INSTITUTE OF SCIENCE & TECHNOLOGY

ASSIGNMENT QUESTIONS FOR EVEN SEM 2025

DIPLOMA -2ND SEM-ALL-THEORY

PAPER NAME:MATHEMATICS- II
PAPER CODE :MATH-II

1. If $A=\begin{bmatrix}4 & 2 & 2\\ 2 & 4 & 2\\ 2 & 2 & 4\end{bmatrix}$, show that $A^2 - 10A + 16.I_3 = 0$. Hence, obtain A^{-1}.
2. If $A=\begin{bmatrix}1 & 2 & 3\\ 3 & 4 & 5\\ 5 & 6 & 7\end{bmatrix}$ then show that $A+A^T$ is a symmetric matrix And $A-A^T$ is skew symmetric.
3. Solve $\frac{dy}{dx} = \sec(x+y)$.
4. Evaluate $\int \frac{dx}{sinxcosx}$.
5. Show that $\begin{bmatrix}1 & a & a^2\\ 1 & b & b^2\\ 1 & c & c^2\end{bmatrix}$=(a-b)(b-c)(c-a).
6. Evaluate $\int \frac{6x^2 + x - 15}{2x-3} dx$

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:-
4. (a) Amplitude (b) Time period (c) Frequency and Angular frequency (d) Phase (e) Phase constant.
5. Discuss about total internal reflection of light.
6. What are interference and diffraction of light?
7. Explain Electric field law in electrostatics.
8. Discuss about the laws of reflection and refraction of light.

PAPER NAME: INTRODUCTION TO IT SYSTEMS
PAPER CODE: IITS

1. Discuss the hierarchical structure of IT systems according to systems theory. Provide an examples to illustrate each level of the hierarchy.
2. Define the term "system dynamics" and explain its importance in understanding IT systems behavior.
3. Describe the behavior of IT systems modeled using system dynamics during periods of exponential growth and saturation. Provide an examples from different domains.
4. Discuss the concept of self-organization in complexity theory. Provide an examples of self-organizing processes in IT systems.
5. Explain the concept of fractals in the context of complexity theory. How do fractals help in understanding the structure and behavior of IT systems?
6. Describe the concept of adaptive control in cybernetics. How do adaptive control systems respond to changes and uncertainties in IT systems?

PAPER NAME: ENGINEERING MECHANICS
PAPER CODE: EM

1. Define the followings
   i) moment ii)couple iii)transmissibility iv) centroid.
2. Find the resultant of both magnitude & direction of two coplanar concurrent forces P & Q acting at an angle of α .
   A) State Varignon's theorem.

B) Determine the horizontal force P to be applied to a block of weight 250N to hold it in position on a smooth inclined plane which makes an angle 30^0 with horizontal.

3. An oil drum of 30cm dia& 1.5m 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.
4. A uniform rod of 5m length has self weight of 10 kN. The rod carried a weight of 15kN hung from one of its end. From what point each the rod to be suspended so that the rod remain horizontal.
5. A body resting on a rough horizontal plane, required a pull of 100N inclined at $30^0$to the plane just to move it.It was found that a push of 80 N inclined at 30^0 to the plane just to move it. Determine the weight of the body & the co-efficient of friction.
6. State the law of relating to static friction. An uniform ladder of 3m long rests on a horizontal ground floor & lean against a smooth vertical wall at angle of $60^0$with the horizontal. The weight of the ladder is 200N acts at the middle.The ladder is at the point of sliding,when a man weighing 280N stands on a rung of 1.5 m from the bottom of the ladder. Calculate the co-efficient of friction between the ladder & the floor.
7. Define i) velocity ratio ii) mechanical advantage iii) efficiency of a simple lifting machine.
8. An T-section has the following dimensions are in mm units:

   Top flange = 250x50

   Web = 300x50

   Determine the position of centroid of the given section.
9. In differential pulley block, A load of 600 N is raised by an effort of 100N. The no of teeth on the larger and smaller block are 18 & 16 respectively. Find the velocity ratio, mechanical advantage and efficiency of machine.
10. In a simple machine, whose velocity ratio is 30, a load of 1500N is lifted by an effort of 100N & a load of 2500N is lifted by an effort of 160N. Find the law of the machine. Also calculate the load that can be lifted by an effort of 200N.

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

1. Explain the basic working principle of two winding transformer.
2. Short note on EMF equation and transformation ratio of transformer.
3. Explain the basic working principle of AC and DC motor.
4. Describe the voltage and current relationship in Star and Delta connection.
5. Write the applications of OPAMP amplifiers.
6. What is a P type & N type semiconductor?

DIPLOMA-2ND SEM-ALL-PRACTICAL

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

1. What is time period of oscillation of a cantilever.
2. Describe about focal length and magnifying power of a convex lens by u-v method.
3. Explain Ohm's law.

