, BC=3Ω, CD=6Ω and DA=5Ω. A 2.4v battery is connected between point B and D. A galvanometer of 8Ω resistance is connected between A and C. Using Thevenin's theorem finds the current through galvanometer.

(4) What do you mean by transient response and steady State response? Consider a series R-L circuit connected with a dc voltage source. The inductor in the circuit is initially uncharged. Find an expression for the current in the circuit. Also find the value of the time constant.

(5) Draw comparison between electrical and magnetic circuit.

PAPER NAME: ELECTRONIC DEVICES & CIRCUITS
PAPER CODE: EDC

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.

6. What do you mean by Rectification Efficiency?

7. What is the importance of IC? Explain briefly

8. Briefly describe about MOSFET and CMOS.

PAPER NAME: PRINCIPLES OF ELECTRONIC COMMUNICATION
PAPER CODE: ETCE/ PEC/ S3

A. Explain about TDM/TDMA and CSMA-CA.

B. What is ALOHA? Explain about Slotted ALOHA. What is the difference between them?

C. Explain the Principle of DSSS. Explain about the jamming margin.

D. Explain the Principle of digital cellular CDMA system. What is ADPCM?

E. What are the two limitations of delta modulation? How Granular noise does occur?

F. What is the difference between PSK and FSK?
G. Briefly explain about GPRS Systems.
H. Explain- Piconets & scatternets

DIPLOMA-3RD SEM-ETCE-PRACTICAL
PAPER NAME: COMPUTER PROGRAMMING LANGUAGE LAB
PAPER CODE: COPC211

1. Write a C++ program to reverse a given number.

2. Write a C++ program to accept and display the details of a student using class .

3. Write a C++ program to check whether a given year is leap year or not.

4. Write a C++ program to find the GCD of two numbers.

5. Write a C++ program to find the factorial of a given number.

PAPER NAME: DIGITAL ELECTRONICS LAB
PAPER CODE: LDE

1. Study the basic gates

2. To realize half/full adder and half/full subtractor using X-OR and basic gates

3. To realize a decoder circuit using basic gates and to verify IC 74LS139

4. Verify Truth Table of Logic Gates (AND, OR, NOT, NAND & NOR Gates).
5. Truth table verification of Flip-Flops: (i) RS-Type

(ii) D- Type

(iii) T- Type.

(iv)JK-Type

6. Realization of 3-bit Asynchronous counter and Mod-N counter design

7. To convert given binary numbers to gray codes

PAPER NAME: ELECTRICAL CIRCUIT & NETWORK LAB
PAPER CODE: LECN

1. State and explain Norton theorem.
2. Define resistance, reactance and impedance.
3. Discuss about Node Analysis & Mesh Analysis.
4. State and explain superposition theorem.
5.   State and explain KVL & KCL.

PAPER NAME: ELECTRONIC DEVICES & CIRCUITS LAB
PAPER CODE: LEDC

1. To observe the waveform at the input and output of clipping circuits in different clipping configuration

2. To study the operation of positive and negative clamper circuit.

3. To study the V-I characteristics of UJT

4. To study Drain Characteristics and Transfer Characteristics of a Field Effect Transistor (FET)

   5. To study the input and output characteristics and to determine the h-parameters of a BJT for : —
     (a) C-E configuration,

       (b) C-B configuration,
   (c) C-C configuration

6. To study the VI characteristics of a forward and reverse biased Zener diode

   7. To study the operation of a ClassA, B Push-Pull Amplifier

PAPER NAME: PRINCIPLES OF ELECTRONIC COMMUNICATION LAB
PAPER CODE: LPEC

1. To study generation of AM signal and the waveforms
2 To study Envelop detector for demodulation of AM and observe the effect
3 To study generation of FM signal and the waveforms

4. Study of Delta Modulator & Demodulator

5. Study of PCM

6. To study PAM modulation and demodulation

7. To study the frequency spectrum of AM and FM using spectrum analyzer

DIPLOMA-3RD SEM-ME-THEORY
PAPER NAME: MECHANICAL ENGINEERING DRAWING
PAPER CODE: MEPC201

1. Draw full sectional front view & side view of a pedestel bearing by considering any suitable data.

2. Sketch neatly sectional front view of a knuckle joint for connecting two 50mm diameter rods. Take other suitable important dimension.

3. Draw the side view & front view of a protective type flange coupling by considering any suitable data.

4. Sketch neatly sectional front view of a Cotter joint for connecting two 40mm diameter rods. Take other suitable important dimension.

