AR18

CODE: 18CET208   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022

MECHANICS OF SOLIDS-II
(Civil Engineering)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Derive the differential equation for a cantilever beam carrying a concentrated load at the free end.   5M
    b) A cast iron beam 40 mm wide and 80 mm deep is placed on supports 1.25m apart and is subjected to a central point load 30kN. If the central deflection is found to be 6.5mm, find the value of the young's modulus for the material.   7M

(OR)

2. a) What is moment area method? Explain the two Mohr's theorems, as applicable to slope of the beams.   5M
    b) A simply supported beam 10m long carries two point loads each of 80kN at 3m from each end. Determine the slope and deflection under the loads. Take flexural rigidity (EI) = 30×10^3 kN-m^2.   7M

UNIT-II

3. a) Show that in thin cylinder shells subjected to fluid pressure, the circumferential stresses is twice the longitudinal stress.   5M
    b) Calculate: i) the change in diameter, (ii) change in length and (iii) change in volume of a thin cylindrical shell 100 cm diameter, 1 cm thick and 5 m long when subjected to internal pressure of 3 N/mm^2. Take the value of E = 2×10^5 N/mm^2 and Poisson's ratio is 0.3.   7M

(OR)

4. a) Differentiate between a thick and thin cylinder.   5M
    b) A thick spherical shell of 400 mm internal diameter is subjected to an internal fluid pressure of 1.5 N/mm^2. If the permissible tensile stresses in the shell material is 3 N/mm^2 , find the necessary thickness of the shell.   7M

UNIT-III

5. a) Derive an expression for the stresses on oblique plane of a rectangular body, when the body is subjected to a simple shear stress.   5 M
    b) At a point in a strained material the principal stresses are 100 N/mm^2 (tensile) and 60N/mm^2 (compression). Determine the normal stress, shear stress and resultant stress on a plane inclined at 50^0 to the axis of the major principal stress. Also determine the maximum shear stress at the point.   7M

(OR)

6. a) Write a short note on Mohr's circle of stresses.   5M
    b) At a certain point in a strained material, the intensities of stresses on two planes at right angles to each other are 20 N/mm^2 and 10 N/mm^2 both tensile. They are accompanied by a shear stress of magnitude 10 N/mm^2. Find graphically or otherwise, the location of principal planes and evaluate the principal stresses.   7M

1 of 2

UNIT-IV

7. a) Define slenderness ratio. State the limitations of Euler's formula.   5M
    b) A solid round bar 4 m long and 6 cm in diameter is used as a strut with both ends   7M
        hinged. Determine the crippling load. Take $E = 2 \times 10^5$ N/mm^2.

(OR)

8. Determine the ratio of buckling strengths of two columns one hallow and other   12M
    solid. Both are made of the same material and have the same length, cross
    sectional area and end conditions. The internal diameter of hollow column is half
    its external diameter.

UNIT-V

9. a) Determine the terms: Retaining wall, dam and angle of repose.   5M
    b) A masonry retaining wall of trapezoidal section is 10 m high and retains earth   7M
        which is level up to the top. The wall width at the top is 2m and at bottom 8m
        and the exposed face is vertical. Find the maximum and minimum intensities of
        normal stress at the base.

(OR)

10. Determine the maximum and minimum stresses at the base of an hollow circular   12M
     chimney of height 20 m with external diameter 4m and internal diameter 2 m.
     the chimney is subjected to a horizontal wind pressure of intensity 1kN/m^2. The
     specific weight of the material of chimney is 22 kN/m^3.

