



A unit of Gopsai Avinandan Sangha

An ISO 9007:2008 Certified Institution

INSTITUTE OF SCIENCE & TECHNOLOGY

Approved by AICTE, Recognised by Govt. of West Bengal & Affiliated to MAKAUT, WB, WBSCTVESD and NCVT

ASSIGNMENT QUESTIONS

B.TECH 2ND SEM – CSE

SUB- CHEMISTRY-I

PAPER CODE: BS-CH-201

1. Define the terms:
 - (a) Open system.
 - (b) Closed system.
 - (c) Isolated system.
 - (d) Cyclic system.
2. Write down the first law of Thermodynamics. Derive its mathematical form.
3. Derive heat capacity at constant volume and heat capacity at constant pressure.
4. Derive the relation between enthalpy change and internal energy.
5. What is internal energy? Write down the characteristics of internal energy.

SUB- MATHEMATICS-IIA

PAPER CODE: BS-M201

1. If A and B are two independent event, then prove that
 - i) A' and B' are also independent
 - ii) A' and B are also independent
 - iii) A and B' are also independent
2. Determine the value of k such that f(x) defined by
$$f(x)=\begin{cases} kx(1-x), & 0 < x < 1 \\ 0 & \text{elsewhere} \end{cases}$$
is a probability density function. Find the corresponding distribution function. Also find $P(x>1|2)$
3. In a binomial distribution with parameter (8,p) $P(X=2)=P(X=3)$. Find $P(X=0)$ and $P(X=8)$.
4. Show that the probability that exactly one of the event A and B occurs is $P(A)+P(B)-2 P(AB)$.
5. X is discrete random variable having the following mass function
x: 0 1 2 3 4 5 6
 $P(X=x): 0 k 2k 3k 4k 5k 6k$
 - i) Determine the constant k
 - ii) Find $P(x<5)$ and $P(x>4)$

SUB: PROGRAMMING FOR PROBLEM SOLVING

PAPER CODE: ES-CS-201

1. What is DATA? What is INFORMATION? What is relation between them?
2. Write down the Algorithm & Flow chart of a program Addition of two numbers through Variable and store the result in another variable.

3. What is Data type? How many basic Data types are present in C explain with its size.
4. How many loops are present in C? What are differences between entry control and exit control loops
5. Write a C program to check whether a year is leap year or not.

SUB: ENGLISH
PAPER CODE: HM-HU201

1. Spot errors of the following:-

- a. I was so lonely.
- b. Please excuse me being late.
- c. Let you and I do it.
- d. The honesty is the best policy.
- e. The committee have issued the report.

2. Choose the correct alternative:-

____(in/on) persuance ____(of/in) your letter, we are writing today ____(to/for) the chairman and posting it ____(to/for) him along ____(with/by) your letter.

3. Everyone ____(has/have) problem in life. Countries also ____(have/has) problem and so ____(do/does) the world.

4. Make sentence using prefix/suffix

Able, honest, legal, regular, harm, happy.

5. Write synonyms: chance, display, principle.

Write Antonyms : regularly, lead, victory.

6. Write full form of the abbreviations:-

FAX, CAD, ATM, DRDO, CST, DTH, EVM, EDP.

SUB- CHEMISTRY-I LAB
PAPER CODE: BS-CH-291

1. To determine chloride ion in a given water sample by Argentometric method.
2. Conducmetric titration for determination of the strength of a given HCL solution by titration against a standard NaOH solution.
3. P^H-metric titration for determination of strength of a given HCL solution against a standard NaOH solution.

SUB: PROGRAMMING FOR PROBLEM SOLVING LAB**PAPER CODE: ES-CS-291**

1. Write a C Program to perform the addition between two number using Variable and save the result in another variable?
2. Write a C Program to calculate the Simple Interest of an amount.
3. Write a C program to Check whether a year is leap year or not.

SUB: ENGINEERING GRAPHICS & DESIGN LAB**PAPER CODE: ES-ME-291**

1. Draw the Projection of a square pyramid of base side 30 mm & height 55 mm resting on hp of whose axis is perpendicular to hp & parallel to vp.
2. Draw the projection of square lamina of side 30 mm resting on hp & 20 mm in front of vp where plan surface is parallel to hp & perpendicular to vp.
3. Draw the projection of solid cone of base circle radius of 20 mm and height 50 mm of which axis parallel to vp & perpendicular to hp.

B.TECH 2ND SEM –EEE+AEIE**SUB: PHYSICS-I****PAPER CODE: BS-PH201**

1. Write Down Maxwell's field equations
2. Define Macrostate & Microstate with example
3. Write down the condition for sustained interference.
4. What is Polarisation of light? Define optical activity.
5. What do you mean by wave-particle duality?

SUB- MATHEMATICS-II B**PAPER CODE: BS-M202**

1. SOLVE : $p^2 - p(e^x + e^{-x}) + 1 = 0$
2. SOLVE : $xyp^2 + p(3x^2 - 2y^2) - 6xy = 0$
3. Find from definition the partial derivative of the function of the function $f(x,y) = x^{3/2}e^y$ w.r.t. x at the point (1,2).
4. Prove, analytically, that $\lim_{(x,y) \rightarrow (1,2)} (x^2 + 2y) = 5$
5. Prove from definition that the function $f(x,y) = x^2 + 2y$ is continuous at (1,2) .

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PAPER CODE: ES-CS-201

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Write Antonyms : regularly, lead, victory.

6. Write full form of the abbreviations:-

FAX, CAD, ATM, DRDO, CST, DTH, EVM, EDP.

SUB- PHYSICS-I LAB
PAPER CODE: BS-PH-291

1. Determination of thermal conductivity of a bad conductor by Lees and Charlton's method.
2. Determination of dispersive power of the material of given prism.
3. Determination of young's modulus by Flexure method and calculation of bending moment and shear force at a point on beam.

SUB: PROGRAMMING FOR PROBLEM SOLVING LAB
PAPER CODE: ES-CS-291

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3. Write a C program to Check whether a year is leap year or not.

SUB: WORKSHOP MANUFACTURING LAB
PAPER CODE: ES-ME-292

1. Name and explain four operations that can be performed on a lathe machine. Write function of lead screw and feed rod of a lathe machine.
2. Explain working principle of lathe machine. Explain the term cutting speed, feed, depth of cut, in relation to turning.
3. Why are welding positions so important in butt welding? What are the different position consider as most important. State the difference between AC welding and DC welding.

B.TECH 4TH SEM – CE

SUB: INTRODUCTION TO FLUID MECHANICS
PAPER CODE: CE(ES)401

1. What is draft tube? Where is it used? Draw a neat sketch of straight divergent draft tube and label the different parts.
2. What do you mean by fluid pressure at a point? Explain Pascal's law.
3. Determine the viscosity of a liquid having kinematic viscosity 6 stokes and specific gravity 1.9.
4. Explain the working principle of Francis and Kaplan turbines.
5. a) Derive the expression for loss of head due to friction in pipes (Darcy-Weisbach equation).
b) A rectangular plane surface 3m wide and 4m deep lies in water in such a way that its plane makes an angle of 30 degree with the free surface of the water. Determine the total pressure force and position of centre of pressure when the upper edge is 2m below the free surface.

SUB: INTRODUCTION TO SOLID MECHANICS
PAPER CODE: CE(ES)402

1. Derive the relationship between BM and SF.
2. What is point of contra flexure? What is overhanging.
3. A rectangular body 400mmx50mmx40mm is subjected to a shear stress of 60 Mpa. Calculate the strain energy stored in the body. Take C= 80Gpa.

4. A cantilever beam 7 m long with constant EI is subjected to two 45 KN loads, one at 2 m from end & another at free end respectively. Compute deflection at the free .
5. a) Define the Poisson's ratio. Derive a relationship between modulus of elasticity, modulus of rigidity and bulk modulus
- b) Determine the rotation and deflection at the free end of the cantilever beam subjected to u.d.l over an entire span.
- .

