INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTION – EVEN SEM 2026

DIPLOMA-2ND SEM – (CST+EE+ME+CE+ETCE)-THEORY

PAPER NAME : MATHEMATICS-II

PAPER CODE: MATH-II

1. Find the rank of a matrix $\begin{bmatrix}1 & 0 & 1 & 0\\2 & 1 & 1 & 1\\1 & 1 & 0 & 1\end{bmatrix}$.
2. Find the inverse of the matrix $\begin{bmatrix}1 & 2 & 1\\1 & -1 & 1\\1 & 3 & -1\end{bmatrix}$
3. Find by Newton Raphson method the real root of $3x^3+5x-40=0$.
4. Evaluate $\int \tan^{-1}(secx + tanx)dx$.
5. Solve $x^2y-x^3dy/dx=y^4\cos x$ where y=1 when $x=\pi/2$.
6. Solve:$(D2+1)y=xe^{2x}$.

PAPER NAME : APPLIED PHYSICS-II

PAPER CODE : AP-II

1) Describe the qualitative nature of simple harmonic motion.
2) Derive the equation of motion of a simple harmonic motion.
3) Define the terms associated with simple harmonic motion:-
(a) Amplitude (b) Time period (c) Frequency and Angular frequency (d) Phase (e) Phase constant.
4) Discuss about total internal reflection of light.
5) What are interference and diffraction of light?
6) Explain Coulomb's law in electrostatics.
7) Discuss about the laws of reflection and refraction of light.

PAPER NAME : INTRODUCTION TO IT SYSTEM

PAPER CODE : IITS

1. Explain the functions of the memory.
2. How EEPROM is different from EPROM and PROM?
3. What are the major difference between a random access device and a sequential access device?
4. Differentiate between impact and non-impact printer.
5. Differentiate between mouse and a trackball.

PAPER NAME: ENGINEERING MECHANICS

PAPER CODE: EM

1. Define velocity ratio, mechanical advantage & efficiency of a simple lifting machine.
2. Find the resultant of both magnitude & direction of two coplanar concurrent forces P & Q acting at an angle of α .
3. A) State Varignon's theorem.
B) Determine the horizontal force P to be applied to a block of weight 450N to hold it in position on a smooth inclined plane which makes an angle 30^0 with horizontal.
4. An oil drum of 50cm dia & 2m long is to be rolled across a footstep of 10cm high. Find the minimum push required at the top of the drum. Take density of oil as 1.5kg/lit. Neglect weight of the drum.

5. A uniform rod of 8m length has self weight of 6 kN. The rod carried a weight of 25kN hung from one of its end. From what point each the rod to be suspended so that the rod remain horizontal.

PAPER NAME: FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING
PAPER CODE: FEEE

1.State the working principles of the following machines: (a) D.C. generator, (b) transformer.
2.What are the advances of three phase system over single phase system.
3.State and explain lenz's law.
4.Comparison between electric circuit and magnetic circuit.
5. Define crest factor. Why starter is used to start a motor?
6.Differentiable alternating current (A.C) and direct current (D.C) supply

DIPLOMA-2ND SEM – (CST+EE+ME+CE+ETCE)-PRACTICAL

PAPER NAME : APPLIED PHYSICS-II LAB
PAPER CODE : LAP-II

1) What is time period of oscillation of a cantilever.
2) Describe laws of refraction (Snell's law) in a glass slab.
3) Explain Ohm's law.

PAPER NAME : INTRODUCTION TO IT SYSTEM LAB
PAPER CODE : LIITS

1. Differentiate between data and information with suitable examples.

2. Explain with example procedure to convert octal number to binary number.

3. List two devices which can be used as input as well as output device.

4. What do you understand by write protection of floppies and how is it done?

5. What are the disadvantages of OMR? What do you understand by spooling?

6. Differentiate between RAM and ROM.

PAPER NAME : FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING
PAPER CODE : LFEEE

1. Determine the permeability of magnetic material by plotting its BH curve.
2. Measure voltage, current and power in a 1-phase circuit with resistive load.
3. Visualize phase difference between voltage and current in series R-L and R-C circuits with the help of oscilloscope and plot the phasor diagram.
4. Measure voltage, current, power and power factor in a R-L series circuit.

PAPER NAME : ENGINEERING MECHANICS LAB
PAPER CODE : LEM

1. Define velocity ratio, mechanical advantage & efficiency of a simple lifting machine.
2. Find the resultant of both magnitude & direction of two coplanar concurrent forces P & Q acting at an angle of α .
3. A) State Varignon's theorem.
B) Determine the horizontal force P to be applied to a block of weight 450N to hold it in position on a smooth inclined plane which makes an angle 30^0 with horizontal.
4. An oil drum of 50cm dia & 2m long is to be rolled across a footstep of 10cm high. Find the minimum push required at the top of the drum. Take density of oil as 1.5kg/lit. Neglect weight of the drum.
5. A uniform rod of 8m length has self weight of 6 kN. The rod carried a weight of 25kN hung from one of its end. From what point each the rod to be suspended so that the rod remain horizontal.