AR18

CODE: 18EET208   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022

POWER SYSTEMS-I
(Electrical and Electronics Engineering)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. Draw the line diagram of Thermal power plant and Explain its working?   12M

(OR)

2. Classify Hydro power plants in detail and Explain?   12M

UNIT-II

3. Explain the working of Solar power station and Explain each component?   12M

(OR)

4. a) Explain Pressurised water reactor?   6M
   b) Explain Boiling water reactor?   6M

UNIT-III

5. Classify Distribution systems in detail?   12M

(OR)

6. a) What are differences between AC and DC distribution systems?   6M
   b) Explain about Radial distribution system with diagram?   6M

UNIT-IV

7. Classify Substations in detail?   12M

(OR)

8. a) What are advantages of Gas Insulated substations?   6M
   b) Draw one line diagram of Gas Insulated substations?   6M

UNIT-V

9. Define the terms : Load curve, Load duration curve, Integrated Load duration curve
Connected load and Maximum demand   12M

(OR)

10. a) Define Fixed cost, Semi fixed cost and Running cost?   6M
    b) What are characteristics of Tariff?   6M

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AR18

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain the different types of patterns used in modern foundry.	8M
	b)	Briefly discuss the properties of moulding sand.	4M

(OR)

2.	a)	What are melting furnaces? Explain about cupola furnace.	6M
	b)	Explain any four casting defects with causes and their remedies.	6M

UNIT-II

3.	a)	Explain the types of gas welding flames and under what conditions they are used.	6M
	b)	Draw a neat sketch and explain electro slag welding process.	6M

(OR)

4.	a)	With a neat sketch explain thermit welding process.	6M
	b)	Sketch the different types of weld defects and mention how they occur.	6M

UNIT-III

5.	a)	What are the advantages of hot working over cold working?	6M
	b)	Derive a formula for maximum reduction possible for one pass in rolling process.	6M

(OR)

6.	a)	Briefly explain about hydrostatic extrusion with neat sketch.	6M
	b)	Briefly explain about tube drawing process with neat sketch.	6M

UNIT-IV

7.	a)	What is meant by closed die forging? Discuss briefly.	6M
	b)	Describe the press forging operation and its applications	6M

(OR)

8.	a)	With the help of neat sketch explain the cup drawing process.	6M
	b)	Discuss about sheet metal embossing, coining operations.	6M

UNIT-V

9.	a)	What are the different types of high velocity forming process? Discuss about Explosive forming process.	6M
	b)	Discuss about magnetic pulse forming process and its applications	6M

(OR)

10.	a)	Distinguish between thermosetting and thermoplastic	6M
	b)	Describe the principle of injection moulding process with suitable diagram.	6M

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AR18

PULSE AND DIGITAL CIRCUITS
(Electronics and Communication Engineering)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Draw the response of RC-High pass circuit for a pulse input with different RC time constants.   6M
   b) Draw and explain the attenuator circuit also obtain the condition for perfect compensation.   6M

(OR)

2. a) Draw the response of step input to a low pass RC circuit also obtain the equation for raise time.   6M
   b) Draw and explain the RLC ringing circuit also give its applications.   6M

UNIT-II

3. a) Classify different types of Clipping circuits.   6M
   b) Draw and explain transistor clipper.   6M

(OR)

4. a) Draw and explain through wave forms of negative clamping circuit.   6M
   b) Draw and explain emitter coupled clipper.   6M

UNIT-III

5. a) Draw and explain the switching times of Transistor.   6M
   b) Draw and explain the fixed bias transistor Bi-stable multivibrator.   6M

(OR)

6. a) Draw and explain the operation of self biased Transistor binary.   6M
   b) Explain different triggering methods in Bi-stable multivibrator circuits   6M

UNIT-IV

7. a) Draw and explain through wave forms of collector coupled Monostable multivibrator   6M
   b) Draw the circuit diagram to convert voltage to frequency using Astable multi vibrator.   6M

(OR)

8. Design an astable multivibrator for an output amplitude of 15V and square wave frequency of 500Hz. Assume $h_{fe\ (min)}$=50, $I_{c(sat)}$=5mA and $V_{CE(sat)}$ =0V.   12M

UNIT-V

9. a) Define and relate the three errors in voltage time base generator.   6M
   b) Draw and explain basic principles of Sampling gate.   6M

(OR)