SUB: SOIL MECHANICS – I

CODE- CE(PC)401

1. Explain the difference between compaction and consolidation. Explain briefly light compaction test.
2. What do you mean by dry density, saturated density and porosity?
- 3.In a Proctors compaction test the maximum dry density was found to be 1.8gm/c.c. and O.M.C. is 15.2%.if the specific gravity of the soil grains is 2.65,calculate degree of saturation ,and void ratio and the max dry density?
4. The mass specific gravity of a soil equals1.64.the specific gravity of solids is 2.70.determine the void ratio under the assumption that the soil is perfectly dry. What would be the void ratio, if the sample is assumed to have a water content of 8% ?
5. Define the following- total unit weight ,water content, dry unit weight, saturated unit weight ,unit weight of solids, submerged unit weight, mass specific gravity, total unit weight, saturated unit weight.

SUB: ENVIRONMENTAL ENGINEERING-I

PAPER CODE: CE(PC)402

1. What is the various type of water demand?
2. State the factor that affects the rate of water demand.
3. What is screening and sludge digestion?
4. Name the different type of pipes used in water supply scheme. Briefly describe their characteristics
5. Why is disinfection necessary?

SUB: SURVEYING & GEOMATICS

PAPER CODE: CE(PC)403

1. What is Image processing and Image enhancement?
2. What could be the sources of error in compass traverse? What is grid and magnetic meridian?)
3. Define-base line, check line, tie line & offset.
4. What is closing error in a traverse? What are the different types of bench marks?
5. The following consecutive readings were taken with a level and 4m levelling staff on a continuously sloping ground at common intervals of 30m.
0.905(on A),1.745,2.345,3.125,3.725,0.545,1.390,2.055,2.955,3.455,0.595,1.015,1.850,2.655,2.945(on B).The RL of A was 395.500.calculate the RL of different points and find the gradient of the line AB.

SUB: CONCRETE TECHNOLOGY

PAPER CODE: CE(PC)404

1. Describe about composition of cement clinker.
2. What do you mean by uniform graded aggregate, well graded aggregate and gap graded aggregate?
3. Name some empirical tests to measure workability and explain their suitability?
4. What are the factors affecting workability of concrete? Explain briefly.
5. Write short notes on Low heat Portland cement.

SUB: CIVIL ENGINEERING – SOCIETAL & GLOBAL IMPACT

PAPER CODE: CE(HS)401

1. What is Global warming and discuss its effects.
2. What do you mean by GDP? Discuss its effects in Economy of the country?
3. Mention the basic methods of treatment for waste water?
4. State the factor that affects the rate of water demand.
5. Distinguish between the following:
a)Pre-chlorination and post-chlorination (b)Super-chlorination and dechlorination

SUB: MANAGEMENT-I (ORGANISATIONAL BEHAVIOUR)

PAPER CODE: CE(MC)401

- 1) Definition & Nature of personality.
- 2) Write a short on Values.
- 3) Maslow's hierarchy of needs theory.
- 4) Process & Principal of perception.
- 5) Herzberg two factors motivation theory.

SUB: FLUID MECHANICS LAB

PAPER CODE: CE(ES)491

- | | |
|--|---|
| 1. Determine the minor losses through pipes. | 7 |
| 2. Determine the hydraulic co-efficient of an Orifice meter. | 7 |
| 3. Write down the performance test on pelton wheel Turbine. | 7 |
| 4. Write down the performance test on Reciprocating Pump. | 7 |

SUB: SOLID MECHANICS LAB

PAPER CODE: CE(ES)492

- | | |
|--|---|
| 1. Write down the hardness test for Ferrous Metals. | 7 |
| 2. Write down the hardness test for Non Ferrous Metals. | 7 |
| 3. Write down the Bending test for Mild steel. | 7 |
| 4. Write down the Torsion test on mild steel circular bar. | 7 |

SUB: ENGINEERING GEOLOGY LAB**PAPER CODE: CE(ES)493**

1. How to identify the minerals by using hand specimen.	7
2. How to identify the Sedimentary rocks by using hand specimen.	7
3. How to identify the metamorphic rocks by using hand specimen.	7
4. How to identify the igneous rock by using hand specimen.	7

SUB: SURVEYING & GEOMATICS LAB**PAPER CODE: CE(PC)493**

1. What is the difference between surveying & Geomantic?	7
2. What is transverse survey? What is the procedure of transverse survey?	2+5
3. What is theodolite survey? How to prepare it on field?	2+5
4. Write down a short note on -a) Collimation Method b) Rise & Fall method	7

SUB: CONCRETE TECHNOLOGY LAB**PAPER CODE: CE(PC)494**

1. Write down a short note on -a) Bulking of fine aggregate b) Bulk density	7
2. How to determine initial setting time and final setting time of cement?	7
3. Write down a short note on -a) Soundness of cement b) Compressive strength of cement.	7
4. Describe the split tensile strength test and the flexure test of hardened concrete.	7

B.TECH 4TH SEM – ME**SUB: MATERIALS ENGINEERING****PAPER CODE: ES-ME401**

1. Write short-notes on the followings:
a) Brittleness b) Fatigue , c) Hardenability , d) Electrical conductivity e) Thermal conductivity
2. Define alloy steel. Why the alloying elements are added to steel?
3. Explain the effect of nickel, chromium and cobalt on the properties of steel.
4. What is an isothermal transformation in the solid state?
5. Write a typical chemical reaction for a reduction of iron oxide by carbon monoxide to produce iron

SUB:APPLIED THERMODYNAMICS**PAPER CODE: PC-ME401**

1. Derive expression for optimum pressure ratio at maximum power output in Brayton cycle.

- Derive an expression efficiency of carnot cycle $\eta = 1 - (T_2/T_1)$
- What are the particulates? Describe in detail how particulate emissions are caused.
- Explain velocity compounded impulse steam turbine showing pressure and velocity variations along the axis.
- What are the desirable properties of a refrigerant? classify the air conditioning systems and explain industrial air conditioning.

SUB: FLUID MECHANICS & FLUID MACHINES

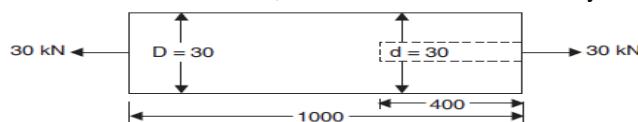
PAPER CODE: PC-ME402

- Determine the total pressure and centre of pressure on an isoceless triangular plate of base 8m & altitude 6m when it is immersed vertically in an oil of sp.gr.0.8 The base of the plate coincides with the free surface of oil.
- A rectangular channel 2m wide has a discharge of 250 litre/s which is measured by a right angled V-notch. Find the position of the apex of the notch from the bed of the channel if maximum depth of water is not to exceed 1.3m. Take $C_d=0.62$
- The rate of flow of water through a horizontal pipe is $0.25 \text{ m}^3/\text{s}$. The diameter of the pipe which is 200 mm is suddenly enlarged to 400mm. The pressure intensity of the smaller pipe is 11.79 N/cm^2 ,
 Determine:
 - loss of head due to sudden enlargement
 - Pressure intensity of larger pipe
 - Power lost due to enlargement
- Deduce the Haigen-Poiseuille equation for steady, laminar, fully-developed incompressible flow through a circular pipe in the form $Q = \frac{\pi D^4}{128\mu L} \Delta P$.

SUB : STRENGTH OF MATERIALS

PAPER CODE : PC-ME403

- What is modulus of section? A rectangular beam, simply supported over a span of 4m, is carrying a uniformly distributed load of 60 kN/m. Find the dimension of the beam, if depth of the beam section is 3.5 times its width. Take maximum bending stress in the beam section as 75 MPa
- Prove that a hollow shaft can withstand higher torque than a solid shaft of same length and weight if the two shafts are the same material.
- Determine the diameter of solid shaft which transmit 740 kW at 350 rpm. The angle of twist must not exceed one degree per meter length and the maximum torsional shear stress is to be limit to 55 N/mm^2 . Assume $G=84 \text{ kN/mm}^2$.
- Derive the equation strain energy store in a body due to shear stress.
- A bar of length 1000 mm and diameter 30 mm is centrally bored for 400 mm, the bore diameter being 10 mm as shown in Fig.. Under a load of 30 kN, if the extension of the bar is 0.222 mm, what is the modulus of elasticity of the bar?