DIPLOMA-4TH SEM-CST-THEORY

PAPER NAME: OPERATING SYSTEMS
PAPER CODE: COPC202

1. What is Compiler? Discuss the working of Compiler?
2. What are the needs and goals of Operating System?
3. Explain difference between Process Scheduling and Job Scheduling?
4. What is Segmentation? Explain the Concept of Segmentation in detail.
5. What is a Hard disk Drive? How it works and what are its advantages?

PAPER NAME : INTRODUCTION TO DBMS
PAPER CODE: COPC204

1. Explain in detail about specialization, generalization and aggregation.
2. Explain in detail about E.F CODD rules for RDBMS.
3. Explain sub query with example.
4. Explain comment statements in SQL with examples.
5. Explain in detail about PL/SQL procedures and functions.

PAPER NAME : COMPUTER NETWORKS
PAPER CODE: COPC206

1. What is Flow-Control in networking?
2. What is Error-Control in networking?
3. What are various Message switching techniques?
4. Can you connect two computers for file sharing without using a hub or router?
5. What are Gateways?
6. What is the difference between Unicasting, Anycasting, Multicasting, and Broadcasting?

PAPER NAME: SOFTWARE ENGINEERING
PAPER CODE: COPC208

1. Explain coding documentation.
2. Explain code verification.
3. Discuss the project planning activities.
4. What are the software metrics and measurements? Explain.
5. How do you estimate the maintenance cost of the software? Explain with process models.

PAPER NAME: OBJECT ORIENTED PROGRAMMING USING JAVA.
PAPER CODE: COPC210

1. Define method overloading.
2. Define constructor.
3. How do we invoke constructor in JAVA?
4. Explain the use of JVM.
5. Define the terms: try, catch. What is Exception?

DIPLOMA-4TH SEM-CST-PRACTICAL

PAPER NAME : OPERATING SYSTEMS LAB
PAPER CODE: COPC212

1. Difference between network operating system and distributed operating system.
2. Explain Hybrid Kernel.
3. Write Advantages & Disadvantages of Network Operating System.
4. Explain Distributed Operating System.
5. Write down the Batch Operating system.

PAPER NAME : INTRODUCTION TO DBMS LAB
PAPER CODE: COPC214

1. Discuses the DCL in SQL.
2. Explain E-R Model.
3. Write down the executing string operators & string functions.
4. How to use a DBMS in Commercial applications.
5. Write a Program using nested loop in Pl/SQL.

PAPER NAME: COMPUTER NETWORKS LAB
PAPER CODE: COPC216

1. Explain each topologies of the network .
2. Explain error detection and error correction techniques.
3. Explain UDP &TCP .
4. Explain about congestion control.
5. Explain the WWW in detail.

PAPER NAME: OBJECT ORIENTED PROGRAMMING LAB USING JAVA
PAPER CODE: COPC218

1. Write a program in Java to find second maximum of n numbers.
2. Write a program in Java in which a subclass constructor invokes the constructor of the super class and instantiate the values.
3. Write a program in Java to demonstrate implementation of multiple inheritance using interfaces.
4. Write a program in Java to demonstrate use of final class.
5. Write a program in Java to develop user defined exception for 'Divide by Zero' error.

DIPLOMA-4TH SEM-EE-THEORY

PAPER NAME: POWER ELECTRONICS CONVERTERS & APPLICATION
PAPER CODE: EEPC202

1. What is chopper? How they are classified?
2. State the thyristor turn on methods.
3. Describe the static I-V characteristics of a thyristor.
4. Describe the working of a single phase half bridge inverters.
5.What is meant by step up chopper? Explain its operation.
6. Describe the working principle of Dual converter.

PAPER NAME: ELECTRIC POWER TRANSMISSION & DISTRIBUTION
PAPER CODE: EEPC206

1. What are the different types of insulator?- explain any one.
2. Write short note on Kelvin's Law and its limitation.
3. Write a short note on Skin effect, proximity effect.
4. Why is it disadvantageous to provide either too high sag or too low sag? What is stringing chart?
5. Discuss in brief, the factors on which sag of the OH line depends.
6. Write a short note on AC inter connected systems.

PAPER NAME: INDUCTION, SYNCHRONOUS AND SPECIAL ELECTRICAL MACHINES
PAPER CODE: EEPC210

1. Explain the operation of the different types of stepper motors.
2. Explain the regenerative Braking of 3-phase induction motor.
3. Describe any two methods of determining the voltage regulation of 3-phase Alternator.
4. Draw the typical torque slip curve and deduce the condition for maximum torque.
5. Explain about crawling and cogging.
6. Derive the equation for torque developed by an Induction Motor.

PAPER NAME : RENEWABLE ENERGY POWER PLANTS
PAPER CODE : EEPC214

1. Draw the schematic diagram of a thermal power station and discuss its operation.
2. Discuss about classification of water turbine.
3. Explain the working of a gas turbine power plant with a schematic diagram.
4. Discuss different bio-mass energy resources.
5. Explain single dome system.
6. What are the major applications of geothermal energy and explain various types of geothermal resources.

PAPER NAME: SWITCHGEAR AND PROTECTION
PAPER CODE: EEPE202

1. Discuss in detail about the fault bus protection by using circuit diagram.
2. What is protective relay? Describe the basic requirements of protection system.
3. Write the difference between Fuse and Circuit Breaker.
4. What are the properties of Arc struck in the circuit breaker?
5. What do you understand by short circuit?
6. Discuss the possible cause of short-circuit in the power system.