10. a) Draw and explain the operation of 4- Diode sampling gate.   6M
    b) Give the applications of Sampling Gates.   6M

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AR18

CODE: 18CST207   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022

DATABASE MANAGEMENT SYSTEMS
(Common to CSE & IT)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Differentiate Database Systems versus file Systems.	5M
	b)	Explain different Data models with examples.	7M
		(OR)	
2.	a)	Explain the Characteristics of the Database Approach.	6M
	b)	What are the responsibilities of the DBA and the database designers?	6M

UNIT-II

3.	a)	Explain natural join operation with example? Discuss various types of inner join operations. Why is theta join required?	6M
	b)	Explain types of attributes and Constraints on Relationship types in E-R model with example.	6M
		(OR)	
4.	a)	Describe the constraints of Relational model with suitable example	5M
	b)	Explain the additional features of ER model.	7M

UNIT-III

5.	a)	Explain Nested Queries with example.	6M
	b)	Explain about Triggers.	6M
		(OR)	
6.	a)	Explain Aggregative Operators.	6M
	b)	Discuss the Complex Integrity Constraints in SQL	6M

UNIT-IV

7.	a)	How does BCNF differ from and is stronger than 3NF. Illustrate your answer with an example?	5M
	b)	Define and describe functional dependency, closure of F & Minimal set.	7M
		(OR)	
8.	a)	What is a lock? Describe the types of locks used in concurrency control?	4M
	b)	Explain two – phase locking protocol? How does it guarantee serializability?	8M

UNIT-V

9.	a)	Explain the classification of failures.	6M
	b)	Explain shadow paging with a neat diagram and discuss its drawbacks.	6M
		(OR)	
10.	a)	Discuss Hash based Indexing.	6M
	b)	Compare different File Organizations.	6M

CODE: 16CE2009   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022
STRENGTH OF MATERIALS-II
(Civil Engineering)

Time: 3 Hours   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. A simply supported beam of span 5m is subjected to two concentrated loads 8kN, 10kN at a distance of 2m and 4m from left end respectively. Determine the maximum deflection and the slopes at the ends using Macaulay's method.   14M

(OR)

2. A cantilever beam AB shown in figure. Find slope and deflection at free end by Moment-Area method.   14M
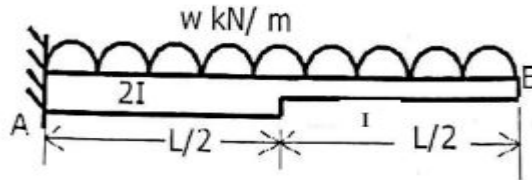
UNIT-II

3. At a point in strained material, the principal stresses are $60N/mm^2$ and $40N/mm^2$ Find the position of plane across which the resultant stress is inclined to the normal and determine the value of this stress.   14M

(OR)

4. An element in a stressed material has tensile stress $60N/mm^2$ and a compressive stress of $35 N/mm^2$ acting on two mutually perpendicular planes and equal shear stress of $20N/mm^2$ On these planes. Find principle planes, principle stresses and plane of maximum shear stresses and magnitude of maximum shear stress by Mohr's circle method.   14M

UNIT-III

5. a) Derive the expressions for circumferential and longitudinal stresses in thin cylinders subjected to internal fluid pressure.   7M

   b) A thin cylinder of internal diameter 1.25m contains a fluid at an internal pressure of $2N/mm^2$.Determine the maximum thickness of the cylinder if (i) longitudinal stress is not to exceed $30N/mm^2$ and (ii) circumferential stress is not to exceed $45N/mm^2$ 7M

(OR)

6. The maximum stress permitted in a thick cylinder of internal and external radii 20 cm and 30 cm respectively is $15.5 N/mm^2$. If the external pressure is $4 N/mm^2$, find the internal pressure that can be applied. Plot the curves showing the variation of hoop and radial stresses through the material. What will be the change in thickness of the cylinder? $E=2.1x10^5 N/mm^2$. $1/m=0.3$ (Poisson's ratio)   14M