SUB : METROLOGY AND INSTRUMENTATION

PAPER CODE : PC-ME404

- Explain piezo-electric crystal type microphone with suitable diagram.
- Distinguish between controllable error and random error

3. Explain with neat sketch the construction and principle of working of a LVDT.
4. In the measurement of surface roughness, height of 20 successive peaks and valleys measured from a datum are as follows 45, 25, 40, 25, 35, 16, 40, 22, 25, 34, 25, 40, 20, 36, 28, 18, 20, 25, 30, 38. If these measurements were made over a length of 20mm, determine C.L.A and R.M.S value of these.
5. Show that the gauge factor F of a resistance strain gauge is given by

$$F = 1 + 2\mu + \{(\delta\rho/\rho)/(\delta L/L)\}$$

Where μ is Poisson's ratio, ρ is the resistivity of the material of wire of strain gauge, and L is the length of the wire.

SUB :ENVIRONMENTAL SCIENCES

PAPER CODE : MC401

1. Define environmental degradation and environmental pollution . how differ air pollution affect the atmosphere?
2. Define food chain and food web. Classify different types of food chain with example.
3. Describe the grass land ecosystem with example.
4. Define ozone hole. Describe ozone layer depletion in Antarctika.
5. Define green house effect. How green house gases affect the environment?

SUB :PRACTICE OF MANUFACTURING PROCESS

PAPER CODE : PCME491

1. Write the working principle of logic gates.
2. Draw and explain any one hydraulic circuit with diagram.
3. Explain the Principle of Sine bars.
4. How to measure the bore diameter by micrometre and gauge.

SUB :MACHINE DRAWING-I

PAPER CODE : PCME492

1. Draw the Isometric drawing of Plummer block.
2. Draw the sectional front view of flange coupling.
3. Draw the front view & side view of wall bracket.
4. Draw the front view of a Tail Stock.

B.TECH 4TH SEM – CSE

SUB: DISCRETE MATHEMATICS

PAPER CODE: PCC-CS401

Answer the following questions.

1. Show that $(p \rightarrow q) \wedge (q \rightarrow r) \rightarrow (p \rightarrow r)$ is a tautology.
2. Show that all roots of the equation $x^4 = 1$ forms a commutative group under the operation multiplication.

3. Using principle of inclusion and exclusion, show that for any three sets A, B, and C, $n(A \cup B \cup C) = n(A) + n(B) + n(C)$, if they are pairwise mutually disjoint

4. Draw the graph G corresponding to each adjacency matrix

$$A = \begin{bmatrix} 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 1 \\ 1 & 1 & 1 & 0 & 1 \\ 0 & 1 & 1 & 1 & 0 \end{bmatrix}$$

5. Prove that the number of internal vertices in a binary tree is one less than the number of pendant vertices.

SUB: COMPUTER ARCHITECTURE

PAPER CODE: PCC-CS402

1. Discuss about Flynn's classification of parallel computers.
2. Define systolic array for parallel processing.
3. What is the function of reservation table in pipeline architecture system?
4. Define speed up. What is pipeline?
5. Difference between WAR and RAW hazards.

SUB : FORMAL LANGUAGE & AUTOMATA THEORY

PAPER CODE:PCC-CS403

1. Let $L = \{w \in \{a, b\}^*: w \text{ does not end in } ab\}$
(a) Show a regular expression that generates L .
(b) Show an FSM that accepts L .
2. Let G be a grammar $S \rightarrow 0B|1A, A \rightarrow 0|0S|1AA, B \rightarrow 1|1S|0BB$
The given string =00110101
Find a) The Leftmost Derivation
b) The Rightmost Derivation
c) Draw the Derivation Tree
3. Construct the finite automation equivalent to the regular expression
i) $(0+1)^*(00+11)(0+1)^*$ ii) $10+(0+1)0^*1$
4. What is Mealy machine? What is Moore machine? Transforming a Mealy machine into Moore Machine by taking an example by yourself.
5. What is regular expression? What are the identities of regular expression?

SUB: DESIGN & ANALYSIS OF ALGORITHM

PAPER CODE: PCC-CS404

1. What are Divide and Conquer algorithm? Describe how they work.
2. Write the algorithm for Merge Sort.
3. Describe asymptotic notation.
4. What are Red-Black tree and B-trees?
5. What is greedy algorithm? Describe the concept of knapsack problem with the help of an example.

SUB: BIOLOGY

PAPER CODE: BSC-401

1. Explain the concept of taxonomic hierarchy.
2. Write a short note on gene mapping.

3. Explain the process of glycolysis.
4. Write a short note on first and second law of thermodynamics.
5. Discuss the mechanism of enzyme action .

SUB: ENVIRONMENTAL SCIENCES

PAPER CODE: MC401

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2. Define food chain and food web. Classify different types of food chain with example.
3. Describe the grass land ecosystem with example.
4. Define ozone hole. Describe ozone layer depletion in Antarctica.
5. Define green house effect. How green house gases affect the environment?

SUB: COMPUTER ARCHITECTURE LAB

PAPER CODE: PCC-CS492

1. Describe about the various components of PC.
2. Dismantling and assembling of PC.
3. Uses of Hardware trainer kit.
4. Simulation of simple fundamental units like half adder full adder.
5. Pin Diagram of 8085 Microprocessor.

SUB: DESIGN & ANALYSIS OF ALGORITHMS LAB

PAPER CODE: PCC-CS494

1. Implement Depth First Search (DFS)
2. Implement Breadth First Search (BFS)
3. Implement Knapsack Problem
4. Implement Single Source Shortest Path for a graph Dijkstra Algorithm

B.TECH 4TH SEM – EE

SUB: ELECTRIC MACHINE-I

PAPER CODE: PC-EE 401

1. What Are Power Transformer?
2. What Is The Basic Difference Between Synchronous Motor And An Induction Motor?
3. Explain the Scott connection or T-T connection of the transformer.
4. Explain the parallel operation of single phase transformer.
5. Why Stator Windings Are Arranged Around The Rotor?

**SUB- DIGITAL ELECTRONIC
PAPER CODE- PC-EE 402**

1. Discuss the comparison of TTL,ECL, MOS and CMOS in terms of power dissipation, fan in, fan out, propagation delay and noise immunity. Draw the CMOS inverter circuit.
2. Discuss in brief RAM, ROM, EPROM, EEPROM,PLD, PLA.
3. Discuss implementation of a combinational circuit using ROM.
4. Discuss R-2R ladder type D/A converter.
5. Discuss one type of A/D converter.

**SUB: ELECTRICAL AND ELECTRONICS MEASUREMENT
PAPER CODE: PC-EE 403**

- 1) Classify the resistances from the point of view of measurements
- 2) Describes the errors in electrodynamometer type wattmeter.
- 3) Explain type of errors in Electrical measurement.
- 4) Describe the method for measurements of reactive power in single phase circuit.
- 5) Explain the difference between Dynamometer type wattmeter and induction type wattmeter.

**SUB: THERMAL POWER ENGINEERING
PAPER CODE: ES-ME 401**

1. Prove that for natural draught $h=353H[(1/T_a) - \{ (m+1)/m \} 1/T_g]$
2. In a trial on a boiler the observation recorded are feed water temperature 50°C , boiler pressure 10bar, quality of steam 95%, coal consumption 500 kg/hr, calorific value of coal 35,500 kJ/kg, Feed water supplied 4000 kg/hr. determine the evaporation factor and equivalent evaporation from and at 100°C in per kg of coal fired and efficiency. Specific heat of water = 4.1868 kJ/kg k.
3. Derive expression for optimum pressure ratio at maximum power output in Brayton cycle.
4. What are the particulates? Describe in detail how particulate emissions are caused.
5. Explain velocity compounded impulse steam turbine showing pressure and velocity variations along the axis.