PAPER NAME: MECHANICAL ENGINEERING MATERIALS
PAPER CODE: MEPC203

1. Explain the various purpose of heat treatment. What are various method of heat treatment of steel
2. What is re-crystallization? Define re-crystalline temperature. Differentiate between hot and cold working.
3. Describe the method of improving the machinability. Explain the term creep and fatigue.
4. Draw the iron carbon diagram and explain.
5. What is powder metallurgy ? Why it is necessary to use lubricants in the press compacting of powders ? State the advantages and disadvantages of powder metallurgy.
6. Write short notes on the following: (i) ultrasonic test (ii) Nitriding (iii) Cyaniding (iv) Induction Hardening (v) radiography test
7. What is corrosion? Explain the different mechanism of corrosion. Discuss the method of   preventing   corrosion

8. Describe with neat sketch of one common method used for forming plastic sheets.
9. State the thermoplastic & thermosetting plastic.
10. Characteristic and application of ferrous materials and nonferrous material.

PAPER NAME: STRENGTH OF MATERIALS
PAPER CODE: MEPC205

1. 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.

2. 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.
3. A steel girder of I-shape cross section has equal flanges each 12 cmx 2cm connected by a web 20cm x 2cm. Determine the moment of inertia of the section about its centroidal axis which is parrel to the web.
4. A load of 20 KN is to be raised with the help of a stel wire. Find the minimum diameter of the wire if the stress is not to exceed 20000 KN/m².
5. A boiler is 1.5m in diameter having thickness of plate as 20mm. The efficiencies of the longitudinal joint & circumferential joint are respectively 60% & 80%. If the maximum allowable tensile stress in plate be 70 N/mm², calculate the safe steam pressure in the boiler.
6. Define these mechanical properties such as Elasticity, Ductility, Malleability, Hardness, Brittleness, Strength, Creep etc.
7. Classify the different types of beam with proper sketch. classify the different types of loading with proper sketch.
8. For a simply supported steel beam, 6m long & 150mm diameter, what point load should be placed at the mid span to restrict the deflection 10.35mm. Take E = $2x10^5$ N/mm² What will be the slope at the ends.

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PAPER NAME: MANUFACTURING PROCESS-I
PAPER CODE: MEPC207

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1.   Explain different types of gas flame. Explain about Spot welding.
2. Write the specification of shaper. Write the name of different lathe operations.
3. Explain about TIG welding. Explain different welding defects.
4. Explain about brazing and soldering. Write the specification of lathe.
5. Describe about shaper quick return mechanism.
6. What are the difference of shaper and planner.
7. Write the name of various pattern material.
8. Write the name of various type of pattern.
9. What are the factors on which different pattern allowance depends?
10. Write the name of various type of pattern allowance and also explain any one of them.
11. Write various types of casting defects.Write the various properties of moulding sand .

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PAPER NAME: THERMAL ENGINEERING –I
PAPER CODE: MEPC209

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i.   Drive the Carnot cycle with P-V and T-S diagram
ii.   What is thermodynamics system? Write down in detail various types of thermodynamics system.
iii.   What is meant by saturation temperature and saturation pressure?
iv.   List out the advantages of superheated steam.

v.   Show that efficiency of heat engine always less than 100%.
vi.   What are difference between heat engine , heat pump and refrigerator.
vii.   Calculated the work done, heat transfer, change of internal energy, change of enthalpy during isentropic process.
viii. What is meant by the internal energy of steam?
ix.   Define the following terms: a) sensible heat of water, b) dryness fraction of steam.
x.   Define the following terms: a) latent heat of vaporizations, b) total heat of steam.
xi.   Calculated the enthalpy of 1kg of steam at a pressure of 8bar and dryness fraction of 0.8. how much heat would be required to raise 2 kg of this steam from water at 20^0C.

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DIPLOMA-3RD SEM-ME-PRACTICAL
PAPER NAME: MECHANICAL ENGINEERING DRAWING PRACTICE
PAPER CODE: MEPC211

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1. Draw full sectional front view & side view of a pedestel bearing by considering any suitable data.

2. Sketch neatly sectional front view of a knuckle joint for connecting two 50mm diameter rods. Take other suitable important dimension.

3. Draw the side view & front view of a protective type flange coupling by considering any suitable data.

4. Sketch neatly sectional front view of a Cotter joint for connecting two 40mm diameter rods. Take other suitable important dimension.

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PAPER NAME: MATERIALS TESTING LAB
PAPER CODE: MEPC213

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1. To study Brinell & Vickers hardness testing machine.
2. To study the impact testing machine and perform the izod impact tests.
3. Why impact test is required for material testing? What is notch sensivity?
4 . To study the fatigue testing machine and perform rotating beam fatigue test.
5 What is fatigue life? Write short note endurance limit.
6   To study the impact testing machine and perform the charpy impact tests.
7 What is impact energy? Write use of impact properties?

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PAPER NAME: THERMAL ENGINEERING-I LABORATORY
PAPER CODE: MEPC215

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i.   Study of schematic layout of Hydroelectric Power Plant.
ii.   Study & measurement of calorific value of solid fuel using Bomb Calorimeter.
iii.   Study of Pressure Gauge and its use.
iv.   Study and Measurement of Dryness Fraction of Steam by Dryness Fraction Measuring Instrument.

v.   Study of Solar Water Heating System.