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

1. Explain the concept of abstraction in the context of IT systems theory. Provide an examples to illustrate your explanation.
2. Describe the layers of the OSI model and explain the functions of each layer.
3. Differentiate between centralized and distributed computing systems. Provide advantages and disadvantages of each.
4. Explain the concept of virtualization in IT systems. Discuss its benefits and challenges.
5. Discuss the importance of scalability in IT systems. Provide strategies for designing scalable systems.
6. Discuss the significance of data integrity in IT systems. Explain various methods to ensure data integrity.

PAPER NAME: FUNDAMENTALS OF ELECTRICAL & ELECTRONICS ENGINEERING LAB
PAPER CODE: LFEE

1. Measure voltage, current and power in a 1-phase circuit with resistive load.
2. Visualize phase difference between voltage and current in series R-Land R-C circuits with the help of oscilloscope and plot the phasor diagram.
3. Measure voltage, current, power and power factor in a R-L series circuit.
4. Identify different parts of a single-phase transformer, A.C./D.C. Motor.
5. Determine the transformation ratio of a single-phase transformer and measure no load current of it.
6. Identify various active and passive electronic components in a given circuit.

PAPER NAME: ENGINEERING MECHANICS LAB
PAPER CODE: LEM

1. State &proof i) Parallelogram law of force. Ii) Polygon law of forces. Iii) Varignon's Theorem of coplanar forces.
2. What is the function of screw jack? Explain with neat sketch the working function of screw jack. Deduce efficiency of screw jack.
3. State the laws relating to static friction. What is co-efficient of friction explain it.
4. Explain what is mechanical advantage, velocity ratio & efficiency of simple lifting machines.
5. With neat sketch explain construction & working function of single purchase crab winch.

DIPLOMA -4TH SEM-EE-THEORY

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

1. Describe types of Faults & their causes.
2. Write the Necessity & function of protective system.
3. Write a short note on Symmetrical & Asymmetrical fault.
4. What is Isolators? What is HRC fuses?
5. Write a short note on & Gas insulated switchgear?
6. Write the Comparison between MCB & ELCB.

PAPER NAME: ELECTRIC POWER TRANMISSION AND DISTRIBUTION
PAPER CODE :EEPC206

1. What is Transmission and Distribution System in Power System. Write their Types through the power flow Diagram.
2. Short note on AC Transmission System according to its voltage and distances.
3. What is Voltage Regulation and Transmission Efficiency of Transmission Lines ? Write the mathematical expression of the percentage of Voltage Regulation and also Transmission Efficiency.
4. Write the Kelvin's Law for the Economic Choice of Conductor size.
5. What is The Standard Voltage Level in India ? Write down the Application Chart of Standard Voltage Level.

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

1. Derive the equation for torque developed by an Induction Motor.
2. Draw the typical torque slip curve and deduce the condition for maximum torque.
3. A 3-Phase Induction Motor Has A Rated Voltage Of 400v, Frequency Of 50hz, And 4 Poles. At Full Load, It Draws A Line Current Of 20a With A Power Factor Of 0.8 Lagging. The Motor Runs At A Speed Of 1440 Rpm. Calculate: Slip, Synchronous Speed, And Rotor Speed.
4. State The Difference Between Squirrel Cage Induction Motor And Slip Ring Induction Motor.
5. Prove That, $P_m = (1-S) * P_g$ and $P_g = S * P_{CU}$

PAPER NAME: RENEWABLE ENERGY POWER PLANTS
PAPER CODE : EEPC214

1. Difference between Renewable and Non-renewable Sources of Energy.
2. Write short notes on PV Module.
3. Discuss different bio-mass energy resources.
4. Explain the working principle of solar PV cells.
5. What are the advantages and disadvantages of Wind power and geo thermal energy?
6. Write short notes on solar radiation.

PAPER NAME: SWITCHGEAR AND PROTECTION
PAPER CODE : EEPE202

1. Describe types of Faults & their causes.
2. Write the Necessity & function of protective system.
3. Write a short note on Symmetrical & Asymmetrical fault.
4. What is Isolators? What is HRC fuses?
5. Write a short note on & Gas insulated switchgear?
6. Write the Comparison between MCB & ELCB.

DIPLOMA-4TH SEM-EE-PRACTICAL

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

1. Describe the Principle of operation of single phase cycloconverter.
2. Write the Application of three phase cycloconverter.
3. Write a short note on PWM inverter.
4. Describe the working principles of Half bridge Inverter.
5. What is Line Commutated & Forced Commutated inverters?
6. Write the Comparison between BJT & MOSFET.

PAPER NAME: ELECTRIC POWER TRANMISSION AND DISTRIBUTION LAB
PAPER CODE : EEPC208

1. What is Transmission and Distribution System in Power System. Write their Types through the power flow Diagram.
2. Short note on AC Transmission System according to its voltage and distances.
3. What is Voltage Regulation and Transmission Efficiency of Transmission Lines ? Write the mathematical expression of the percentage of Voltage Regulation and also Transmission Efficiency.
4. Write the Kelvin's Law for the Economic Choice of Conductor size.
5. What is The Standard Voltage Level in India ? Write down the Application Chart of Standard Voltage Level.