**SUB- VALUES AND ETHICS IN PROFESSION
PAPER CODE: HM-EE401**

1. Discuss the role of engineers and technologists in the development of the society.
2. What is pollution? What are the chief causes of pollution?
3. Write a short note on sustainable development.
4. What are the processes of technology transfer? What are the problems of technology transfer?
5. Discuss about the influence on above on an assembly line.

SUB: ENVIRONMENTAL SCIENCE

PAPER CODE: MC- EE401

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SUB: ELECTRICAL MACHINE-I LAB

PAPER CODE: PC- EE491

- 1) Study the characteristic of a compound DC generator (short shunt).
- 2) Measurement of speed of DC series motor as a function of load torque.
- 3) Study of methods of speed control of DC motor.
- 4) Determine Open circuit and Short circuit test of transformer.

SUB: DIGITAL ELECTRONICS LAB

PAPER CODE: PC- EE492

1. Differentiate 1's complement over 2's complement.
2. What do you mean by – Logic Gates in Digital?
3. What is the difference between Logic symbol and truth table of the different logic gates?
4. Draw the circuit diagram of A/D converter.
5. What do you mean by Binary Number system in Digital Electronics?

SUB: ELECTRICAL & ELECTRONIC MEASUREMENT LAB

PAPER CODE: PC- EE493

- 1) Calibration of PMMC Ammeter & Voltmeter Using DC Crompton Potentiometer.
- 2) Calibration & Testing of AC Energy Meter.
- 3) Measurement of Inductance by Anderson bridge
- 4) Measurement of capacitance by De Sauty Bridge.

SUB: THERMAL POWER ENGINEERING LAB

PAPER CODE: ES- ME491

1. Valve timing diagram of Four Stroke Petrol Engine Model
2. Valve timing diagram of Four Stroke Diesel Engine Model
3. To find the Calorific Value of Diesel Fuel & Coal by Bomb Calorimeter.
4. Measurement of the quality of steam Enthalpy & Dryness Fraction.

B.TECH 4TH SEM – EEE

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SUB: ELECTRICAL AND ELECTRONICS MEASUREMENT PAPER CODE: PC-EEE 403

1. Classify the resistances from the point of view of measurements
2. Describes the errors in electrodynamometer type wattmeter.
3. Explain type of errors in Electrical measurement.
4. Describe the method for measurements of reactive power in single phase circuit.
5. Explain the difference between Dynamometer type wattmeter and induction type wattmeter.

SUB: THERMAL POWER ENGINEERING PAPER CODE: ES-ME 401

1. Prove that for natural draught $h=353H[(1/T_a) - \{(m+1)/m\}1/T_g]$
2. In a trial on a boiler the observation recorded are feed water temperature 50°C , boiler pressure 10bar, quality of steam 95%, coal consumption 500 kg/hr, calorific value of coal 35,500 kJ/kg, Feed water supplied 4000 kg/hr. determine the evaporation factor and equivalent evaporation from and at 100°C in per kg of coal fired and efficiency. Specific heat of water = 4.1868 kJ/kg.
3. Derive expression for optimum pressure ratio at maximum power output in Brayton cycle.
4. What are the particulates? Describe in detail how particulate emissions are caused.
5. Explain velocity compounded impulse steam turbine showing pressure and velocity variations along the axis.

SUB- VALUES AND ETHICS IN PROFESSION
PAPER CODE: HM-EEE 401

1. Discuss the role of engineers and technologists in the development of the society.
2. What is pollution? What are the chief causes of pollution?
3. Write a short note on sustainable development.
4. What are the processes of technology transfer? What are the problems of technology transfer?
5. Discuss about the influence on above on an assembly line.

SUB: ENVIRONMENTAL SCIENCE
PAPER CODE: MC- EEE401

1. Define environmental degradation and environmental pollution . how differ air pollution affect the atmosphere?
2. Define food chain and food web. Classify different types of food chain with example.
3. Describe the grass land ecosystem with example.
4. Define ozone hole. Describe ozone layer depletion in Antarctika.
5. Define green house effect. How green house gases affect the environment?

SUB: ELECTRICAL MACHINE-I LAB
PAPER CODE: PC- EE491

- 5) Study the characteristic of a compound DC generator (short shunt).
- 6) Measurement of speed of DC series motor as a function of load torque.
- 7) Study of methods of speed control of DC motor.
- 8) Determine Open circuit and Short circuit test of transformer.

SUB: DIGITAL ELECTRONICS LAB
PAPER CODE: PC- EE492

6. Differentiate 1's complement over 2's complement.
7. What do you mean by – Logic Gates in Digital?
8. What is the difference between Logic symbol and truth table of the different logic gates?
9. Draw the circuit diagram of A/D converter.
10. What do you mean by Binary Number system in Digital Electronics?

SUB: ELECTRICAL & ELECTRONIC MEASUREMENT LAB

PAPER CODE: PC- EE493

- 5) Calibration of PMMC Ammeter & Voltmeter Using DC Crompton Potentiometer.
- 6) Calibration & Testing of AC Energy Meter.
- 7) Measurement of Inductance by Anderson bridge
- 8) Measurement of capacitance by De Sauty Bridge.

SUB: THERMAL POWER ENGINEERING LAB

PAPER CODE: ES- ME491

5. Valve timing diagram of Four Stroke Petrol Engine Model
6. Valve timing diagram of Four Stroke Diesel Engine Model
7. To find the Calorific Value of Diesel Fuel & Coal by Bomb Calorimeter.
8. Measurement of the quality of steam Enthalpy & Dryness Fraction.

B.TECH 4TH SEM – AEIE

Sub: ELECTRICAL & ELECTRONIC MEASUREMENT

Paper Code: PC-EI401

- 1) Classify the resistances from the point of view of measurements
- 2) Describes the errors in electrodynamometer type wattmeter.
- 3) Explain type of errors in Electrical measurement.
- 4) Describe the method for measurements of reactive power in single phase circuit.
- 5) Explain the difference between Dynamometer type wattmeter and induction type wattmeter.

SUB-INDUSTRIAL INSTRUMENTATION

PAPER CODE- PC-EI402

1. What are the processes of measuring Temperature? Briefly Explain
2. What are the operating principle of RTD?
3. Describe the Working principle of Differential pressure Gauge? How it is calibrated?
4. Explain about Dead weight Tester.
5. Briefly Explain about vacuum Guages.

SUB-MICROPROCESSOR & MICRO CONTROLLER

PAPER CODE: PC-EI403

- 1) With a neat timing diagram explain the purpose of the instruction “STA” for 8085 microprocessor .
- 2) What are flag bits ? Explain the bit configuration of 8085 flag register.
- 3) Elaborate the following instruction related to 8085 programming.
i) INTA ii)HOLD iii)READY iv)SOD v) SID
- 4) Draw the architecture of 8085 microprocessor
- 5) Write about the interrupt of 8086 microprocessor

SUB-DATA STRUCTURE & ALGORITHM

PAPER CODE: ES-CS401

1. .What are linear and non linear data Structures?
2. What is Graph? Define with example: walk, cycle, loop, path.
3. What are the various operations that can be performed on different Data Structures?
4. What is a Queue, how it is different from stack and how is it implemented?
5. What are Infix, prefix, Postfix notations?

SUB-BIOLOGY

PAPER CODE: BS-BIO401

1. Explain the concept of taxonomic hierarchy.
2. Write a short note on gene mapping.
3. Explain the process of glycolysis.
4. Write a short note on first and second law of the thermodynamics.
5. Discuss the mechanism of enzyme action .

SUB: VALUE & ETHICS IN PROFESSION

PAPER CODE: HM-HU401

1. Discuss the role of engineers and technologists in the development of the society.
2. What is pollution? What are the chief causes of pollution?
3. Write a short note on sustainable development.
4. What are the processes of technology transfer? What are the problems of technology transfer?
5. Discuss about the influence on above on an assembly line.

SUB-ELECTRICAL & ELECTRONICS MEASUREMENT LAB

PAPER CODE: PC-EI491

1. Calibration of PMMC Ammeter & Voltmeter Using DC Crompton Potentiometer.
2. Calibration & Testing of AC Energy Meter.
3. Measurement of Inductance by Anderson bridge
4. Measurement of capacitance by De Sauty Bridge.