PAPER NAME: MANUFACTURING PROCESS-I LABORATORY
PAPER CODE: MEPC217

1. How will you obtain neutral, oxidizing and reducing flames using welding torch in gas welding? Compare the merits and demerits of using A.C and D.C for arc welding.
2. Compare TIG welding with MIG welding. Explain submerged arc welding with neat sketch.What do you under stand by MIG welding? What are its main advantages?

4. Describe the process of submerged arc welding stating its advantages and limitations. Discuss the method of underwater welding. What are its advantages and disadvantages?

5. Discuss, with the help of neat sketch, the principle of spot welding. Describe various Drilling machine parts.

6. Using neat sketch, describe the principal parts of the milling machine by neat sketches. Explain various types of milling operations using neat sketches.

7. What is indexing? Describe direct indexing, with example.Discuss the methods used for the production of pipes and tubes.

8. Write the name different parts of lathe with sketch. Explain the various steps involved in the investment casting of metals.

9.

DIPLOMA-3RD SEM-EE-THEORY
PAPER NAME: INTRODUCTION TO ELECTRIC GENERATION SYSTEMS
PAPER CODE: EEPC-201

1. Draw the schematic diagram of a thermal power station and discuss its operation.
2. Discuss about classification of water turbine.
3. Write down advantage and disadvantage of any conventional power plant.
4. Explain the working of a gas turbine power plant with a schematic diagram
5. Discuss in brief about nuclear reactor.
6. Write down site selection of hydroelectric power plant.

PAPER NAME: ELECTRICAL CIRCUITS
PAPER CODE: EEPC-205

1. State the Thevenin's Theorem. Define Peak factor.
2. State the Superposition Theorem. Define Power Factor.
3. Discuss Nodal Analysis Method. Define Form Factor.
4. Define Voltage Regulation? Define Power Efficiency.
5. Write the KVL & KCL Formula. What is RMS Value?
6. Draw the equivalent circuit of Ideal Transformer & Explain.

PAPER NAME: ELECTRICAL & ELECTRONICS MEASUREMENT
PAPER CODE: EEPC-209

1. What is meant by a filter? Give the classification of the filters.
2. Give the diagram & explain its working of LVDT.
3. Explain with diagram the construction & working of resistance strain Gauge.
4. Explain the construction and working principle of thermocouple.
5. Write down the working principles of PMMC.
6. Why moving iron is used for AC and DC?

PAPER NAME: DC MACHINE AND TRANSFORMERS
PAPER CODE: EEPC-213

1. Write down the operation principle theory of a Transformer.
2. Mention & also discuss the two types of winding used in the dc machine.
3. Write down the differentiate between long shunt compound generator and short shunt compound generator?
4. Write a short note on self excited and separately excited dc generator?
5. What is the purpose of yoke and pole shoes in d.c machine?
6. What are the essential parts of DC machine? Discuss about it.

PAPER NAME: ANALOG & DIGITAL ELECTRONICS
PAPER CODE: EEPC-217

1. What are the characteristics of a semiconductor?

2. Briefly explain the difference BJT and JFET.

3. What do you mean by Pinch- off phenomenon?

4. What is the operation of JFET?

5. Draw the circuit diagram of Half wave rectifier & full wave rectifier.

6. What do you mean by TRANSISTOR Biasing?

7. State Barkhausen criteria.

8. Discuss about different logic gates in Digital Electronics.

DIPLOMA-3RD SEM-EE-PRACTICAL
PAPER NAME: INTRODUCTION TO ELECTRIC GENERATION SYSTEMS LAB
PAPER CODE: EEPC-203

1. Study on the different types of Boiler used in coal based thermal power plant
2. Study on different types of Nuclear Reactor used in nuclear power plant
3. Study on different types of Water Turbines used in large hydro power plant
4. Draw Load Curve, Load Duration Curve and Mass curve of your institute
5. Calculate the total energy cost in a (i) Residential (ii) Commercial and (iii) Industrial Bill.

PAPER NAME: ELECTRICAL CIRCUITS LAB
PAPER CODE: EEPC-207

1. To verify Kirchhoff's Current Law and Kirchhoff's Voltage Law.
2. Use dual trace oscilloscope to determine A.C voltage and current response in given R, L, C circuit.
3. Use voltmeter, ammeter, wattmeter to determine active, reactive and apparent power consumed in given R-L / R-C series circuit. Draw phasor diagram.
4. Use voltmeter, ammeter, wattmeter to determine active, reactive and apparent power consumed in given R-L-C series circuit. Draw phasor diagram.
5. Use variable frequency supply to create resonance in given series and parallel R-L-C circuit or by using variable inductor or variable capacitor
6. Use voltmeter, ammeter, wattmeter to determine current, p.f. , active, reactive and apparent power in R-L / R-C parallel A.C. circuit.