DIPLOMA-4TH SEM-EE-PRACTICAL

PAPER NAME: POWER ELECTRONICS CONVERTERS & APPLICATION LAB
PAPER CODE: EEPC204

1. Test the proper functioning of power electronic switches – SCR, IGBT, SCS and TRIAC.
2. Test the proper functioning of DIAC to determine the break over voltage.
3. Determine the latching current and holding current using V-I characteristics of SCR.
4. Test the variation of R, C in R and RC triggering circuits on firing angle of SCR.
5. Test the effect of variation of R, C in UJT triggering technique.
6. Perform the operation of Class – A, B, C turn off circuits.

PAPER NAME: ELECTRIC POWER TRANSMISSION & DISTRIBUTION LAB
PAPER CODE: EEPC208

1. Study samples of Overhead Conductors, Underground Cables, Line supports and Line Insulators.
2. Demonstrate various system faults by D.C. network analyzer.
3. Demonstrate the improvement of p.f. using static condenser.
4. Study of distribution simulator using power transmission trainer.

PAPER NAME: INDUCTION, SYNCHRONOUS AND SPECIAL ELECTRICAL MACHINES LAB
PAPER CODE: EEPC212

1. Identify the different parts (along with function and materials) for the given single phase and three phase induction motor.
2. Perform the direct load test on the three phase squirrel cage induction motor and plot the i) efficiency versus output, ii) power factor versus output, iii) power factor versus motor current and iv) torque – slip/speed characteristics efficiency versus output, v) power factor versus output, vi) power factor versus motor current and vii) torque – slip/speed characteristics.
3. Conduct the No-load and Blocked-rotor tests on given 3-phase squirrel cage induction motor and determine the equivalent circuit parameters.
4. Control the speed of the given three phase squirrel cage induction motor using the applicable methods: i) autotransformer, ii) VVVF.
5. Measure the open circuit voltage ratio of the three-phase slip ring induction motor and perform the speed control by insertion of resistance in rotor circuit for slip ring induction motor.

PAPER NAME: RENEWABLE ENERGY POWER PLANTS LAB
PAPER CODE: EEPC216

1. Perform experiment to measure solar radiation using Pyranometer on tilted surface at different angles of inclination and plot radiation vs. time characteristics for certain duration.
2. Perform experiment to plot I-V characteristics of photovoltaic cell module and find out the solar cell parameters (O.C. voltage, Short circuit current, Voltage-current-power at Maximum Power point, Fill factor, Efficiency).
3. Study different parts of a solar flat plate collector/ solar concentrating collector.
4. Perform experiment to measure thermal performance of a solar water heating system.
5. Perform experiment to measure thermal performance of a solar cooker with varying reflector.
6. Identify & study different components of solar street lighting system for AC supply.

PAPER NAME : SWITCHGEAR AND PROTECTION LAB
PAPER CODE : EEPE204

1. Testing of static over current protection relay using relay testing kit.
2. Test HRC fuse by performing the load test
3. Test MCB by performing the load test
4. Dismantle MCCB/ELCB/ RCCB and identify various parts
5. Testing of induction type/ microprocessor based over current relay using relay testing kit to plot the inverse characteristics.
6. Testing of static distance protection relay using relay testing kit.

DIPLOMA-4TH SEM-CE-THEORY

PAPER NAME: HYDRAULICS
PAPER CODE: CEPC401

1. Write the relation between viscosity, shear force and velocity gradient.
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?
6. Write down some environmental problems caused by dams.
7. What are meta centre and meta centric height?

PAPER NAME: ADVANCE SURVEYING
PAPER CODE: CEPC402

1. What is azimuth
2. Write the name of different type of classification of survey.
3. Discuss about two principle of survey.
4. Discuss about theodolite and its types.
5. Discuss about centering and orientation.
6. Discuss about face left and face right condition.

PAPER NAME: THEORY OF STRUCTURE
PAPER CODE: CEPC403

1. What is column?
2. What is struct?
3. What is the difference between buckling and bending?
4. What is long column?
5. What is short column?
6. Write down the Euler 's expression for column?
7. Write down the Rankine 's formula for column?

PAPER NAME: GEOTECHNICAL ENGINEERING
PAPER CODE: CEPC404

1. Write short notes transported soil.
2. What is specific gravity of soil.

3.Write short notes on i) Relative density ii) Relative compaction
4. A soil mass having porosity 40% then what will be void ratio?
5. Discuss about plastic limit and liquit limit of soil
6. Write short note on degree of saturation of soil
7. Write a short notes on classification of soil based on particle size
8. Write a short note about unit weight of soil.

PAPER NAME: DESIGN OF RCC & STEEL STRUCTURE
PAPER CODE: CEPC405

1. What is Limit state Method?
2. What is Working stress Method?
3. What are the advantages of RCC?
4. What is balanced section in RCC?
5. What is Over reinforced section in RCC?
6. What is under reinforced section in RCC?
7. What is the difference between singly and double reinforced beam?