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. If the atmospheric pressure on the surface of an oil tank (sp. gr. 0.8) is 0.1 kg/cm^2, then what will be pressure at a depth of 2.5 m?
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 metacentre and meta centric height?
8. A vessel 4cum. Contains an oil which weighs 30kn.Then what will be specific weight of the oil ?
9. Find out the height of water column equivalent to pressure of 0.15Mpa.
10. Write the relation between viscosity, shear force and velocity gradient.

PAPER NAME: ADVANCED SURVEYING
PAPER CODE : CEPC402

1. Discuss about plane survey and Geodetic survey.
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.
7.What is local attraction.
8.What is magnetic declination.
9.what is levelling?
10.What is azimuth.

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.
9. What is consistency index of soil
10. What is activity of clays?

PAPER NAME: DESIGN OF RCC AND 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 AND 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 theequipments of plane table survey.
4. Write down the working principle of theodolite.

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-CST-THEORY

PAPER NAME: OPERATING SYSTEMS
PAPER CODE :COPC202

1. Define an operating system and explain its significance in modern computing.
2. Define a process and explain the concept of process states and process control blocks (PCBs).
3. Explain techniques such as paging, segmentation, and demand paging, highlighting their implementation and benefits.
4. Explain the role of device drivers in facilitating communication between hardware devices and the operating system.
5. Compare different file system types, including FAT32, NTFS, ext4, and HFS+, discussing their features and suitability for various environments.
6. Describe process scheduling algorithms such as First-Come, First-Served (FCFS), Shortest Job Next (SJN), Round Robin, and Priority Scheduling.

PAPER NAME: INTRODUCTION TO DBMS
PAPER CODE : COPC204

1. Explain the concept of a database and discuss its significance in modern computing.
2. Describe the hierarchical, network, and relational models of data organization in detail. Highlight their strengths and weaknesses.
3. What are the key components of a Database Management System? Explain each component with examples.
4. What are the key components of a Database Management System and also explain each component with examples.
5. Explain the ACID properties of transactions in a database management system. Why are these properties important?
6. What is a query language? Explain the difference between SQL and NoSQL query languages with suitable examples.

PAPER NAME: COMPUTER NETWORKS
PAPER CODE : COPC206

1. Explain the OSI model and discuss the functions and protocols associated with each layer.
2. Describe TCP/IP architecture and explain the functionalities of each layer.
3. Describe the differences between TCP and UDP.
4. Explain the role of DNS in computer networks and discuss the process of DNS resolution.
5. Describe the various types of network topologies and also explain the advantages and disadvantages of each.
6. Discuss the role of switches and routers in computer networks and differentiate between their functionalities and usage.

PAPER NAME: SSAD/SOFTWARE ENGINEERING
PAPER CODE : COPC208

1. Discuss in detail about Verification and Validation Process.
2. What do you mean by Data Flow Diagram (DFD)?
3. What are the different classifications of Systems? Explain.
4. Define SDLC and Write down various phases of SDLC.
5. Define Feasibility Study and explain its various types in detail.
6. What are the main designing constraints while designing system?

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

1. Explain the concept of Object-Oriented Programming (OOP) and its advantages over procedural programming.
2. Describe OOP principles (such as encapsulation, inheritance, and polymorphism). Provide a Java code snippet for each principle.
3. Discuss the concept of inheritance in Java and also explain the types of inheritance with examples.
4. Explain the various features of java with example.
5. Write a program in java to print days of a week.
6. Why garbage collection is required in Java?

DIPLOMA-4TH SEM-CST-PRACTICAL
PAPER NAME: OPERATING SYSTEMS LAB
PAPER CODE : COPC212

1. Write a program that demonstrates asynchronous I/O operations using non-blocking I/O or asynchronous I/O mechanisms.
2. Implement various CPU scheduling algorithms such as First-Come, First-Served (FCFS).
3. Implement various CPU scheduling algorithms such as Shortest Job Next (SJN), Round Robin (RR), and Priority Scheduling.
4. Explain the challenges involved in designing real-time scheduling algorithms.
5. Discuss real-time scheduling and its importance in embedded systems and time-critical applications.
6. Define a file system and explain its role in organizing and accessing data stored on storage devices.

PAPER NAME: INTRODUCTION TO DBMS LAB
PAPER CODE : COPC214

1. Create ER diagram for student database.
2. Create ER diagram for Hospital management.
3. Write difference between DDL and DML.
4. Define the terms "data mining" and "data warehousing." How are these concepts related, and what role does DBMS play in facilitating them?
5. Provide examples of each type and explain their significance.
6. How do DBMS adapt to handle the challenges posed by Big Data analytics?

PAPER NAME: COMPUTER NETWORKS LAB
PAPER CODE : COPC216

1. Describe the difference between IPv4 and IPv6 addressing schemes. Explain the advantages of IPv6 over IPv4.
2. Discuss the concept of TCP/IP protocol suite. Explain the functionality of TCP and UDP protocols in detail.
3. Explain the roles of routers, switches, and hubs in a computer network. Differentiate between these devices based on their functions and operation.
4. Explain how VLANs improve network performance and security.
5. How does DHCP allocate IP addresses dynamically in a network?
6. Describe the Simple Mail Transfer Protocol (SMTP) and its working principles in email communication.