PAPER NAME: ELECTRICAL & ELECTRONICS MEASUREMENT LAB
PAPER CODE: EEPC-211

1. Use single wattmeter for measurement of active and reactive power of three phase balanced Load.
2. Use two watt-meters for measuring active power of three-phase balanced load.
3. Calibrate single phase electronic energy meter by direct loading.
4. Use Kelvin's double bridge for measurement of low resistance.
5. Use voltmeter and ammeter method / Wheatstone bridge for measurement of medium resistance.
6. Use Megger for measurement of insulation resistance.

PAPER NAME: DC MACHINE AND TRANSFORMERS LAB
PAPER CODE: EEPC-215

1. Control the speed of DC shunt motor above & below rated speed & draw the speed characteristics.
2. Perform the brake test on DC series motor.
3. Compute the efficiency of a D.C. motor by Swinburne's test.
4. Determine equivalent circuit parameters of single-phase transformer by performing O.C. test and S.C. test.
5. Determine the regulation & efficiency of single-phase transformer by direct loading method
6. Compute the efficiency of a single-phase transformer by Back-to-Back test.

PAPER NAME: ANALOG & DIGITAL ELECTRONICS LAB
PAPER CODE: EEPC-219

1. Study of half & full wave rectifiers.
2. To realize half/full adder and half/full subtractor using X-OR and basic gates.
3. Truth table verification of Flip-Flops: (i) RS-Type, (ii) D- Type, (iii) T- Type, (iv)JK-Type
4. Realization of 3-bit Asynchronous counter and Mod-N counter design.
5. To realize a decoder circuit using basic gates and to verify IC 74LS139.
6. Implementation of D/A converter and A/D converter.

PAPER NAME: MICROPROCESSOR & MICROCONTROLLER
PAPER CODE: COPC-301

1. What are the fundamental difference between the Microprocessor and Microcontroller?

2. Explain the various register-flags of 8085 microprocessor.

3. What do you mean by addressing mode? What are the different addressing modes supported by 8086? Explain each of them with suitable examples.

4. Explain the various Interrupt of 8085 microprocessor.

5. Briefly explain the differences between IC & OP-AMP? What are the functions of the various components in 8085 microprocessor?

6. What is the significance of ALU unit? Describe the Bus Interfacing in 8086 microprocessor.

PAPER NAME : IOT
PAPER CODE: COPC303

1. What are the key differences between IoT and IIoT?
2. Explain the different types of communication models used in IoT.
3. Describe the Stages of IoT Solutions Architecture with figure.
4. What do you understand by IoT Biometrics Domain.
5. Explain the most common real-world applications of IoT.

PAPER NAME : ADVANCED COMPUTER NETWORK
PAPER CODE: COPE304/II

1. What is meant by clustering support?
2. Explain Proxy Server and its function.
3. What is a thermocouple sensor?
4. What do you understand by beaconing?
5. Explain piggybacking.

PAPER NAME: THEORY OF AUTOMATA
PAPER CODE: COPE305/I

1. Define: (i) Finite Automaton(FA) (ii)Transition diagram
2. What are the applications of automata theory?
3. Define proof by contra-positive.
4. Differentiate NFA and DFA.
5. What is Є-closure of a state q0?
6. What is a : (a) String (b) Regular language

PAPER NAME: COMPUTER GRAPHICS
PAPER CODE: COPE306/I

1. Write the difference between vector and raster graphics?
2. What are the advantages and disadvantages of direct view storage tubes?
3. Differentiate between Raster and Vector Graphics?
4. Differentiate between parallel projections from perspective projection.
5. What is the need for space partitioning representation?
6. Difference between CMY and HSV color models.

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DIPLOMA-5TH SEM-CST-PRACTICAL
PAPER NAME : MICROPROCESSOR & MICROCONTROLLER LAB USING SIMULATOR/DEBUG
PAPER CODE: LMPMC

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1. Explain the operations of a Microcontroller.
2. How to add two 8-bit numbers in Microprocessor.
3. How to convert analog to digital signal and to display it in 7 segment LED display?
4. How to substract 2 bit (8) numbers by using- 8085 Microprocessor?
5. How to add two 16 bit numbers using 8085 micro processor?
6. Explain with neat sketch of the ALU unit?
7. Describe the Schematic Architecture of 8085 Microprocessor.
8. Demonstrate an assembly program to make the stepper motor run in forward and reverse direction i.e Speed control of stepper motor.

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DIPLOMA-5TH SEM-EE-THEORY
PAPER NAME: MICROCONTROLLER & ITS APPLICATIONS
PAPER CODE: EEPC-301

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1. What are the fundamental difference between the Microprocessor and Microcontroller?
2. Explain the various register-flags of 8085 microprocessor.
3. What do you mean by addressing mode? What are the different addressing modes supported by 8086? Explain each of them with suitable examples.
4. Explain the various Interrupt of 8085 microprocessor.
5. Briefly explain the differences between IC & OP-AMP? What are the functions of the various components in 8085 microprocessor?
6. What is the significance of ALU unit? Describe the Bus Interfacing in 8086 microprocessor.