PAPER NAME: PRECAST & PRESTRESSED CONCRETE
PAPER CODE: CEPE408/I

1. Discuss about prestressed concrete.
2. Discuss about precast concrete.
3. Write about advantage and disadvantage of prestressed concrete.
4. Write about different method of pre-tensioned concrete.
5. Discuss about different method of post-tensioned concrete.
6. Discuss about thermal expansion of concrete.
7. Discuss about the difference between pre tensioned and post tensioned concrete.

DIPLOMA-4TH SEM-CE-PRACTICAL

PAPER NAME: BASIC SURVEYING FIELD PRACTICES
PAPER CODE: CEPC406S

1. What is the difference between surveying and levelling.
2. Write down the procedure of compass survey.
3. Discuss about the equipments of plane table survey.
4. Write down the working principle of the odolite.

PAPER NAME: HYDRAULICS LAB.
PAPER CODE: CEPC407S/I

1. Explain: Specific weight, capillarity of water, fluid pressure, discharge, velocity
2. Write down Pascal's law.
3. Discuss about the types of flow.
4. Write down Bernoulli's theorem.

PAPER NAME: GEOTECHNICAL ENGINEERING LAB
PAPER CODE: CEPC407S/II

1. Write down aim and procedure of compaction test of soil
2. Write down the procedure to determine the atterberg limit test of soil.
3. Write down the test procedure of core cutter method to determine dry density of soil

DIPLOMA-4TH SEM-ME-THEORY

PAPER NAME: MANUFACTURING PROCESS-II
PAPER CODE: MEPC204

1. Define cutting speed, feed and depth of cut including their units in case of shaping machine.
2. Find the time required on a shaping machine for completing one cut on a plate 200mmx300mm if the cutting speed is 10mm/ unit. The return to cutting time ratio is 2:3. Assume approach =50mm, over travel =25mm, allowance on either side of the plate width =5mm and feed/ cycle = 1mm.
3. How to specify a lathe. Describe various lathe parts.
4. Specify a planning machine.
5. Write the difference between shaper and planer.
6. What are taper and taper turning. Write the name of different taper turning method and describe any one of them.
7. Calculate the change gears to cut R.H. threads of 35 T.P.I. on a lathe having a lead screw of 8 T.P.I.
8. With neat sketches describe up milling and down milling.

PAPER NAME: ENGINEERING METROLOGY
PAPER CODE : MEPC208

1. State and explain the Taylor's Principle of Gauge Design.
2. Differentiate between between Tolerance and Allowance.
3. Differentiate between Hole Basis system and Shaft Base System of fits.
4. What are essential consideration for selection of material for gauges ? List some of materials commonly and explain the manufacture of gauges.
5. Why it is necessary to give tolerance on engineering dimensions? Explain Both Bilateral and unilateral tolerance with suitable example. Which system is preferred in interchangeable manufacture ? Why?
6. Explain why a Go gauge should be full form and a No –Go gauges should check any one dimension of element or feature of work.
7. Design a suitable "Go" and "No-Go" plug gauge for a bored hole (25.1/25.0) mm diameter.
8. Discuss the indian standard system of limits and fits.

PAPER NAME: REFERIGERATION & AIR CONDITIONING
PAPER CODE: MEPE202/1

1. Describe the C.O.P of refrigerator and heat pump. Obtain the relation between them.
2. Discuss the deviation of actual vapour compression cycle from simple theoretical cycle .
3. Differentiate between Air Cooled Condenser and Water cooled Condenser.
4. 28 tonnes of ice from at 0° C is produced per day is an refrigerator. The temperature range in the compressor is from 25 $^{\circ}$ C to -15 $^{\circ}$ C. The vapour is dry and saturated at the end of compression and an expansion valve is used . Assuming a coefficient of performance of 62% of the theoretical , Calculate the power required to drive the compressor. use R-12 as refrigerant.

5. Explain with neat sketch the 'Electrolux refrigerator with working and principle. '
6. Define the Psychometric? Explain the Dalton's law of Partial Pressures

PAPER NAME : THERMAL ENGINEERING-II
PAPER CODE: MEPC206

1. What is a steam boiler? What are the differentiating features between a water tube and a fire tube boiler?
2. Explain the working principle of Carnot cycle with vapour representing on P-V and T-s diagram. Why Carnot cycle cannot be used in practical engines?
3. What are the different between surface condenser and jet condenser?
4. A single stage reciprocating air compressor is required to compress 1kg of air from 1 bar to 4 bar. The initial temperature is 27^0 C. compare the work requirement in the following cases: a) Isothermal compression, b) Isentropic compression.
5. With a neat sketch explain the working principle of Bell-Coleman cycle for air refrigeration. Draw P-V and T-s diagram.
6. Describe briefly any two of the following processes a) sensible heating b) sensible Cooling c) Heating & humidification
7. Describe briefly VCR Cycle with T-s and p-h diagram.
8. Explain the terms forced draught, induced draught .