UNIT-IV

7. a) Derive Euler's formula for critical load when both ends of the columns are hinged.   7M

   b) Derive Euler's formula for columns when one end of the column is fixed and the other end pinned or hinged.   7M

(OR)

8. a) State and explain Rankine's hypothesis for columns.   7M

   b) A 1.5 m long column has a circular cross section of 5 cm diameter, one of the ends of the column is fixed in direction and other end is free. Take factor of safety as 3. Calculate the safe load using Rankines formula, take $\sigma c = 560$ N/mm2 and $a = 1/1600$.   7M

UNIT-V

9. A masonry chimney, 25 meters high, of uniform circular section, 4 meters external diameter and 2 meters internal diameter is subjected to a horizontal wind pressure of $1.2KN/m^2$ of projected area. Find the maximum and minimum stress intensities at the base, if the specific weight of masonry is $22KN/m^2$ 14M

(OR)

10. a) Define core of section. Sketch the core section for a rectangular section.   7M

   b) A rectangular column 150mm wide & 100mm thick carries a load of 150KN at an eccentricity of 50mm in the plane bisecting the thickness. Find the maximum and minimum stress.   7M

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022

POWER SYSTEMS – II
(Electrical & Electronics Engineering)

Time: 3 Hours   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) What do you understand by transposition of lines? What is its effect on the Performance of the line?   6M
   b) Derive an expression for the inductance per phase for a 3- phase overhead transmission line when conductors are unsymmetrically placed but the line is completely transposed   8M

(OR)

2. a) Derive e an expression for capacitance of 3-phase symmetrically spaced line.   6M
   b) A three phase, 50Hz, 66kV overhead line conductors are placed in a horizontal plane as shown in Fig. The conductor diameter is 1.25cm. If the line length is 100km, calculate (i) Capacitance per phase (ii) Charging current per phase, assuming complete transposition of the line   8 M
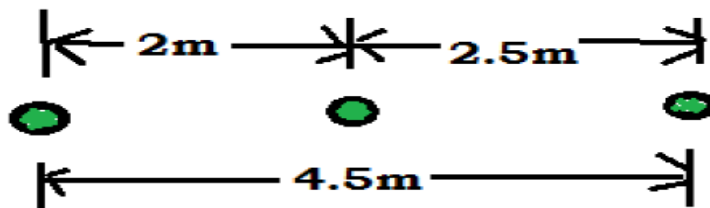
UNIT-II

3. a) Find the expression for regulation and efficiency of short transmission line.   6 M
   b) A 3-phase, 50 Hz transmission line 100 km long delivers 20 MW at 0·9 p.f. lagging and at 110 kV. The resistance and reactance of the line per phase per km are 0·2 Ω and 0·4 Ω respectively, while capacitance admittance is $2·5 \times 10^{-6}$ siemen/km/phase. Calculate: (i) the current and voltage at the sending end (ii) efficiency of transmission. Use nominal T method   8 M

(OR)

4. a) Obtain the ABCD parameters of nominal-π circuit of medium transmission line.   6 M
   b) Derive the expression for regulation and efficiency of medium nominal π configuration transmission line.   8 M

UNIT-III

5. a) Explain about the equivalent T model of long transmission line .   6 M
   b) A 3-phase transmission line has the following constants. Resistance/ ph/ km = 0.16 Ohm; reactance/ ph/km = 0.25 ohm. Shunt admittance/ph/km = 1.5×10^{-6} mho. Calculate by rigorous method the sending end voltage and current when the line is delivering a load P-20MW at 0.8 p.f lagging. The receiving end voltage is kept Constant at 110 kV   8 M

(OR)

6. a) Explain the concepts of incident, reflected and refracted waves in the Transmission lines? 6 M
   b) Prove that the velocity of propagation of travelling waves is equal to the velocity Of light? 8 M