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PAPER NAME: BUILDING ELECTRIFICATION
PAPER CODE: EEPC-305

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1. On arrival of electrical machines what steps you followed for their acceptance?
2. State of operational steps involved in installation of electric machines in a workshop.
3. What is the meaning of HRC fuse? How does it operate?
4. What are the considerations in selecting a fuse for Transformer protection?
5. What are the considerations in selecting a fuse for Motor protection ?
6. What is a MCB? Why MCB's are used instead of HRC fuses in LV circuits?

7. What is the meaning of earthing? State the different methods of earthing.

PAPER NAME: INDUSTRIAL DRIVES
PAPER CODE: EEPE-301/2

1. How Does A Machine Work?
2. Describe the braking system of induction motor.
3. Derive the windage torque of an electric drive.
4. 4. What is switched reluctance motor drive?
5. Discuss about trapezoidal SPM machine drives.
6. Write down basic principle of SMC (Sliding Mode Control).

PAPER NAME : ILLUMINATION PRACTICES
PAPER CODE : EEPE-305/1

1. What are the functions of conservator and breather in transformer?
2. What type of wiring would you recommend for mechanical workshop?
3. As per IE rules, what are the provision applicable to medium, high and extra-high voltage installation?
4. State the factors, governing the amount of illumination at a particular place and the necessary point to be kept in view for executing schemes.
5. Explain utilization factor and depreciation factor used in connection with lighting scheme.

DIPLOMA-5TH SEM-EE-PRACTICAL
PAPER NAME: MICROCONTROLLER & ITS APPLICATIONS LAB
PAPER CODE: EEPC-303

1. Explain the operations of a Microcontroller.
2. How to add two 8-bit numbers in Microprocessor.
3. How to convert analog to digital signal and to display it in 7 segment LED display?
4. How to substract 2 bit (8) numbers by using- 8085 Microprocessor?
5. How to add two 16 bit numbers using 8085 micro processor?
6. Explain with neat sketch of the ALU unit?
7. Describe the Schematic Architecture of 8085 Microprocessor.
8. Demonstrate an assembly program to make the stepper motor run in forward and reverse direction i.e Speed control of stepper motor.

PAPER NAME: BUILDING ELECTRIFICATION LAB
PAPER CODE: EEPC-307

1. Measure earth resistance using earth megger.
2. Measurement of three phase energy using static energy meter which can show maximum demand, reactive power, TOD in addition to active power.
3. Measurement of energy using CT or CT and PT.
4. Test wiring insulation using megger.
5. Draw different types of earthing system and make a chart of materials required.

PAPER NAME: INDUSTRIAL DRIVES LAB
PAPER CODE: EEPE-303/2

1. Control the speed of DC Motor using armature voltage control method.
2. Control the speed of DC Motor using field current control method.
3. Measure the output voltage of chopper for resistive load by varying the frequency and /or duty cycle of chopper.
4. Control the speed of three phase squirrel cage induction motor using stator voltage control method.
5. Control the speed of the given separately exited motor by changing the firing angle of SCR using single phase full converter and measure the speed.
6. Control the speed of the given three phase induction motor by using constant V/f method and plot the graph between speed and frequency.

PAPER NAME: ILLUMINATION PRACTICES LAB
PAPER CODE: EEPE-307/1

1. Verify the laws of illumination.
2. Prepare control circuit of twin fluorescent lamp.
3. Prepare control circuit of HPSV lamp.
4. Prepare control circuit of LED lamp.
5. Prepare light dimmer arrangement using the relevant dimmer type of transformer
6. Prepare light dimmer arrangement using solid state dimmer circuit.

DIPLOMA-5TH SEM-CE-THEORY
PAPER NAME: WATER RESOURCES ENGINEERING
PAPER CODE: CE-PC-501

1. Discuss about types of precipitation.
2. Define about terms Aquifer, confined Aquifer, Aquicludes, Aquifuges.
3. Define terms berm, canal bank,hydraulic gradient, free board.
4. Describe with a neat sketch the working of a float type rain gauge.
5. What are the open wells? Explain with a sketch constant level pumping test
6. explain mass curve analysis, explain with sketches.
7. Enumerate the systems of flood forecasting.
8. Write a short note on decry's law of measuring velocity of ground water.
9. What is the necessity of temperature control is gravity dam?
10. Describe the method of watershed management.

PAPER NAME: ESTIMATINTG COSTING AND VALUTION
PAPER CODE: CE-PC-502

1. What is an Estimate?
2. How to fix up rate per unit of an Item?
3. Why we prepare Estimate before work done?

4. What is analysis of rate?
5. What is the main Purpose of Estimating?
6. What is the main Purposes of rate analysis?
7. Why An Estimate is never the actual cost of the work?