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

1. Write a java program to find the Fibonacci series using recursive and non-recursive functions.
2. Write a java program to multiply two given matrices.
3. Write a java program to represent Abstract class with example.
4. Write a java program for Method overloading and Constructor overloading.
5. Write a java program to represent Abstract class with example.
6. Write a java program that works as a simple calculator.

DIPLOMA -4TH SEM-ME-THEORY
PAPER NAME: THEORY OF MACHINE
PAPER CODE :MEPC202

1. Explain with a neat sketch of 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 120^0 rotation of the cam, follower moves outwards through a diameter of 20 mm with simple harmonic motion. The follower dwells during next 30^0 of cam rotation .During next 120^0 of cam rotation, the follower moves inward with simple harmonic motion. The follower dwells for the next 90^0 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?.
9. What is the difference between brake & clutch? Explain rope drive , its types and advantages and disadvantages in detail.
10. A pulley used to transmit power by means of ropes has a diameter of 3.6 m and has 15 grooves of 45° angle.. The angle of contact is 170° and the coefficient of friction between the ropes and grooves sides is 0.29 . The maximum possible tension in the ropes is 960 N and mass of the ropes is 1.5 Kg permetre length. What is the speed of pulley in rpm and the power transmitted if the condition of maximum power prevail ?
11. Explain the Shoe Brake with its derivations and explain the conditions.

12. In a laboratory experiments, the following data were recorded with rope brake: Diameter of the flywheel 1.2 m , diameter of the rope 12.5 mm , speed of the engine 200 rpm , dead load on the brake 600 N , spring balance reading 150 N .Calculate the brake power of the engine.
13. Explain the Belt transmission Dynamometer and its derivation with neat skeych.
14. Define Governors. Explain Centrifugal governors with neat sketch and derivations
15. In an engine governor of the Porter type , the upper and lower arms are 200 mm and 250 mm respectively and pivoted on the axis of rotation . The mass of the central load is 25 Kg , the mass of each ball is 5 Kg and friction of the sleeve together with the resistance of the operating gear is equal to a load of 30 N at the sleeve. If the limiting inclinations of the upper arms to the vertical are 30° and 50° , find , taking friction into account , range of speed of the governor.
16. A single plate clutch , effective on both sides , is required to transmit 25 KW at 4500 rpm . Determine the outer and inner diameters of frictional surface if the coefficient of friction is 0.355 , ratio of diameters is 2.25 and maximum pressure is not to exceed 0.3 N/mm^2 . Also determine the axial thrust to be provided by springs . Assume the theory uniform theory.
17. `Write short notes on i) inversion of mechanism ii) steam engine mechanism.
18. Define balancing. What is different between Vibrations and Balancing. What are steps to taken to avoid problem of balancing .

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. Explain with neat sketch the 'Electrolux refrigerator with working and principle. '
5. Define the Psychometric? Explain the Dalton's law of Partial Pressures
6. Classify the Air Conditioning system . Explains any one.
7. Explain the method of installation of refrigeration system in car.
8. Write short note on various types of compressors. Explain any one with neat sketch.
9. Define Refrigerant. State desirable properties of an Idle refrigerant.
10. Explain heat rejection factor for the case of a condenser. State the basic function of a Expansion device.
11. With a neat sketch explain the working principle of Bell-Coleman cycle for air refrigeration. Draw P-V and T-s diagram.
12. Describe briefly any two of the following processes a) sensible heating b) sensible Cooling c) Heating & humidification
13. What are the desirable properties of refrigerants? Explain name at least five commercial refrigerants.
14. Compare reciprocating compressor with a rotary compressor.
15. Describe the construction and working principle of a vane-type compressor.

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.
9. Calculation cutting time for cutting 250mm long key way using end mill of 40mm diameter having 10 cutting teeth. The depth of key way is 6.5 mm, feed/ tooth is 0.25 and cutting speed is 48mm /min. Assume approach and over travel distance as half of the diameter of the cutter and a depth of cut 5.2mm/pass.
10. State the nomenclature of twist drill. How to specify a drilling machine.
11. Describe various milling operations.

12. Specify the 250x25x27WA46L4V17 notation of a grinding wheel.
13. compare between internal and external center less grinding.
14. Describe various types of bond used in grinding wheel.
15. What are the differences between lapping and honing. What is plastic? Distinguished between thermo plastic and thermo setting plastic.