UNIT-IV

7. a) Explain skin effect, proximity effect? 6 M
   b) Find the critical disruptive voltage and the critical voltages for local and general corona on a 3-phase overhead transmission line, consisting of three stranded copper conductors spaced 2.5 m apart at the corners of an equilateral triangle. Air temperature and pressure are 21°C and 73.6 cm Hg respectively. The conductor dia, irregularity factor and surface factors are 10.4 mm, 0.85, 0.7 and 0.8 respectively. 8 M

(OR)

8. a) What is corona? What are the advantages and disadvantages of corona? 6 M
   b) Explain the factors effecting the corona and methods to reduce corona. 8 M

UNIT-V

9. a) Explain the various methods for improving the string efficiency in a string of insulators. 6 M
   b) In a 33kV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self-capacitance of each insulator, Find (i) the distribution of voltages over 3 insulators and (ii) string efficiency. 8 M

(OR)

10. a) Derive the expression for sag when the supports are at un equal heights 6 M
    b) A transmission line has a span of 150 m between level supports. The conductor has a cross-sectional area of $2cm^2$. The tension in the conductor is 2000kg. If the specific gravity of the conductor material is 9.9 gm/cm^3 and wind pressure is 1.5 kg/m length, calculate the sag. What is the vertical sag? 8 M

AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022
MACHINE DRAWING
(Mechanical Engineering)

Time: 3 Hours   **Max Marks: 70**

Note: Answer any two questions from section A and Section B is compulsory

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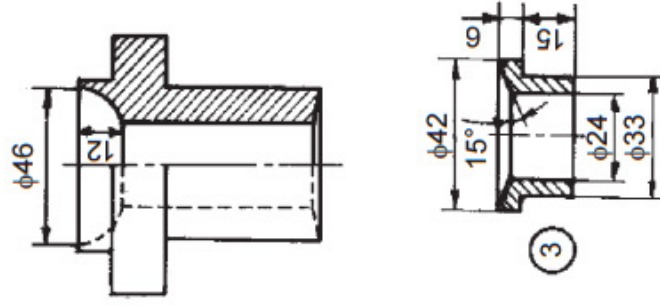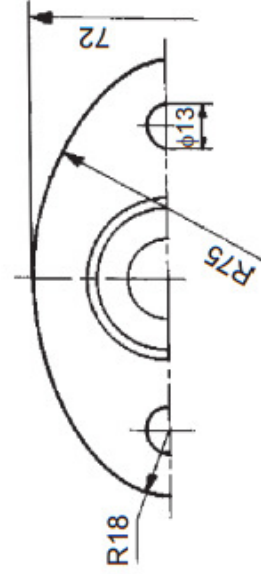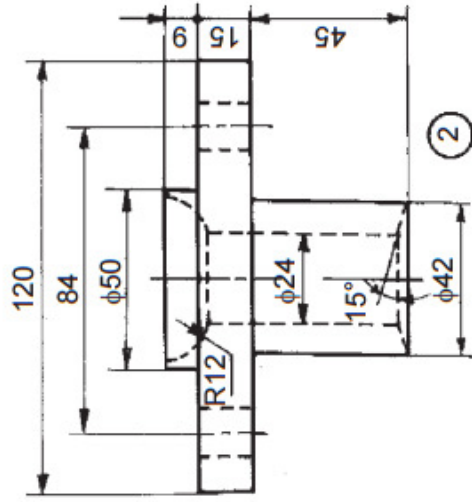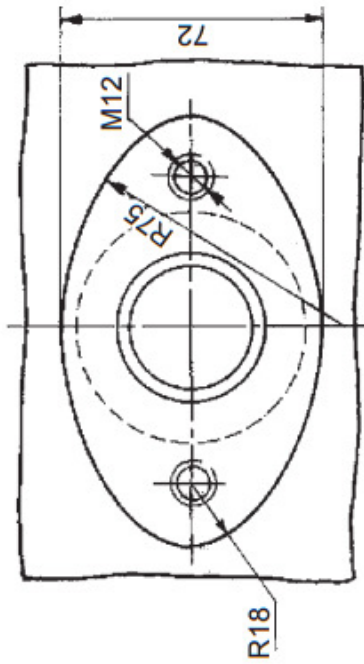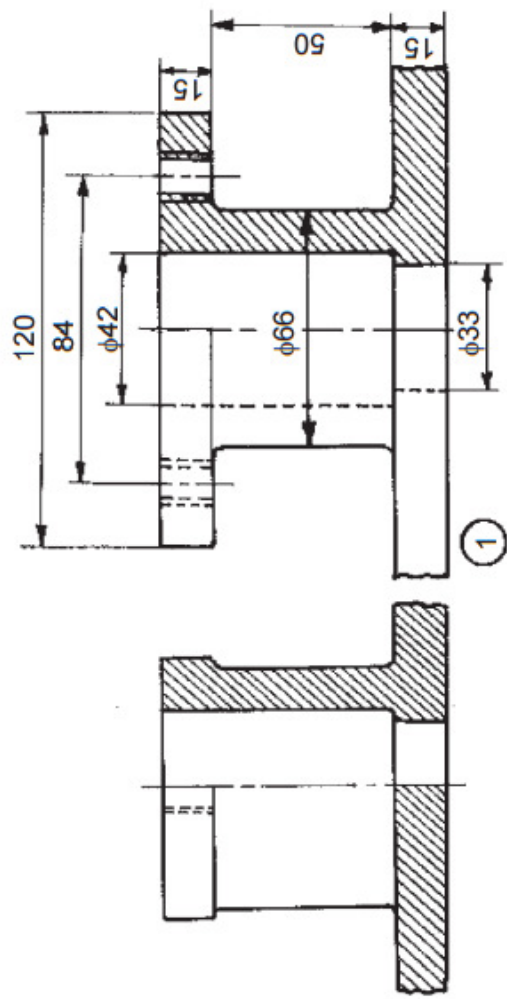**<u>Section A</u>**   **(2x15=30Marks)**
</div>