PAPER NAME : THEORY OF MACHINE
PAPER CODE: MEPC202

1. Explain with a neat sketch compound gear train & epicyclic gear train.
2. Discuss the construction & working of a rope brake absorption type dynamometer.
3. What is machine? Give Classification of link. What is significance of degrees of freedom of a kinematic chain when it functions as a mechanism? Give Examples.
4. Explain the slotted and lever quick return motion mechanisms with neat sketches.
5. Define Cam and Follower. A cam drives a flat reciprocates follower is the following manner: During the first 120° rotation of the cam, follower moves outwards through a diameter of 20 mm with simple harmonic motion. The follower dwells during next 30° of cam rotation .During next 120° of cam rotation, the follower moves inward with simple harmonic motion. The follower dwells for the next 90° of cam rotation. The minimum radius of the cam is 25mm.Draw the profile of cam.
6. Derive the equation for Velocity Ratio of belt drive. Also explain the slip of belt with derivation.
7. An engine running at 150 rpm. , drives a line shaft of a belt. The engine pulley is 750 mm diameter and the pulley on the shaft being 450 mm . A 900 mm diameter pulley on the line shaft drives a 150 mm diameter pulley keyed to a dynamo shaft. Find the speed of the dynamo shaft. When 1). There is no slip , and 2) there is a slip of 2% at each drive.
8. Two pulleys , one 450 mm diameter and the other 200 mm diameter are on parallel shafts 2.95 m apart and are connected by a crossed belt. Find the length of the belt required and the angle of contact between the belt and pulley. What power can be transmitted by the belt when the larger pulley rotates at 200 rev/min , if the maximum permissible tension in the belt drive is 1 KN , and the coefficient of friction between the belt and pulley is 0.25?.

DIPLOMA-4TH SEM-ME-PRACTICAL

PAPER NAME: COMPUTER AIDED MACHINE DRAWING PRACTICE
PAPER CODE: MEPC210

1. What Is Cad?
2. Draw A Rectangular Of Size 50*35mm. Write The Procedure
3. Full Form Of Ucs?

4. Draw A Penatgon. Write The Procedure.
5. How To Select Command And Start Drawing. Write The Procedure
6. Write Single /Multline Text With Special Charcator. Write The Procedure
7. How The Dimension Command Is Used.

PAPER NAME: THERMAL ENGINEERING-II LAB
PAPER CODE : MEPC212

1. Determination of dryness fraction of steam by combined separating and throttling calorimeter. What is dryness fraction? What is superheated vapour? What do you understand by triple point ? Draw the phase equilibrium diagram for a pure substance on T-S plot with relevant constant property lines.
2. Find the Calorific Value of Diesel Fuel & Coal by Bomb Calorimeter. What is synthetic fuel? How is COM prepared what are the merits of COM as a boiler fuel? What is swelling index and grind ability index of a coal?
3. Determine and draw valve Timing Diagram of a 4S Diesel Engine Model. Write the working principle of 4S diesel engine. Explain fuel injection system of diesel of air injection method.
4. With the help of neat sketch, explain Lancashire Boiler. Explain construction details & working principle of 4S Diesel engine. What is fire tube boiler and write where its suitable for applicable.
5. With the help of neat sketch, explain Cochran Boiler. Explain construction details & working principle of 4S Petrol engine. Write working principle of fire tube boiler and write where its suitable for applicable.
6. With the help of neat sketch, explain Babcock & Willcox Boiler. Explain construction details & working principle of 2S Petrol engine. What is water tube boiler? Write disadvantages of bent tube boiler.

PAPER NAME: ENGINEERING METROLOGY AND MECHANICAL MEASUREMENT LAB
PAPER CODE: MEPC214

1. a. Write down the working principle of vernier calipers.
   b. Measurement of a specimen by vernier caliper and write procedure with figure of specimen.
2. a. How to get the least count of a micrometer. Discuss.
   b. Measurement of a specimen by micrometer and write procedure with figure of specimen.
3. a. What is vernier height gauge? Calculate the vernier constant of vernier height gauge.
   b. Measurement of a specimen by vernier height gauge and write procedure with figure of specimen.
4. a. What is sine bar? Discuss the working principle of sine bar.
   b. Measurement angle of specimen by sine bar and write procedure with figure of specimen.
5. a. Write down the working principle of profile projector.
   b. Measurement of micro feature of a thread using profile projector.
6. a. What is bevel protector? Write down the principle of bevel protector.
   b. Measurement angle of specimen by bevel protector and write procedure with figure of specimen.

PAPER NAME : MANUFACTURING PROCESS –II PRACTICE
PAPER CODE: MEPC216

1. What is taper? What is taper turning? Describe various taper turning methods.
2. Sketch and describe the tool head of a shaper machine.
3. Write down the various milling operation with figures.
4. What are the different between up milling and down milling, shaper and planer & thermo plastic and thermosetting plastic.
5. Explain the process of extrusion, compression moulding , transfer moulding and clandering due to produce of plastic.
6. Sketch and pointing the drilling cutter.
7. Draw and explain various types of lathe chuck.