PAPER NAME: THERMAL ENGINEERING-II
PAPER CODE :MEPC206

1. 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?
2. What are the different between surface condenser and jet condenser?
3. A single stage reciprocating air compressor is required to compress 1kg of air from 1 bar to 4 bar. The initial temperature is 270 C. compare the work requirement in the following cases: a) Isothermal compression, b) Isentropic compression.
4. With a neat sketch explain the working principle of Bell-Coleman cycle for air refrigeration. Draw P-V and T-s diagram.
5. Describe briefly VCR Cycle with T-s and p-h diagram.
6. What are the desirable properties of refrigerants? Explain name at least five commercial refrigerants.
7. Compare reciprocating compressor with a rotary compressor.
8. Describe the construction and working principle of a vane-type compressor.
9. Consider a steam plant operating on a simple Rankine cycle. Steam enters the turbine at 3Mpa and 3500C and is condensed in the condenser at a pressure of 75 kPa. Determine the thermal efficiency of the cycle.
10. A heat pump is used to transfer heat from a reservoir (TC = 250 K) to a higher-temperature reservoir (TH = 300 K). The work done on the pump is 500 J. a) Calculate values of QH and QC. b) Determine the coefficient of performance.

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.
9. What do you mean by the term 'Metrology' as applied to engineering industry ? What do you mean by 'Line standard' and 'End standard'.
10. State the principle of Vernierinstrument . Explain briefly the construction and use of Vernier caliper with a neat sketch.
11. Enumerate the desirable characteristics of precision measuring instrument.
12. Explain the construction and use of following (1) Vernier height gauge (2) Vernier depth gauge (3) inside and outside micrometer. Also state the least count of each measuring instrument.
13. Describe surface Plate with reference to its instruction , use and material.
14. What are the various instrument used for measuring the flatness of a surface plate.? Describe the test procedure by using one such instrument.
15. Explain the principle of spirit level.
16. Explain with construction (1) combination square (2) Universal surface gauge.
17. Sketch and explain the working principle of dial indicator.
18. Explain why it is not preferred to use sine bar for measuring angles more than 90^0 ?
19. Explain the sine bar and also its application with neat sketch.
20. Explain the construction and working principle of (1) Vernier Bevel Protector (2) optical bevel protector (3) combination set.

21. What are angle Gauge Blocks and how are they used ?
22. What is Comparator ? How they classified ? Describe the essential characteristics of comparator.
23. Explain the principle of working and construction of (1) Mechanical Comparator (2) Optical Comparator (3) Sigma Comparator. (4) Electrical Comparator (5) Pneumatic Comparator.
24. Name the important elements of threads which are required to be measured in order to determine the accuracy of screw threads . Describe in brief how the errors in these elements affect the working of threaded elements.
25. Name the various types of pitch error found in screw . State their causes ? Describe the effects of pitch errors on effective diameter of screw thread.
26. What is (1) best size wire (2) two wire method (3) Periodic error (4) Drunken error
27. Enumerate the effect of flank error on effective diameter of screw thread.
28. Explain the working with neat sketch of instruments which are used for gear tooth thickness measurement . Explain all four method used gear tooth thickness measurement.
29. State the various types of errors in gear . Why need for inspecting gear tooth element ?
30. Describe in brief the various methods for inspecting the involute profile of a spur gear wheel.

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 vernierheight 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. Explain different steps in sand casting process.
2. Compare the relative advantages and dis advantages of hot and cold working.
3. Explain the varies casting defects.
4. What is the function of electrode coating.
5. How to produce seam welded tubes by seam welding.
6. Describe with sketches the principle of wire drawing
7. Explain various forging defect their cause and remedy.
8. Why are clearance and shear angle provided in press tool punch
9. Explain different types of gas flames.
10. Explain with neat sketches the process TIG.
11. Explain ultrasonic welding in brief.
12. Explain pressure die casting.
13. Explain different type of centrifugal casting process

DIPLOMA -6TH SEM-CST-THEORY
PAPER NAME: CLOUD COMPUTING
PAPER CODE :COPE307/II

1. Describe characteristics of cloud computing and how cloud computing differs from traditional computing models.
2. Explain the various service models in cloud computing with examples.
3. Explain how virtualization enables resource pooling and improves resource utilization in cloud environments.
4. Define and compare the different cloud deployment models with examples of use cases for each deployment model.
5. Discuss the importance of security in cloud computing and identify common security threats and challenges faced by cloud service providers and users.
6. Discuss different encryption techniques and protocols used to protect data in transit and at rest in cloud environments.

PAPER NAME: ENTREPRENEURSHIP AND START-UPS
PAPER CODE :HS302

1. Discuss the functions of Entrepreneurship.
2. Discuss the Entrepreneurial Values & Attitudes.
3. Discuss the skills of an Entrepreneur.
4. Describe the characteristics of a promising business idea.
5. Write a short note on – Public Limited Company.
6. Write a short note on – Partnership.
7. Discuss about the Legal Requirements needed for establishing a new business unit.
8. Discuss about the problems and challenges faced by start-ups.
9. Describe the components of a Project Report.
10. Write a short note on – Net Profit & Gross Profit.

PAPER NAME: ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
PAPER CODE :OE301/I

1. Describe the determinants of demand.
2. Deference between engineering and economics.

3. Describe the benefits of opportunity cost and rationality cost.
4. Graphically discuss- short run and long run cost curves.
5. What are the different factors of production?
6. What do you mean by profit? How do you maximize profit?
7. Short note on Marginal cost.
8. Short note on perfectly competitive market.
9. Discuss the role of government in capitalist market.
10. What do you mean by monopolistic competition?