SUB- MICROPROCESSOR & MICRO CONTROLLER LAB

PAPER CODE: PC-EI492

1. Explain the difference between the 8085 microprocessor over 8086 microprocessor.
2. Draw and explain the architecture of 8085 microprocessor.
3. Describe the different Interfacing in 8086 microprocessor.
4. What is the significance of ALU unit & Microcontroller?
5. What are the functions of the various components in 4-Bit microprocessor?

SUB-DATA STRUCTURE & ALGORITHM LAB

PAPER CODE: ES-CS491

1. Write a C Program to search an element using Binary Search.
2. Write a C Program to program to PUSH and POP an element in stack.
3. Write a C program to Check whether a year is leap year or not.

SUB-ADVANCE LANGUAGE LAB

PAPER CODE: HM-HU481

1. How self-development contributes to effective communication ?
2. What are interpersonal skills ?
3. How interpersonal skills can be improved ?

B.TECH 4TH SEM – ECE

SUB: ANALOG COMMUNICATION

PAPER CODE: EC401

1. What is frequency division multiplexing? Explain in brief.
2. Define sampling theorem.
3. What is noise temperature?
4. What is white noise?
5. Define AM and draw its frequency spectrum.

SUB: ANALOG ELECTRONICS CIRCUIT
PAPER CODE: EC402

1. What is Diode? Explain its characteristics.
2. Briefly explain the operation of half wave rectifier.
3. What do you mean by – Doping of the Semiconductor?
4. What is the difference between Zener Breakdown & Avalanche Breakdown?
5. Draw the V-I characteristic of a Diode & explain.

SUB: MICROPROCESSOR & MICRO CONTROLLER
PAPER CODE: EC403

1. What are the functions of the various components in 8085 Microprocessor?
2. Explain the various Registers of 8085 Microprocessor.
3. What is the significance of MMU unit?
4. What are the different addressing modes supported by 8086? Explain each of them with suitable examples.
5. Explain the various Interrupts of 8085 microprocessor. What do you mean by addressing mode of a Microprocessor?

SUB: DESIGN & ANALYSIS OF ALGORITHM
PAPER CODE: ES-CS401

1. What is asymptotic notation? Explain different types of notation with proper graph.
2. Describe TSP with example.
3. Explain Divide and conquer process with an algorithm.
4. Describe DFS with example.
5. Describe PRIM'S algorithm with example.

SUB: NUMERICAL METHODS
PAPER CODE: BS-M401

1. Estimate the missing term of the following table
x: 0 1 2 3 4
f(x) 1 3 9 - 81
2. Compute (i) f(0.5) (ii)f(2.8) from the following table
x: 0 1 2 3
f(x): 1 2 11 34
3. Compute $\int_2^{10} dx/(1 + x)$ using Trapezoidal rule taking h=1
4. Establish Lagrange's interpolation formula.
5. Establish the Newton's backward interpolation formula.

SUB: BIOLOGY FOR ENGINEERS
PAPER CODE: BS-B401

1. Explain the concept of taxonomic hierarchy.
2. Write a short note on gene mapping.
3. What is sterilization?

4. Write a short note on metabolism.
5. Write down the difference between prokaryotes and eukaryotes.
6. State the law of segregation in details.

SUB: ANALOG COMMUNICATION LAB
PAPER CODE: EC491

1. What is Time division multiplexing? Explain in brief.
2. Define Amplitude Demodulation with suitable Diagram.
3. What are the differences between the AM & FM?
4. What is white noise? Explain briefly.
5. Define FM and draw its frequency spectrum.

SUB: ANALOG ELECTRONICS CIRCUIT
PAPER CODE: EC492

1. What is the importance of IC? Explain briefly
2. Briefly describe about MOSFET and CMOS.
3. What do you mean by Rectification Efficiency?
4. Draw the V-I characteristic of a Diode & explain.
5. What is Diode? Explain its characteristics.

SUB: MICROPROCESSOR & MICRO CONTROLLER LAB
PAPER CODE: EC493

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

SUB: NUMERICAL METHODS LAB
PAPER CODE: BS-M(CS)491

1. Find out the root of the Algebraic and Transcendental equations using Regula-Falsi method.
2. Find out the root of the Algebraic and Transcendental equations using Newton-Raphson method.
3. Implement Numerical Integration using Trapezoidal rule.
4. Implement Numerical Integration using Simpson 1/3 rule.
5. Implement Newton's Forward Interpolation formula.

SUB: SOFT SKILL DEVELOPMENT LAB
PAPER CODE: HS-HU481

1. What should be the behaviour of interviewee during the interview ?
2. How group discussion can be made effective ?
3. Mention some soft-skills which appears as essential traits among employees?

B.TECH 6TH SEM – CE

SUB: CONSTRUCTION ENGINEERING & MANAGEMENT
PAPER CODE: CE (PC) 601

1. Write a detailed note on fire safety requirements for buildings.
2. Differentiate between PERT and CPM network methods.
3. What do you understand by ‘earliest start time’ and ‘latest start time of an activity’?
4. What do you understand by critical path? How is it determined?
5. Define an ‘Event’ and an ‘activity’. Differentiate between the two.

SUB: ENGINEERING ECONOMICS, ESTIMATION & COSTING
PAPER CODE: CE (PC) 602

1. What is Tender? Describe the various terms and conditions of Tender.
2. Write a short note on a) Earnest money b) Security deposit c) Retention money.
3. What is the difference between Security deposit and Retention money?
4. Write a short note on a)Scrap value b)Salvage value c)Market value d)Book value
5. Write down the purpose and importance of Rate Analysis.

SUB: WATER RESOURCE ENGINEERING
PAPER CODE: CE (PC) 603

1. Write down a short note on a)Aquifers b)Specific yield c)Specific retention
2. Describe the various types of irrigation techniques.
3. Write down a short note on a) Base period b) Kor period c)Duty & Delta
4. What is the difference between Kennedy’s Method & Lacey’s Method
5. A triangular channel has a vertex angle of 90° and carries flow at a critical depth of 0.30m. The discharge in the channel is what?

SUB: DESIGN OF STEEL STRUCTURE

PAPER CODE: CE (PC) 604

1. Write a short note on-a)Edge distance b)End distance c)Pitch d)Gauge distance
2. What is weld connection? Write down the advantages of weld connections?
3. Calculate the strength of a 20mm diameter bolt of grade 4.6 for the following cases. The main plates to be jointed are 12 mm thick. Consider Lap joint.
- 4.Two 10 mm thick plates are connected by lap-joint to transmit a factored load and 100 kn using black bolts 12mm diameter and grade 4.6.The minimum number of bolts required for safe design would be .Given $f_u=410$ MPa.
5. Describe the different type of bolt failure with neat sketch.

SUB: FOUNDATION ENGINEERING

PAPER CODE: CE (PE) 601B

1. What is the difference between Shallow foundation & Deep foundation?
2. What is pile foundation? Describe various types of pile foundation.
3. Write a short note on a) Standard penetration test b) Static cone penetration test.
4. Write a short note on a) Field vane shear test b) Plate load test.
5. What is negative skin friction? Describe the Dynamic cone penetration test.

SUB: STRUCTURAL ANALYSIS II

PAPER CODE: CE (PE) 602B

1. What is the difference between moment distribution method & slope deflection method?
2. Analyze the frame shown in figure slope deflection method and draw bending moment diagram .

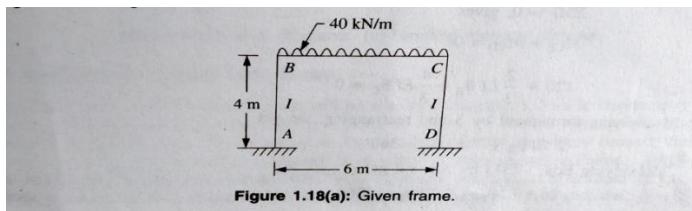


Figure 1.18(a): Given frame.