DIPLOMA-4TH SEM-ETCE-THEORY

PAPER NAME: CONSUMER ELECTRONICS

PAPER CODE: CE

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: DIGITAL AND MICROWAVE COMMUNICATION SYSTEMS

PAPER CODE: DMCS

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: ELECTRONIC MEASUREMENTS AND INSTRUMENTATION

PAPER CODE: EMI

1. List the classification of performance characteristics of an instrument?
2. Define precision and accuracy. Explain the difference between them.
3. Explain with a neat block diagram of digital storage oscilloscope.
4. With a neat diagram explain in detail the construction of PMMC instrument.
5. Briefly Explain on: a. Q-Meter b. Function Generator.
6. Explain with a neat block diagram of Spectrum Analyzer
7. Explain how LVDT can be used for measurement of displacement.
8. Write the Advantages of DMM over Analog MultiMeter.

PAPER NAME: LINEAR INTEGRATED CIRCUITS

PAPER CODE: LIC

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: MICROCONTROLLLER AND APPLICATIONS
PAPER CODE: MICA

1. Explain priority resolver & also Define instruction cycle and machine cycle..
2. What is programming counters / timers?

3. Explain Memory interfacing (Program and Data memory) of Microcontroller.
4. How Square and triangular waveform generation occurs using DAC?
5. Explain the Square wave generation using port pins of 8051.
6. What is meant by the term Water level controller?
7. Explain the Need for RISC Processor.
8. What is Basics of ARM core based controller?

DIPLOMA-4TH SEM-ETCE-PRACTICAL

PAPER NAME: CONSUMER ELECTRONICS LAB
PAPER CODE: LCE

1. Test the performance of speaker
2. Measure voltage level to sketch composite video signal at different stages of TV receiver.
3. Study the internal layout of black and white TV receiver.
4. Study the internal layout of colour television
5. Test various sections of LED TV receivers.
6. Demonstration of Photocopier.

PAPER NAME: DIGITAL AND MICROWAVE COMMUNICATION SYSTEMS LAB
PAPER CODE: LDMCS

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.

PAPER NAME: ELECTRONIC MEASUREMENTS AND INSTRUMENTATION LAB
PAPER CODE: LEMI

1. To study the operation of :
(a)Multimeter (b) Function Generator (c) PMMC (d) Single Phase Energy Meter.
2. Measure unknown inductance using following bridges (a) Wheatstone Bridge (b) Maxwell Bridge.
3. Measurement of displacement with the help of LVDT.
4. Measurement of strain/force with the help of strain gauge load cell.
5. Draw the characteristics of the following temperature transducers (a) RTD (Pt-100) (b) Thermistor.
6. Study working and applications of (i) C.R.O. (ii) Digital Storage C.R.O. & (ii) C.R.O. Probes.

PAPER NAME: LINEAR INTEGRATED CIRCUITS LAB
PAPER CODE: LLIC

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

2. To study the following applications of op-amp using IC741**:** —
a) clipper, b) clamper, c) Schmitt trigger, d) voltage follower

3. To study the operation of low-pass, high-pass and band-pass Butterworth filters.

4. To study the operation of Oscillators (any two) using OPAMP - a) Hartley, b) Colpitt, c) Wein-bridge, d) Phase Shift, e) Crystal.

5. To study the application of IC555 timer connected as**:** a) astable multivibrator, b) monostable multivibrator.

6. To study the operation of IC 723 Voltage Regulator

PAPER NAME: MICROCONTROLLLER AND APPLICATIONS LAB
PAPER CODE: LMICA

1. To develop programming using ASM and C, and implementation in flash 8051 microcontroller

2. To develop programming with Arithmetic logic instructions [Assembly] (8051 microcontroller)
3. To develop programming of sorting an array [Assembly] (8051 microcontroller)

4. To develop programming using Ports [Assembly and C] (8051 microcontroller)

5. To develop programming for Delay generation using Timer [Assembly and C] (8051 microcontroller)

6. To develop a programming for interrupt handling [Assembly and C] (8051 microcontroller)

DIPLOMA-6TH SEM-CE-THEORY

PAPER NAME: PUBLIC HEALTH ENGINEERING
PAPER CODE: CEPC601

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: ADVANCED CONSTRUCTION TECHNOLOGY
PAPER CODE: CEPE604/II

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: CONSTRUCTION MANAGEMENT
PAPER CODE: CM

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: ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
PAPER CODE: EEPM

1. What is elasticity of Demand?
2. Define the term `cost'?
3. What is meant by marginal revenue?
4. Give a short note on sunk cost?
5. What is Break-even point?
6. Define P/V ratio.

PAPER NAME: ENTREPRENEURSHIP & START UPS
PAPER CODE: ENTPAS

1. How to Obtain Startup Funding/Capital?
2. What is Joint Venture?
3. What are the startup funding stages?
4. What is start up eco system
5. Startups And Innovation: Do They Always Go Hand In Hand?
6. What Is the Impact of a Recession on Startups, Explain in brief?

DIPLOMA-6TH SEM-CE-PRACTICAL

PAPER NAME: PUBLIC HEALTH ENGINEERING LAB
PAPER CODE: CEPC602S

1. Write down the procedure of determine the hardness of water.
2. Write down the procedure of determine the residual chlorine water.
3. write down the procedure of determine of turbidity of water.

PAPER NAME: ADVANCED SURVEYING PRACTICE
PAPER CODE: CEPC603S

1. Write down the procedure of taking reding and measurement in the field book.
2. Write down about different types of curves with sketches.