PAPER NAME: SAFETY ENGINEERING & MANAGEMENT IN THE CONSTRUCTION
PAPER CODE: CE-PC-510

1. How many types of network diagrams are there? Explain them.
2. Explain Rate analysis. What do you mean by crash cost.
3. What are charts? Enumerate the various types of chart with graphical representation.
4. Write about the contracting of network.
5. Write a short note-
   a. Slack   b. Forward plans
6. Distinguish between Amount put to tender and tender amount.
7. What are the factors to be considered while planning the rebuilding works after a major disaster due to flood /cyclone/earthquake
8. Differentiate natural disaster and manmade disasters with examples.
9. What is plinth area and cubic rate estimate?
10. Explain' Work Break Down' structure.

PAPER NAME: TRAFFIC ENGINEERING
PAPER CODE: CE-PE-506/II

1. Name the different tests carried out for road aggregate.
2. Design the rate of super elevation for a horizontal curve of radius 450m and design speed 90kmph.
3. Write the advantages and disadvantages of traffic signals.
4. write about different types of camber with sketch.
5. What is Super elevation.describe with neat sketch.
6. Describe about component of roads with neat sketch.

PAPER NAME: BUILDING SERVICES AND MAINTENANCE
PAPER CODE: CE-PE-507/I

1. Describe about reflux valve and pressure relief valve..

2. Define the term Scour valve and air valve.

3. write a short note on Market Assessment.

4. Explain what is Angle stop ?

5. Mention what are some health and safety issues that plumber face ?

6. Explain what is the common reason for sump pump failure?

7. How you can fix a leaky PVC water pipe ?

8. What is Educator ?

DIPLOMA-5TH SEM-CE-PRACTICAL

PAPER NAME: DESIGN OF RCC AND STEEL STRUCTURE PRACTICES (LAB)
PAPER CODE: CEPC503S

1. Enlist the components and corresponding functions of steel water tank.
2. Define bolt value and pitch.
3. Define aspect ratio in case of slab and state its importance.

PAPER NAME: Estimating, Costing and Valuation Practices (LAB)
PAPER CODE: CEPC504S

1. What is Estimate?
2. What is Floor Area?
3. What is Carpet Area?

PAPER NAME: WATER RESOURCE ENGINEERING PRACTICES (LAB)
PAPER CODE: CEPC505S

1. Which of the following methods of applying water may be used on rolling land?
2. What is infiltration capacity?
3. What is Duty?

DIPLOMA-5TH SEM-ME-THEORY
PAPER NAME: POWER ENGINEERING
PAPER CODE: MEPC301

1. Deduce the thermal efficiency of a 4 stroke diesel cycle,engine in terms of compression ratio and expansion ratio.

2. Describe Carnot cycle with gas with the help of P-V and T-S diagram and deduce a formula for its thermal efficiency.

3. Derive the efficiency of Dual cycle with p-v and T-S diagram.Write short note on scavenging and supercharging.

4. 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

5. List out the Difference between fire tube and water tube boiler .Explain the working principle of water tube boiler with neat sketch.

6. Explain the purpose of reheating steam. Show the flow of a reheat cycle. Draw T-S diagram of a reheat cycle

7. Show the difference between an ideal Otto cycle and real Otto cycle in P-V and T-S diagrams.

8. What do you mean by critical pressure ratio? What is the physical significance of critical pressure ratio?

9. What do you mean by impulse turbine and reaction turbine? Describe the working principle of pressure compounding of impulse turbine.

10. Show two major differences between steam engine and steam turbine. Describe six major differences between impulse and reaction turbine. What is nozzle control governing and in which stage of a turbine of a turbine it can only be applied

PAPER NAME: ADVANCEDMANUFACTURING PROCESSES
PAPER CODE : MEPC303

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.

6. Write principle & advantages Electro chemical machining (ECM) process.

7. Write down the need of N.T.M process. Write the difference between traditional and non traditional machining process.

8. Explain with figure the Ultrasonic machining (USM) process with its varies components.

9. Describe with neat sketch the working principle of Laser beam machining (LBM)?

10. Draw the schematic diagram of AJM set up .

PAPER NAME: FLUID MECHANICS & MACHINERY
PAPER CODE: MEPC309

1. Two large plane surfaces are 10mm apart & the gap contains a liquid of viscosity 0.8 N-S/m^2. Within the gap a thin plate of cross sectional area of 0.8 m^2 is to be pulled at a velocity of 0.6 m/s at a distance of 8mm from one surface. Determine the force required for pulling the plate.

2. A) Explain the various types of fluids.State & explain Newtons 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.

3. 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.

4. A) Define atmospheric pressure, Gauge pressure, 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) State Bernoulli,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 difference in pressure between the two ends of pipe, neglect losses.