PAPER NAME: WEB DESIGNING
PAPER CODE :OE302/II

1. Explain the key principles of designing accessible websites.
2. Discuss the importance of user experience in web design.
3. Describe the role of typography in web design.
4. Discuss the significance of color schemes in web design and also provide examples of how different color schemes can evoke different emotions or convey specific messages.
5. Explain the difference between wireframes, mockups, and prototypes in the web design process.
6. Discuss advantages and disadvantages of CSS in the context of web development. Provide an examples of a popular CSS frameworks.

DIPLOMA -6TH SEM-CE-THEORY
PAPER NAME: PUBLIC HEALTH ENGINEERING
PAPER CODE :CEPC601

1. What are intake structures? Discuss different types of intake structures and the factors affecting their location.
2. Describe various methods of population forecasting. Solve a simple problem on population forecasting.
3. Why is water quality analysis necessary? Explain the physical, chemical, and biological characteristics of water.
4. Compare and contrast slow sand filters and rapid sand filters in terms of construction, working, and maintenance.
5. What are the methods used for removing fluoride and hardness from water? Explain any one method in detail.

PAPER NAME: ADVANCED CONSTRUCTION TECHNOLOGY
PAPER CODE :CEPE604/II

1. Explain the properties and applications of steel, polypropylene, carbon, and glass fibers in construction.
2. Discuss the use of waste products and industrial by-products in making bricks, blocks, concrete, and mortar. Provide examples.
3. What is Ready Mix Concrete (RMC)? Explain its necessity, advantages, and the equipment required in an RMC plant.
4. Describe the Tremie method and Drop Bucket method of underwater concreting, including the required equipment and concrete properties.
5. Explain different methods of prefabrication and compare plant fabrication with site fabrication. Discuss the equipment required for handling prefabricated building elements

PAPER NAME: ENTREPRENEURSHIP AND START-UPS
PAPER CODE :ENTPAS

1. Discuss the functions of Entrepreneurship.
2. Discuss the Entrepreneurial Values & Attitudes.
3. Discuss the skills of an Entrepreneur.
4. Describe the characteristics of a promising business idea.
5. Write a short note on – Public Limited Company.
6. Write a short note on – Partnership.
7. Discuss about the Legal Requirements needed for establishing a new business unit.

8. Discuss about the problems and challenges faced by start-ups.
9. Describe the components of a Project Report.
10. Write a short note on – Net Profit & Gross Profit.

PAPER NAME: ENGINEERING ECONOMICS & PROJECT MANAGEMENT
PAPER CODE :EEPM

1. Describe the determinants of demand.
2. Deference between engineering and economics.
3. Describe the benefits of opportunity cost and rationality cost.
4. Graphically discuss- short run and long run cost curves.
5. What are the different factors of production?
6. What do you mean by profit? How do you maximize profit?
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10. What do you mean by monopolistic competition?

PAPER NAME: CONSTRUCTION MANAGEMENT
PAPER CODE :CM

1. Explain the objectives and principles of organization in the construction industry. Discuss the roles of government/public and private construction organizations.
2. Discuss the key principles and factors affecting site layout planning. Explain the steps involved in preparing a site layout.
3. Explain the concept of CPM (Critical Path Method) in project scheduling. How are event times calculated using forward and backward pass methods? Solve a simple problem.
4. What are the different types of construction contracts? Explain the key elements of contract documents and specifications.
5. Discuss the major causes of accidents in the construction industry. What preventive and remedial measures can be adopted to ensure safety on site?

DIPLOMA-6TH SEM-CE-PRACTICAL
PAPER NAME: PUBLIC HEALTH ENGINEERING LAB
PAPER CODE :CEPC602S

1. Sketch and explain different types of valves used in water supply pipelines. Discuss their working principles and applications.
2. Explain the importance of measuring the pH value of water/sewage. How does pH variation affect water quality and its usability?

PAPER NAME: ADVANCED SURVEYING PRACTICES
PAPER CODE :CEPC603S

1. Explain the procedure for conducting a theodolite traverse survey, including the setup, measurement techniques, and methods of error minimization.
2. Explain the working principle of **Total Station** and describe its key components. How does it differ from conventional theodolite and EDM instruments?

DIPLOMA -6TH SEM-ME-THEORY
PAPER NAME: DESIGN OF MACHINE ELEMENTS
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 detil.
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 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.
11. A foot lever is 2 m from the centre of shaft to the point of application of 1000 N load find : a) Diameter of shaft ,b) Dimensions of the key , c) Dimensions of Rectangular arm if the foot lever at 75 mm from shaft assuming width of the arm as 3 times thickness. The allowable tensie stress may be taken as 95 MPa and allowable shear stress as 90 MPa. Draw the figure also.
12. Explain the term Torque required to Raise load bt square threaded screws with derivation and neat sketch.
13. Define Ergonomics, also state its advantage. State the Objectives of Ergonomics. Explain the man-machine relationship.
14. Define Costing and Estimating. State the functions Estimating Department. Explain the process of general costing method any components.
15. Explain the term 'life of bearing'. State the materials used for Bearings. State the Advantage and Disadvantage of Rolling contact bearing over sliding contact bearing.
16. Explain in brief the classification of spur gear in brief.
17. State the Design Consideration of a Gear Drive. Explain Merits and Demerit of Gear Drive.