3. Analyze the two span continuous beams shown in figure by slope deflection method and draw bending moment diagram.

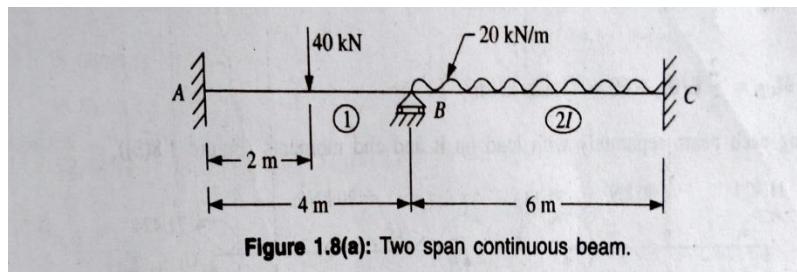


Figure 1.8(a): Two span continuous beam.

4. Analyze the beam ABCD shown in figure by moment distribution method

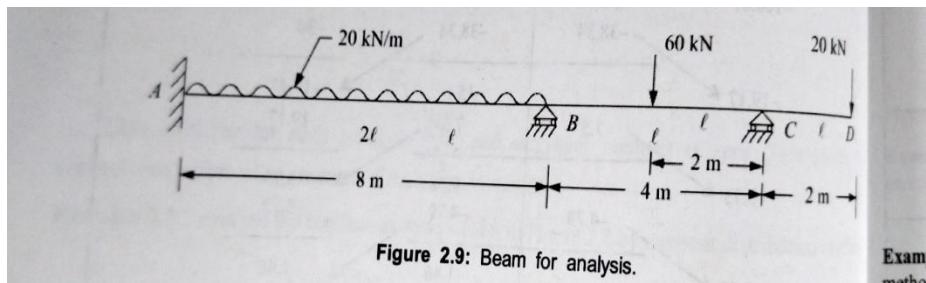


Figure 2.9: Beam for analysis.

Exam
maths

SUB: SOFT SKILL AND INTERPERSONAL COMMUNICATION

PAPER CODE: CE(OE) 601 A

1. How self-development contributes to effective communication ?
2. What are interpersonal skills ?
3. How interpersonal skills can be improved ?
4. What should be the behaviour of interviewee during the interview ?
5. How group discussion can be made effective ?
6. Mention some soft-skills which appears as essential traits among employees?

SUB: WATER RESOURCE ENGINEERING LABORATORY

PAPER CODE: CE (PC) 693

1. Describe the measurement of evaporation by using evaporimeter.
2. Describe the measurement of infiltration rate using double ring infiltrometer.
3. Describe the various types of rain gauge station.
4. How to calculate average rainfall by using Isohyetal Method.

SUB: STEEL STRUCTURE DESIGN SESSIONAL

PAPER CODE: CE (PC) 694

1. What is the difference between laterally supported and unsupported flexure members?
2. What is the difference between bolted connection and welded connection?
3. Write down the advantage of bolted connection?
4. write down a short note on a)types of bolt b)types of weld

SUB: QUANTITY SURVEY ESTIMATION AND VALUATION

PAPER CODE: CE (PC) 695

1. Write down a short note on a) Detailed estimate b) Revised estimate.
2. What is the difference between revised estimate and supplementary estimate?
3. Write down a short note on a) Approximate estimate b) Repair estimate.
4. What is sinking fund and depreciation?

B.TECH 6TH SEM – ME

SUB: MANUFACTURING TECHNOLOGY

PAPER CODE- PC-ME601

1. Describe the working principle, component, advantages and disadvantages and uses of USM.
2. Write the difference between EDM and Wire cut EDM.
3. Describe the point to be considered during Design of Jig and Fixture.
4. What is the principle of rapid prototyping and relative advantages and disadvantages?
5. Write short note about FMS, FMC and FMM.

SUB: DESIGN OF MACHINE ELEMENTS

PAPER CODE: PC-ME 602

1. Determine the force required to press fit a cylindrical roller bearing on a shaft 40 mm diameter . The outer diameter of inner race is 50 mm , and its length is 23 mm . The maximum interference is 3 microns. Take $\sigma_y = 300 \text{ MPa}$,for the shaft ; $E = 2.1 \times 10^5 \text{ MPa}$ for shaft and race , Poisson's ratio = 0.3 and co-efficient of friction = 0.15. Also check for maximum stress at the race.
2. Explain the design procedure of Cotter Joint. A Knuckle Joint is required to resist an axial load of 60KN .Design the joint completely. Assume $\sigma_t = 80 \text{ MPa}$, $\sigma_{cr}=150 \text{ MPa}$, $\tau=50 \text{ MPa}$.
3. A doubled-threaded power screw, with ISO metric trapezoidal threads, is used to raise a load of 300 KN. The nominal diameter is 100mm and pitch is 12 mm. The coefficient of friction at screw threads is 0.15. Neglecting collar friction, calculate (1) torque required to raise the load (2) torque to lower the load (3) efficiency of screw.
4. Define Stress Concentration. Explain any three methods of reducing the stress concentrations

SUB- INTERNAL COMBUSTION ENGINES AND GAS TURBINES

PAPER CODE – PE-ME601A1

1. What is heat engine ? Write down the classification of I.C engines.
2. What is the difference between Two Stroke Engine and Four Stroke Engine.
3. What is the difference Between SI Engine and CI Engine.
4. Derive the Otto cycle With P-V & T-S Diagram.
5. Derive the Diesel Cycle With P-V & T-S Diagram

SUB: TURBO MACHINERY

CODE- PE-ME602A5

1. Explain Why the casing is of spiral shape with uniform change in area, in the case of reaction turbines. Explain why inward radial flow turbines are popular compared to outward flow units.
2. List the various efficiencies used to express the performance of hydraulic efficiency. Define Speed ratio and flow ratio.
3. An inward flow reaction turbine working with a head of 40 m has hydraulic efficiency of 92%. The diameters at inlet and outlet are 1.2 m and 0.7 m respectively. The velocity of flow at outlet is 2.5 m/s and flow is radial . The vane angle at outlet is 15° . The width of the wheel is constant and is 100 mm . Determine the guide blade angle , the speed of operation , vane angle at inlet , volume flow and power developed.
4. Name the different types of efficiencies of a centrifugal pump and differentiate between overall efficiency and manometric efficiency. Derive an equation for the horse power required to drive a centrifugal pump.

SUB: HUMANITIES-II

PAPER CODE: HM-HU601

1. Solve the following Travelling salesman problem.

A	B	C	D	E
—	7	6	8	4
7	—	8	5	6
6	8	—	9	7
8	5	9	—	8
4	6	7	8	—

2. Solve the following balanced Transportation problem by using VAM to determine the initial B.F.S

$D_1 \quad D_2 \quad D_3 \quad D_4$

O_1	9	8	5	7	
O_2	4	6	8	7	
O_3	5	8	9	5	
b_j	8	18	13	3	
					42

3. Solve the L.P.P by two phase method

$$\text{Minimize, } z = 3x_1 + 5x_2$$

Subject to

$$x_1 + 2x_2 \geq 8$$

$$\begin{aligned}3x_1 + 2x_2 &\geq 12 \\5x_1 + 6x_2 &\leq 60 \quad , \quad x_1, x_2 \geq 0\end{aligned}$$

4. Solve the L.P.P using artificial variables

$$\text{Minimize, } z = -3x_1 + 2x_2$$

Subject to

$$\begin{aligned}x_1 - 4x_2 &\leq -14 \\-3x_1 + 2x_2 &\leq 6 \quad , \quad x_1, x_2 \geq 0\end{aligned}$$

SUB: CONSTITUTION OF INDIA

PAPER CODE: MC-601

1. How far the Independence of Judiciary is ensured under the Constitution of India ?
2. What are the requirements of a just legal system?
3. Explain ideal judicial behaviour.