5. A) Derive the continuity equation for steady flow process. Differentiate between steady & unsteady flow.

   B) Fluid flow through a pipeline which contracts from 50 cm dia. at A to 35 cm at B & Then branches into two pipes C & D. The dia. of the pipe c is 20 cm & that of D is 25 Cm. If the velocity at A be 2 m/s & that at D be 4 m/s, determine –velocity at B & discharge at C & D.

6. A) What are the major losses in pipe flow? Give the expression of major loss.

   B) Define Reynold's number. Explain the process of determination of this number.

7. Crude oil of density 800 kg/m³ & viscosity 0.14 NS/m² flows through a pipe of dia 40 cm at a rate of 50lit/s. Find the head lost due to friction in this pipe of length 350 km.

PAPER NAME : POWER PLANT ENGINNERING
PAPER CODE: MEPE301/1

1. A power supply station is to supply for regions of load whose peak loads are 10MW, 5
   i. MW,8MW, & 7 MW the diversity factor of load at the station is 1.5 & the average load
   ii. Factor is 0.6, calculate :   i)Maximum demand on the station

2. Explain briefly the following tariff :   i) straight meter rate   ii) block meter rate

3. The motors of an ice-breaker deliver 30 MW. Calculate the fuel consumption of reactor
   i. Per day if its efficiency is 22 %. Average fission energy release of U^{235} nuclide is
   ii. 200 MeV.

4. Briefly discuss with schematic layout of the power plant by considering : i) Reheat cycle

5. Explain briefly the following with a neat diagram :
   i) Differential surge tank
   ii)   Constant pressure open cycle Gas turbine

6. Explain the purpose of reheating steam. Show the flow of a reheat cycle. Draw T-S
   i. diagram of a reheat cycle.

1. What are the function of crank shaft piston and cam.
2. With neat sketch explain clearly the working of A.C. mechanical fuel pump.
3. Explain clearly the necessity of a transmission in a vehicle.
4. Describe working principle of simple carburetor with neat sketch.

5. A) What are the different between two stoke engine and four stoke engine?

   B). What are the different between C.I engine and S.I engine?

6. What are the common types of steering gears? Describe any one in detail with the help of simple sketch.

7. What is the function of differential in an automobile with neat sketch

8. Describe disc braking system with neat sketch.

9. What are the merit and demerit of frameless construction over frame type construction?

10. What is scavenging? Types of scavenging and their brief discussion?

11. Write short-notes
    A) Spark plug   B) Propeller Shaft

DIPLOMA-5TH SEM-ME-PRACTICAL
PAPER NAME: ADVANCE MANUFACTURING PROCESS LAB
PAPER CODE: MEPC313

1. Draw the schematic diagram of AJM set up .
2. State the Faraday's law of electrolysis. Describe with fig. ECM process.
3. Write advantages disadvantages of ECM.
4. Write the name different types of clamp. Explane any two of them.
5. Explane six point location principle.
6. Write the name different types of locator. Explane any two of them.
7. Explane laping and honning process.
8.

PAPER NAME: FLUID MECHANICS & MACHINERY LAB
PAPER CODE : MEPC315

1. Two large plane surfaces are 10mm apart & the gap contains a liquid of viscosity 0.8 N-S/m^2. Within the gap a   thin plate of cross sectional area of 0.8 m^2 is to be pulled at a velocity of 0.6 m/s at a distance of 8mm from one   surface. Determine the force required for pulling the plate.

2. Explain the various types of fluids.State & explain Newtons law of viscosity.What is dynamic viscosity & kinematic viscosity?
3. 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.
4. A) Explain the Pascal`s law. State & prove Pascal's law of fluid pressure.
   D) A Relationship between Bulk Modulus (k) and Pressure (p) for Gas.
   E) Describe the different types of fluid flow process.
5. A) Define atmospheric pressure, Gauge pressure, 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.

PAPER NAME: POWER ENGINEERING LAB
PAPER CODE: MEPC311

1. Deduce the thermal efficiency of a 4 stroke diesel cycle, engine in terms of compression ratio and expansion ratio.

2. Describe Carnot cycle with gas with the help of P-V and T-S diagram and deduce a formula for its thermal efficiency.

3. Derive the efficiency of Dual cycle with p-v and T-S diagram. Write short note on scavenging and supercharging.

4. 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

PAPER NAME : AUTOMOBILE ENGINEERING LAB
PAPER CODE: MEPC305

1 What are the function of crank shaft piston and cam.

2. What are the merit and demerit of frameless construction over frame type construction?

3. What is scavenging? Types of scavenging and their brief discussion?

4. Write short-notes
A) Spark plug   B) Propeller Shaft

PAPER NAME: ADVANCED COMMUNICATION SYSTEM
PAPER CODE: ETCE/ACS/S5

1. Explain the working principle of the following : Travelling Wave Tube (TWT)

2. What is detector diode?

3. Explain Time division multiplexing.

4. What is Code division multiplexing?

5. Explain Frequency division multiplexing with practical examples..

6. What is TDM in modern applications?

7. Explain PN sequence.

8. What is Direct sequence spread spectrum (DSSS)?

PAPER NAME: EMBEDDED SYSTEMS
PAPER CODE: ETCE/ES/S5

1. Draw and explain the operation of a triangular wave generator.

2. Derive an expression for its frequency of oscillation.

3. Explain the method of improving the slew rate of an op-amp.

4. Draw and explain briefly the equivalent circuit of an op-amp.

5. Define CMRR. Draw the circuit of an Op-amp differential amplifier and give the expression for CMRR.

6. Define Slew Rate. Explain the cause of slew rate and derive an expression for Slew rate for an op-amp voltage follower.