DIPLOMA-6TH SEM-EE-THEORY

PAPER NAME: ENERGY CONSERVATION & AUDIT
PAPER CODE: EEPC302

1. Explain various forms of energy and Law of conservation of energy.
2. Write a note on BEE and its working.
3. Explain the elements of energy management in detail.
4. Write a short note on Demand side Management.
5. Explain the various principle of Energy Management.
6. Explain the characteristics of solid, liquid and gaseous fuels – energy point of view.

PAPER NAME: ELECTRICAL TESTING AND COMISSIONING
PAPER CODE: EEPE-302/2

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.
6. Name the four categories of system voltages and specify their respective ranges.

PAPER NAME: ENTREPRENEURSHIP AND STARTUPS
PAPER CODE: HS-302

1. How to Obtain Startup Funding/Capital?
2. What is Joint Venture?
3. What are the startup funding stages?
4. What is start up eco system
5. Startups And Innovation: Do They Always Go Hand In Hand?
6. What Is the Impact of a Recession on Startups, Explain in brief ?

PAPER NAME: ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
PAPER CODE: OE-302

1. What is elasticity of Demand?
2. Define the term `cost'?
3. What is meant by marginal revenue?
4. Give a short note on sunk cost?
5. What is Break-even point?
6. Define P/V ratio.

PAPER NAME: ENVIRONMENTAL ENGINEERING AND SCIENCE
PAPER CODE: OE304/IV

1. Write a short note on Grassland ecosystem.
2. What do you mean by Ecosystem?
3. Enumerate the concept of Environment destruction.
4. Mention Two causes of Environmental destruction
5. Discuss the causes and effects Ozone layer destruction.
6. Mention two effects of it

DIPLOMA-6TH SEM-EE-PRACTICAL

PAPER NAME: ENERGY CONSERVATION & AUDIT LAB

PAPER CODE: EEPC304

1. Experiment to compare power consumption of different types of TL with electromagnetic ballast, electronic ballast and LED lamps by direct measurements and estimate energy saving.
2. Experiment to determine the reduction in power consumption in star mode operation of Induction motor compared to delta mode at different load conditions.
3. Experiment to estimate energy saving by improving power factor using PFC/APFC for an electrical load.
4. Experiment to estimate energy saving by improving load factor for an establishment.

PAPER NAME: ELECTRICAL TESTING AND COMISSIONING LAB

PAPER CODE: EEPE304/2

1. Determine breakdown strength of transformer oil.
2. Perform insulation resistance test on any one motor/transformer.
3. Prepare trouble shooting charts for electrical machines such as Transformer, D.C. machines, Induction motor and Synchronous machines.
4. Measure impedance voltage and load losses of three-phase transformer.

DIPLOMA-6TH SEM-CST-THEORY

PAPER NAME: WEB DESIGNING

PAPER CODE: OE302/II

1. Explain various parameter passing methods in JavaScript.
2. Explain PHP loop statements with syntax and examples.
3. Explain various string functions in PHP. Write PHP script to find the length of the given string.
4. Explain the process of creating a database table in PHP with an example.
5. Explain the methods used to add and remove elements to an array in JavaScript. Give an example for each case.

PAPER NAME: CLOUD COMPUTING

PAPER CODE: COPE307/II

1. Discuss in detail about Nano computing and Optical Computing.
2. Why is it necessary to understand the various computing paradigms?
3. Elaborate the term “Software as a Service” related to cloud computing.
4. Give the drawbacks of Cloud Computing paradigm.
5. What are the Services provided by PaaS ? Discuss in detail.

PAPER NAME: ENGINEERING ECONOMICS AND PROJECT MANAGEMENT

PAPER CODE: OE301/I

1. What is elasticity of Demand?
2. Define the term `cost’?
3. What is meant by marginal revenue?
4. Give a short note on sunk cost?
5. What is Break-even point?
6. Define P/V ratio.

PAPER NAME: ENTREPRENEURSHIP AND STARTUPS
PAPER CODE: HS302

1. How to Obtain Startup Funding/Capital?
2. What is Joint Venture?
3. What are the startup funding stages?
4. What is start up eco system
5. Startups And Innovation: Do They Always Go Hand In Hand?
6. What Is the Impact of a Recession on Startups, Explain in brief?