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

1. Discuss the differences between Business & Management.
2. Write a short note on – Engineering Industry.
3. Discuss about the Principles of Scientific management by F.W.Taylor.
4. Describe the 14 principles of management.
5. Write a short note on – Span of Control.
6. Discuss about the Maslow's Theory of Motivation.
7. Describe the process of Recruitment & Selection.
8. Write a short note on – Performance Appraisal.
9. What are the qualities of a good leader.
10. Write a short note on – Training & Development.

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

1. Explain the the working of a rotary actuator with suitable sketch
   State the difference between linear & rotary actuator.
2. 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.
3. What is a positive displacement pump? In what ways does it differ from a centrifugal pump.

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. 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?
5. Explain the difference between hydraulic motor & hydraulic pump.
   What type of pumps are available in variable displacement design.
6. How does a pilot check valve differ from a simple check valve.
   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. Differentiate between compensated& non compensated flow control valve.
   State the construction & working function of meter in & meter out circuit in fluid flow.
8. State the advantages & disadvantages between rotary & reciprocating compressor.
   Explain the function of - linear actuator, hydraulic motor, direction control valve.
9. What is a hydraulic filter? What function does it serve in a hydraulic circuit? What are
   The common materials used for hydraulic filter?
10. Write a brief note on hydraulic piping used in a hydraulic circuit .
11. List out the characteristic properties of hydraulic fluids. What are the common
    a. hydraulic fluids used in practice.
    b. Give the schematic diagram of a direction control valve. Explain how it works.
12. What is the function of flow control valve.
    Write short notes on i) sequencing circuit ii) synchronization circuit iii) accumulator.

PAPER NAME: ENTREPRENEURSHIP AND START-UPS
PAPER CODE :HS302

1. Discuss the functions of Entrepreneurship.
2. Discuss the Entrepreneurial Values & Attitudes.
3. Discuss the skills of an Entrepreneur.
4. Describe the characteristics of a promising business idea.
5. Write a short note on – Public Limited Company.
6. Write a short note on – Partnership.
7. Discuss about the Legal Requirements needed for establishing a new business unit.
8. Discuss about the problems and challenges faced by start-ups.
9. Describe the components of a Project Report.
10. Write a short note on – Net Profit & Gross Profit.

PAPER NAME: ENGINEERING ECONOMICS & PROJECT MANAGEMENT
PAPER CODE :MEOE302

1. Describe the determinants of demand.
2. Deference between engineering and economics.
3. Describe the benefits of opportunity cost and rationality cost.
4. Graphically discuss- short run and long run cost curves.
5. What are the different factors of production?
6. What do you mean by profit? How do you maximize profit?
7. Short note on Marginal cost.
8. Short note on perfectly competitive market.
9. Discuss the role of government in capitalist market.
10. What do you mean by monopolistic competition?

PAPER NAME: ENVIRONMENT ENGINEERING & SCIENCE
PAPER CODE :MEOE304/2

1. Write the Definition of Ecology?Write it's Classification .
2. What is The Groundwater Sources and write the mode of Water Pollution.
3. Describe The Natural and Man Made sources of Air Pollution.

4. What is BOD?Describe the control of Water Pollution.
5. Write the Pollutants and bad impact of Noise Pollution.

DIPLOMA-6TH SEM-ME-PRACTICAL

PAPER NAME: OIL HYDRAULICS & PNEUMATICS LAB
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?

DIPLOMA -6TH SEM-EE-THEORY

PAPER NAME: ENERGY CONSERVATION AND AUDIT
PAPER CODE :EEPC302

1. Explain the Primary and Secondary Energy.
2. Write the relevant clauses of energy conservation.
3. Explain the concept of Star Labeling.
4. Describe BEE and its Roles in energy Conservation.
5. Why need for energy conservation in induction motor and transformer?
6. Explain the energy conservation techniques in induction motor.

PAPER NAME: ELECTRICAL TESTING AND COMMISSIONING
PAPER CODE :EEPE302/2

1. What are the Effects of Misalignment?
2. What are the steps for Rescuing a Person from Electric Shock?
3. Describes the Class of Fires.
4. Describe the Static Electrical Machinery.
5. Why is electrical safety important?

PAPER NAME: ENTREPRENEURSHIP AND START-UPS
PAPER CODE :HS302

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PAPER NAME: ENGINEERING ECONOMICS AND PROJECT MANAGEMENT
PAPER CODE :OE302

1. Describe the determinants of demand.
2. Deference between engineering and economics.
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10. What do you mean by monopolistic competition?