7. Explain the working of a saw tooth waveform generator.

8. Explain the methods to obtain asymmetric square wave.

PAPER NAME: INTERNET OF THINGS
PAPER CODE: ETCE/DIoT/S5

1. Describe to the industries can benefit from IoT, and Explain the main components of the IoT architecture?
2. Explain MAC protocol survey? Explain IOT application layer protocols: HTTP, CoAP and MQTT.

3. What are some good resources to learn about Machine-to-Machine communication (M2M) and how does M2M communication work? Explain.
4. Write the characteristics of IEEE 802.15.4 Device types. Write a program to read temperature from LM35 and print it in the serial monitor.
5. Write the steps to configure HC-05(Bluetooth module) as Master/Slave. Explain the functionality of level – 1 and level -2 of IoT reference architecture.
6. Describe different Cloud Service Models and Explain about the advanced features of Nimbi's that helps in developing IoT applications.
7. Draw and Explain ETSI M2M Service Architecture then Define ETSI M2M domains and High-level capabilities. Express how to organizing and analytics in IoT/M2M?
8. a)Discuss the advantages of IPV6 over IEEE 802.15.4
   b)Write the short note on:
   - (i)   RTLS + GPS
   - (ii)   RFID NFC
   - (iii) Peer to Peer

PAPER NAME: INDUSTRIAL ELECTRONICS
PAPER CODE: ETCE/IE/S5

1. write down the Operating principles of Digital camera and Cam coders.
2. State the basic characteristics of the sound signal

3. What are the types of the microphone?
4. State the types of audio amplifiers and explain each in brief.

5. State the working of the photocopier.
6. State the types of the microwave oven.

7. What are the characteristics of colour signal?
8. Explain the colour theory.

PAPER NAME: ESSENCE OF INDIAN KNOWLEDGE TRADITION AND INDIAN CONSTITUTION
PAPER CODE: IK&C

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

DIPLOMA-5TH SEM-ETCE-PRACTICAL
PAPER NAME: INTERNET OF THINGS LAB
PAPER CODE: : ETCE/DIoT/S5

1. Compare device centric identity management and hybrid identity management.
2. Explain an embedded system on an IoT device.
3. Describe the IoT cloud based services provided by Thing Speak platform.

4. Justify the statement with an illustrative scenario: "IoT is much more than M2M communication".
5. How to use a service platform while developing IoT applications? Explain with respective to Xively cloud service.

PAPER NAME: ADVANCED COMMUNICATION SYSTEM LAB
PAPER CODE: : LACS

1. To study generation of TDM signal and the detected waveforms
2. To study generation of FDM signal and the detected waveforms
3. To study generation of ASK signal and the detected waveforms
4. To study generation of FSK signal and the detected waveforms.
5. To study generation of PSK signal and the detected waveforms
6. To study the characteristics of GUNN diode
7. To study the characteristics of KLYSTRON

PAPER NAME: EMBEDDED SYSTEM LAB
PAPER CODE: : LES

1. To determine the following characteristics of op-amp**: ―**
   a) input offset voltage, b) slew rate, c) non-inverting gain, d) inverting gain.

2. What is Diode? Explain its characteristics.

3. Briefly explain the operation of half wave rectifier.

4. What do you mean by – Doping of the Semiconductor?

5. What is the difference between Zener Breakdown & Avalanche Breakdown?

6. Draw the V-I characteristic of a Diode & explain.

7. What do you mean by Rectification Efficiency?

8. What is the importance of IC? Explain briefly

9. Briefly describe about MOSFET and CMOS.

PAPER NAME: INDUSTRIAL ELECTRONICS LAB
PAPER CODE: : LIE

1. Measure voltage level to sketch composite video signal at different stages of TV receiver.
2. Study the internal layout of black and white TV receiver.
3. Study the internal layout of colour television
4. Fault finding in given Colour TV: i) No color ii) Red Colour only iii) Blue color only iv) Green color only v)
5. Magenta color only vi) Cyan only vii) Yellow only viii) No raster, No Sound.
6. Test various sections of LED TV receivers.
7. Installation of DTH trainer.
8. Demonstration of Photocopier.
9. Demonstration of Microwave Oven.
10. Demonstration of Washing machine.