DIPLOMA-6TH SEM-ME-THEORY

PAPER NAME: DESIGN OF MACHINE ELEMENT.
PAPER CODE: MEPC302

1. Explain General considerations while doing the Machine Design.
2. Explain the Classifications of Machine Design. Explain the term Stress Concentration.
3. Define Cotter Joint. Explain The complete design procedure of Socket and Spigot Cotter joint.
4. Design and Draw a cotter joint to support a load varying from 60 KN in compression to 60 KN in tension . The material used is carbon steel for which the following allowable stresses may be used. The load is applied statically. Tensile stress = Compressive stress = 80 Mpa ,Shear stress = 40 MPa , and crushing stress = 120MPa.
5. Design a knuckle joint to transmit 350 KN. The design stresses may be taken as 95 MPa in tension , 85 MPa in shear and 180 MPa in compression.
6. Explain the term Effect of keyways. A 15 KW, 960 rpm motor has mild steel shaft of 60 mm diameter and the extension being 80 mm. The permissible shear and crushing stresses for mild steel key are 60 MPa, and 120 MPa. Design the keyway in motor shaft extension. Check the shear strength of the key against the normal strength of the shaft.
7. Explain term Protected type flange coupling with neat sketch. Explain Design Procedure of Flange Coupling in detail.
8. Design and draw a protective type of cast iron flange coupling for steel shaft transmitting 15 KW , 250 rpm , and having an allowable shear stress of 50 KPa. The working stress in bolts should not exceed 40 MPa . Assume that the same material is used for shaft and key and that the crushing stress is twice the value of its shear stress . The maximum torque is 25% greater than the full load torque . The shear stress for cast iron is 14 MPa.
9. Explain the design of shaft on the basis, 1). Strength, 2). Rigidity and stiffness in detail.
10. Find the diameter of solid steel shaft to transmit 30 KW , at 250 rpm . The ultimate shear stress for steel may be taken as 400 MPa and factor of safety is 10. If a hollow shaft is to be used in place of solid shaft, find the inside and outside diameter when ratio of inside to outside as 0.89.

PAPER NAME: WORK, ORGANIZATION, & MANAGEMENT
PAPER CODE: MEPC304

1. What is the importance of management in organisation assignment?
2. What are the 5 importance of management?
3. What are the types of management?
4. What are principles in management?
5. What are the challenges of management?
6. Who is father of management?
7. What is planning?
8. What is planning method?
9. Why do managers plan?
10. What is the type of planning?

PAPER NAME: OIL HYDRAULICS & PNEUMATICS
PAPER CODE: MEPE302/2

1. a. Explain the working of a rotary actuator with suitable sketch
   b. State the difference between linear & rotary actuator.
2. a. Give a schematic diagram for a hydraulic circuit in conventional milling machine.
   b. Compare the use of fluid power to a mechanical system by listing the advantages & disadvantages each.
3. a. What is a positive displacement pump? In what ways does it differ from a centrifugal pump.
   b. A gear pump has a 75mm outside diameter ,50mm inside diameter & 25mm width. If the volumetric efficiency is 90 % at rated pressure, what is the corresponding actual flow rate? Take pump speed as 1000 r.p.m.
4. a. What is a 3-way & 4-way direction control valve. Explain with a neat sketch.
   b. What is a pressure reducing valve? What is its purpose?
5. a. Explain the difference between hydraulic motor & hydraulic pump.
   b. What type of pumps are available in variable displacement design.
6. a. How does a pilot check valve differ from a simple check valve.
   b. A hydraulic motor has a 82 cm^3 volumetric displacement. If it has a pressure rating of 70 bars & it receives oil of 0.0006 m^3/s from a theoretical flow rate pump find the speed , theoretical torque, theoretical power of motor.
7. a. Differentiate between compensated & non compensated flow control valve.
   b. State the construction & working function of meter in & meter out circuit in fluid flow.
8. a. State the advantages & disadvantages between rotary & reciprocating compressor.
   b. Explain the function of - linear actuator, hydraulic motor, direction control valve.

PAPER NAME: ENTREPRENEURSHIP & STARTUPS
PAPER CODE: HS-302

1. How is startup related to entrepreneurship?
2. What are the 4 basic business questions?
3. What are the biggest mistakes made by startup entrepreneurs?
4. Why do startups fail entrepreneurs?
5. What are the challenges faced by startups?
6. Who introduced startup India?
7. When most startups fail?
8. What is the difference between startup and business?
9. What is better startup or company?
10. What are the advantages and disadvantages of a startup?

PAPER NAME: ENGINEERING ECONOMICS & PROJECT MANAGEMENT
PAPER CODE: MEOE-302

1. What are assignments in project management?
2. How do you write a good project management assignment?
3. What makes project management successful?
4. What makes project management effective?
5. Why improve project management?
6. What is a life cycle of a project?
7. How do you manage a project?
8. How can a project be improved?
9. What are two factors that affect engineering economics?
10. What are the three main types of engineering economic decisions?

PAPER NAME: ENVIRONMENTAL ENGINEERING AND SCIENCE
PAPER CODE: MEOE-304/2

1. Write a short note on Grassland ecosystem.
2. What do you mean by Ecosystem?
3. Enumerate the concept of Environment destruction.
4. Mention Two causes of Environmental destruction
5. Discuss the causes and effects Ozone layer destruction.
6. Mention two effects of it

DIPLOMA-6TH SEM-ME-PRACTICAL

PAPER NAME: OIL HYDRAULICS AND PNEUMATICS
PAPER CODE: MEPE304

1. Give a schematic diagram for a hydraulic circuit in conventional milling machine.
Compare the use of fluid power to a mechanical system by listing the advantages & disadvantages each.
2. What is a 3-way & 4-way direction control valve. Explain with a neat sketch. What is a pressure reducing valve? What is its purpose?
3. Explain the difference between hydraulic motor & hydraulic pump. What type of pumps are available in variable displacement design.
4. Enumerate advantages & disadvantages between rotary & reciprocating compressor.
5. What is a hydraulic filter? What function does it serve in a hydraulic circuit? What are the common materials used for hydraulic filter