SUB: MECHANICAL ENGINEERING LABORATORY

PAPER CODE: PC-ME691

1. To study the Universal Testing Machine and perform the tensile test. Which type of steel is used for testing? what is its carbon content ? What kind of fracture has occurred in the tensile specimen and why ? Which is the most ductile metal?
2. To study the Brinell hardness testing machine & perform the Brinell hardness test. What is limitation of Brinell hardness testing machine and why? What is the unit of B.H.N?Which ball size is recommended for Brinell test? Define hardness of material.
3. To perform bending test and determine the young's modulus of material. What is neutral axis? What are the assumption of theory of simple bending. What is the relation between slope, deflection and radius of curvature of a simply supported beam ?

B.TECH 6TH SEM – EE

SUB: POWER SYSTEM-II

PAPER CODE: PC-EE-601

1. Discuss about SF6 circuit breaker .
2. What is Per Unit System describe with example.
3. Explain with a neat diagram the application of Merz-price circulating current.
4. Write down principle for the protection of alternator.
5. What is relay? Discuss about fundamental requirements of protective relay.

SUB: MICROPROCESSOR & MICROCONTROLLER

PAPER CODE: PC-EE-602

1. What are the fundamental difference between the Microprocessor and Microcontroller?
2. Explain the various Register of 8085 Microprocessor.
3. Briefly Explain about Microcontroller.
4. Draw and explain the architecture of 8085 Microprocessor.
5. What do you mean by addressing mode of Microprocessor? Explain each of them with suitable examples.

SUB: DIGITAL SIGNAL PROCESSING

PAPER CODE: OE-EE-601A

1. Derive a PLA programmed table for the combinational circuit that a square a 3 bit number
2. Why VLSI design flow is often called as cycle? Explain.
3. Explain the differences between current DFT and FFT.
4. What is ASIC? Give its classification. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
5. What is FFT? Explain briefly.
6. What is DFT? Explain briefly.

SUB: ELECTRICAL MACHINE DESIGN

PAPER CODE: PE-EE-601C

1. Why single phase induction motor does not have the starting torque?
2. Derive the emf equation for an alternator. Explain clearly the meaning of a) distribution factor and b) coil span factor. Give expression for them.
3. Write short notes on shaded-pole motor.
4. Describe the speed torque characteristics of IM. Explain the double revolving field theory for IM.
5. What is synchronous condenser? Explain its operation and utility with phasor diagram.

SUB: INDUSTRIAL ELECTRICAL SYSTEMS

PAPER CODE: PE-EE-602C

1. Write down something about types of residential and commercial wiring systems.
2. Discuss on PCC, MCC panels.
3. Write short notes on MCB,MCCB,ELECB.
4. Describe the distribution board and protection devices of electrical system.
5. Briefly discuss on Role of PLC based in automation. Write advantages of process automation.

SUB: ECONOMICS FOR ENGINEERS

PAPER CODE: HM601

1. Briefly explains various types of estimates.
2. List out different types of engineering costs.
3. Define Time Value of Money. Discuss its importance.
4. Write short note on the followings:
 - (a) Opportunity Cost
 - (b) Sunk Cost
5. What are the difference between risk and return? Give two examples of indirect and direct cost.

SUB: POWER SYSTEM-II LAB

PAPER CODE: PC-EE-691

1. Study of the characteristics of on load time delay relay and off load time delay relay.
2. Test to find out polarity, ratio and magnetization characteristics of CT and PT.
3. Test to find out characteristics of under voltage relay and earth fault relay.
4. Study on DC load flow.

SUB: ELECTRICAL & ELECTRONICS SYSTEM DESIGN LAB
PAPER CODE: PC-EE-681

1. Design and validation of an electronic choke for a fluorescent tube.
2. Designing an iron core (with air gap) inductor with specified operating dc current and minimum inductance.
3. Design and validation of the electronic commutation system for a permanent magnet fractional hp motor.
4. Designing the power distribution system for a small township.

SUB: MICROPROCESSOR & MICROCONTROLLER LAB
PAPER CODE: PC-EE-692

1. Explain the various flags of 8085 Microprocessor.
2. What are the different addressing modes supported by 8086?
3. Describe the Different Interfacing in 8086 Microprocessor.
4. What is the significance of MMU unit? Briefly Explain it.
5. What are the Fundamentals features of a Microprocessor?
6. Explain different Practical applications of Microprocessor

B.TECH 6TH SEM – EEE

SUB: POWER SYSTEM-II
PAPER CODE:- PC-EEE601

1. Discuss about SF6 circuit breaker .
2. What is Per Unit System describe with example.
3. Explain with a neat diagram the application of Merz-price circulating current.
4. Write down principle for the protection of alternator.
5. What is relay? Discuss about fundamental requirements of protective relay.

SUB: MICROPROCESSOR & MICROCONTROLLER
PAPER CODE: PC-EEE-602

1. What are the fundamental difference between the Microprocessor and Microcontroller?
2. Explain the various Register of 8085 Microprocessor.
3. Briefly Explain about Microcontroller.
4. Draw and explain the architecture of 8085 Microprocessor.
5. What do you mean by addressing mode of Microprocessor? Explain each of them with suitable examples.
6. What is the significance of ALU unit?

SUB: ELECTRICAL MACHINE DESIGN

PAPER CODE: PE-EEE-601B

1. Why single phase induction motor does not have the starting torque?
2. Derive the emf equation for an alternator. Explain clearly the meaning of a) distribution factor and b) coil span factor. Give expression for them.
3. Write short notes on shaded-pole motor.
4. Describe the speed torque characteristics of IM. Explain the double revolving field theory for IM.
5. What is synchronous condenser? Explain its operation and utility with phasor diagram.

SUB: INDUSTRIAL ELECTRICAL SYSTEMS

PAPER CODE: PE-EE-602C

1. Write down something about types of residential and commercial wiring systems.
2. Discuss on PCC, MCC panels.
3. Write short notes on MCB,MCCB,ELECB.
4. Describe the distribution board and protection devices of electrical system.
5. Briefly discuss on Role of PLC based in automation. Write advantages of process automation.

SUB: DATABASE MANAGEMENT SYSTEM

PAPER CODE: OE-EEE601B

1. Consider the following schema:- Faculty (Fno, Name, Date-of-birth, DNO)

Dept(DNO, Name, Bldg)

Course(CNO, Name)

Teaches(FNO,CNO)

Write SQL statements to do the following:

i)Find the name of the faculty members who work in the same building as faculty member with no. ‘104’.

ii) Find the name of the faculty members who are teaching at least one course which the faculty member no. ‘101’ is not teaching.

2.What do you mean by normalization? What do you mean by decomposition? Define 1NF, 2NF, 3NF with suitable example.

3.Define the following terms:

- (i)super key
- (ii)Candidate key
- (iii)Primary key
- (iv)Foreign key

4.Discuss ACID property of a transaction with example. What is atomicity? What is concurrency? Draw a state diagram and discuss the typical states that a transaction goes through.

5.Draw the overall structure of DBMS and explain its various components..Define the 3-Schema Architecture of DBMS.

6.Draw an ER-diagram for a hospital with a set of patients and a set of medical doctors, with each patient a log of the various conducted tests is also associated.

SUB: ECONOMICS FOR ENGINEERS

PAPER CODE: HM601

1. Briefly explains various types of estimates.
2. List out different types of engineering costs.
3. Define Time Value of Money. Discuss its importance.
4. Write short note on the followings:
(c) Opportunity Cost
(d) Sunk Cost
5. What are the difference between risk and return? Give two examples of indirect and direct cost.

SUB: POWER SYSTEM-II LAB

PAPER CODE: PC-EEE-691

1. Study of the characteristics of on load time delay relay and off load time delay relay.
2. Test to find out polarity, ratio and magnetization characteristics of CT and PT.
3. Test to find out characteristics of under voltage relay and earth fault relay.
4. Study on DC load flow.

SUB: ELECTRICAL & ELECTRONICS SYSTEM DESIGN LAB

PAPER CODE: PC-EEE-681

1. Design and validation of an electronic choke for a fluorescent tube.
2. Designing an iron core (with air gap) inductor with specified operating dc current and minimum inductance.
3. Design and validation of the electronic commutation system for a permanent magnet fractional hp motor.
4. Designing the power distribution system for a small township.