PAPER NAME: ENVIRONMENT ENGINEERING & SCIENCE
PAPER CODE :OE304/IV

1. Write the Definition of Ecology? Write its Classification.
2. What is The Groundwater Sources and write the mode of Water Pollution.
3. Describe The Natural and Man Made sources of Air Pollution.
4. What is BOD? Describe the control of Water Pollution.
5. Write the Pollutants and bad impact of Noise Pollution.

DIPLOMA-6TH SEM-EE-PRACTICAL
PAPER NAME: ENERGY CONSERVATION AND 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 COMMISSIONINGLAB
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-ETCE-THEORY
PAPER NAME: ENNGINEERING ECONOMICS AND PROJECT MANAGEMENT
PAPER CODE :EEPM

1. Describe the determinants of demand.
2. Deference between engineering and economics.
3. Describe the benefits of opportunity cost and rationality cost.
4. Graphically discuss- short run and long run cost curves.
5. What are the different factors of production?
6. What do you mean by profit? How do you maximize profit?
7. Short note on Marginal cost.
8. Short note on perfectly competitive market.

9. Discuss the role of government in capitalist market.
10. What do you mean by monopolistic competition?

PAPER NAME: ENTREPRENEURSHIP AND START-UPS
PAPER CODE :ENTPAS

1. Discuss the functions of Entrepreneurship.
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3. Discuss the skills of an Entrepreneur.
4. Describe the characteristics of a promising business idea.
5. Write a short note on – Public Limited Company.
6. Write a short note on – Partnership.
7. Discuss about the Legal Requirements needed for establishing a new business unit.
8. Discuss about the problems and challenges faced by start-ups.
9. Describe the components of a Project Report.
10. Write a short note on – Net Profit & Gross Profit.

PAPER NAME: CONTROL SYSTEM AND PLC
PAPER CODE :CSP

1. Discuss about the main components of a PLC system.
2. Explain the inputs and outputs in a PLC system.
3. What are the advantages of using a PLC in industrial automation?
4. What is the function of a PLC's communication interface?
5. What is the difference between a PLC and a DCS?
6. How does a PLC differ from a traditional hardwired control system?

PAPER NAME: COMPUTER NETWORKING AND DATA COMMUNICATION
PAPER CODE :CNADC

1. Explain the different types of transmission media used in data communication. Discuss their advantages and disadvantages.
2. Describe the working principles of networking devices such as hubs, switches, routers, and gateways with neat diagrams.
3. Describe the role of DHCP (Dynamic Host Configuration Protocol) in IP addressing and network management.
4. Explain the working of DNS (Domain Name System). How does DNS resolution work in a network?
5. What is HTTP and HTTPS? Explain how a web page request is processed from a client to a web server.
6. Discuss the role of firewalls and Intrusion Detection Systems (IDS) in network security. How do they differ?
7. What is cryptography? Explain symmetric and asymmetric encryption techniques with examples.

PAPER NAME: ENVIRONMENTAL ENGINEERING AND SCIENCE
PAPER CODE :EEAC

1. Write the Definition of Ecology? Write its Classification.
2. What is The Groundwater Sources and write the mode of Water Pollution.
3. Describe the Natural and Man Made sources of Air Pollution.
4. Explain the significance of BOD.
5. Write the Pollutants and bad impact of Noise Pollution.
6. Describe the control of Water Pollution.

DIPLOMA-6TH SEM-ETCE-PRACTICAL

PAPER NAME: COMPUTER NETWORKING AND DATA COMMUNICATION LAB
PAPER CODE :LCNADC

1. Execute and explain basic networking commands such as ipconfig, ping, tracert, nslookup, netstat, and arp. Demonstrate their usage with examples..
2. **Explain different types of networking cables** (Twisted Pair, Coaxial, Fiber Optic) with their advantages, disadvantages, and applications.
3. Differentiate between static and dynamic IP addresses and configure both using the Windows network settings.
4. Explain IPv4 and IPv6 addressing, subnetting, and supernetting with an example of subnet calculation.
5. Explain different types of network devices (Switch, Router, Bridge) and their functions in a network.
6. Configure and connect two or more computers in a Local Area Network (LAN) using a switch and assign IP addresses.
7. Demonstrate practically how to create a straight-wired cable using a crimping tool and RJ45 connectors..

PAPER NAME: CONTROL SYSTEM AND PLC LAB
PAPER CODE :LCSP

1. Test the Step response of R-C (first order) circuit
2. Test the Step response of R-L-C (second order) circuit.
3. Test the functionality of temperature control with on-off controller.
4. Use PI controller to control temperature of the given process
5. Use PD controller to control temperature of the given process.
6. Use PID controller to control temperature of the given process
7. Develop ladder diagram to test the functionality of the logic gates
8. Develop the ladder diagram for Adder and Subtractor by using PLC.
9. Develop ladder diagram for ON and OFF control of lamp using timer and counter.
10. Develop ladder diagram for traffic light Control system.