SUB: MICROPROCESSOR & MICROCONTROLLER LAB

PAPER CODE: PC-EEE-692

1. Explain the various flags of 8085 Microprocessor.
2. What are the different addressing modes supported by 8086?
3. Describe the Different Interfacing in 8086 Microprocessor.
4. What is the significance of MMU unit? Briefly Explain it.
5. What are the Fundamentals features of a Microprocessor?
6. Explain different Practical applications of Microprocessor

B.TECH 6TH SEM – AEIE

SUB: PROCESS CONTROL-I

PAPER CODE: PC-EI-601

1. . Discuss analytically the problem for the proportional controller in a first order process.
2. Why is derivative control not used alone?
3. Draw the block diagram of a basic process control loop and describe the function of each block in brief.
4. Explain what is the working principle of the magnetic meter?
5. Write about the mechanism behind the turbine meter?

SUB: BIO MEDICAL INSTRUMENTATION

PAPER CODE: PC-EI-602

1. Explain the principle of operation of a paramagnetic oxygen analyzer with a neat sketch.
2. Explain the construction details of one of them.
3. List the types of electrodes used for pH measurement.
4. Describe a method of measuring dissolved oxygen content in the boiler feed water? 5.
5. Explain the use of thermal conductivity gauge for the analysis of flue gas.
6. Describe the construction details and working of a dust monitor.

SUB: ARTIFICIAL INTELLIGENCE

PAPER CODE: OE-EI-602

1. List some applications of AI.
2. List the programming languages used in AI.
3. What is Tower of Hanoi?
4. What is Turing test?
5. What is an A* algorithm search method?
6. What is a breadth-first search algorithm?

SUB: DIGITAL SIGNAL PROCESSING

PAPER CODE: OE-EI-603

1. Explain the differences between current DFT and FFT.
2. Why VLSI design flow is often called as cycle? Explain.
3. a) What do you mean by CMOS Transmission Gates:
 - i) 2 input AND gate
 - ii) 2 input OR gate
4. What is ASIC? Give its classification. Draw the VTC curve of a simple CMOS inverter circuit and clearly define the different operating regions of NMOS and PMOS?
5. What is FFT? Explain briefly.
6. What is DFT? Derive a PLA programmed table for the combinational circuit that a square a 3 bit number

SUB: ECONOMICS FOR ENGINEERS

PAPER CODE: HM HU-601

1. Briefly explains various types of estimates.
2. List out different types of engineering costs.
3. Define Time Value of Money. Discuss its importance.
4. Write short note on the followings:
(e) Opportunity Cost
(f) Sunk Cost
5. What are the difference between risk and return? Give two examples of indirect and direct cost.

SUB: INDIAN CONSTITUTION AND CULTURE

PAPER CODE: MC-ES601

1. How far the Independence of Judiciary is ensured under the Constitution of India ?
2. What are the requirements of a just legal system?
3. Explain ideal judicial behaviour.

SUB: PROCESS CONTROL- I LAB

PAPER CODE:- PC-EI 691

1. Study of a typical Pressure Control Loop having Pressure source, Pressure Transmitter, Motorized/Pneumatic control valve, and conventional PID controller/Control System.
2. Study of a typical Level Control Loop having Level Transmitter, Motorized/ Pneumatic control valve, and conventional PID controller/Control System.
3. Study of a typical Air Duct Flow Monitoring and Control.
4. PLC Programming through PC.

SUB: INSTRUMENTATION SYSTEM DESIGN LAB

PAPER CODE:- PC-EI-692

1. List the types of Sensors used for measurement & Explain briefly.
2. Explain the construction details of RTD.
3. Briefly describe about Instrumentation techniques in details.
4. Describe the working of an analyzer that can be used to estimate the content of nitrogen oxide in a gas.
5. Describe the construction details and working of a Spectrum-Analyzer.

SUB: ARTIFICIAL INTELLIGENCE LAB

PAPER CODE:- OE-EI-692

1. Write a program calculate Factorial of a number using Prolog.
2. Write a program calculate Fibonacci Series using Prolog.
3. Write a program calculate Greatest Common Divisor using Prolog.
4. Write a program calculate Least Common Multiple using Prolog.
5. Write a program to check a number Palindrome or not using Prolog

B.TECH 6TH SEM – CSE

SUB: DATABASE MANAGEMENT SYSTEM

PAPER CODE: PCC-CS601

1. Consider the following schema:- Faculty(Fno, Name, Date-of-birth, DNO)

Dept(DNO, Name, Bldg)

Course(CNO, Name)

Teaches(FNO,CNO)

Write SQL statements to do the following:

i)Find the name of the faculty members who work in the same building as faculty member with no. ‘104’.

ii) Find the name of the faculty members who are teaching at least one course which the faculty member no. ‘101’ is not teaching.

2.What do you mean by normalization? What do you mean by decomposition? Define 1NF, 2NF, 3NF with suitable example.

3.Define the following terms:

- (i)super key
- (ii)Candidate key
- (iii)Primary key
- (iv)Foreign key

4.Discuss ACID property of a transaction with example. What is atomicity? What is concurrency? Draw a state diagram and discuss the typical states that a transaction goes through.

5.Draw the overall structure of DBMS and explain its various components.Define the 3-Schema Architecture of DBMS.

SUBJECT: COMPUTER NETWORK

PAPER CODE: PCC-CS602

1. What do you mean by Network Topology? Explain all Topology with diagram.

2. Explain the Different layers of the OSI model.

3. Describe Hub, Switch and Router? With suitable diagram.

4.Explain different types of networks and their advantages.

5. What are the multiplexing and demultiplexing? Describe with diagram.

SUB: DISTRIBUTED SYSTEM

PAPER CODE: PEC-IT601B

1. Why would you design a system as a distributed system? List some advantages of distributed systems

2. What is fragmentation? How many types of fragmentation we seen in DDBMS?

3. What are disadvantages of DDMBS? Explain DDBMS architecture.

4. Explain different types of Transparency in DDBMS.

5. Explain Two phase commit protocol.

SUB: PARALLEL & DISTRIBUTED ALGORITHMS

PAPER CODE: PEC-IT602A

1. Short note about Speedup Factor.
2. What is the Maximum Speed-up?
3. Short note about Message-Passing Computations.
4. What is shared memory multiprocessor system?
5. Short note about message-passing multicomputer.

SUB: NUMERICAL METHODS

PAPER CODE: OEC-IT601A

1. Derive Lagrange's interpolation formula for (n+1) equally space points $x_0, x_1, x_2, x_3, \dots, x_n$. Show that Lagrange's polynomial is unique.
2. Describe Newton Raphson- method to find a real root of an equation $f(x)=0$.
3. Calculate by Simpson's 1/3 rule the value of $\int_{1.2}^{1.6} \left(x + \frac{1}{x} \right) dx$ correct up to two significant figures, taking four intervals. Why the rule is called 'one third'.
4. Establish the Newton's forward interpolation formula.
5. Write down the approximate representation of 2/3 correct up to four significant figures and find i)absolute error ii)relative error iii) percentage error

SUB: DATABASE MANAGEMENT SYSTEM LAB

PAPER CODE: PCC-CS691

1. Answer this question in SQL:
 - a) Create a table Employee with attributes Name, ID, Address, phoneno, Gender, Salary, Age, Dept.
 - b) Insert 10 columns into this table with various data with this attribute.
 - c) Show the table.
 - d) Add a new column Country into this table.
 - e) Modify Address = 'Kolkata' whose Id is 001.
 - f) Select name, salary from Employee whose address is 'Bangalore' and age less than 25.
 - g) Select Employee salary in ascending/descending order.
 - h) Select Employee citywise.
 - i) Select Employee whose name starting from 'A'
 - j) Select Employee average salary.
 - k) Select employee dept, sum of the salary order by salary.
 - l) Select Employee details whose salary is between 10000 to 50000.

SUB: COMPUTER NETWORK LAB

PAPER CODE: PCC-CS692

1. Write a SimpleSocket Programming.
2. Write a TCP basedSocket Programming.
3. Write a UDP basedSocket Programming.