1. Sketch the following
      a. Whitworth thread of pitch 10 mm.
      b. Two views hexagonal nut of diameter 20 mm.

2. Sketch the two views of double riveted zig zag lap joint for joining two steel plates of 15 mm thick.

3. Two square rods of side 40 mm each, are connected by a cotter joint with a gib. Sketch the following views of the assembly: (i) half sectional view from the front and (ii) view from the side.

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<u>Section B</u>

(1x40=40Marks)
</div>

4.   Assemble all the parts of Stuffing box in figure below and draw the following views.
         i) Half sectional front view
         ii) Top view

Parts list			
Part No.	Name	Matl	Qty
1	Body	CI	1
2	Gland	Brass	1
3	Bush	Brass	1
4	Stud	MS	2
5	Nut, M12	MS	2

AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022

RANDOM VARIABLES AND STOCHASTIC PROCESSES
(Electronics and Communication Engineering)

Time: 3 Hours   **Max Marks: 70**
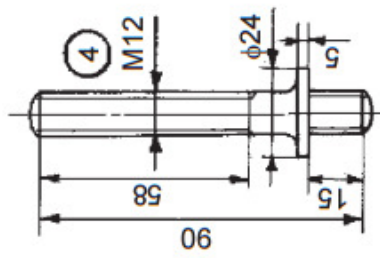
Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain about joint and conditional probability.   7M
   b) In a certain college, 4% of the men and 1% of the women are taller than 6 feet. Furthermore, 60% of the students are women. Now if a student is selected at random and is taller than 6 feet, what is the probability that the student is women?   7M

(OR)

2. a) Find P(A|B) if (a) $A \cap B = \emptyset$, *(b) $A \subset B$,* and *(c) $B \subset A$.*   7M
   b) A company producing electric relays has three manufacturing plants producing 50, 30 and 20 percent, respectively of its product. Suppose that the probabilities that a relay manufactured by these plants is defective are 0.02, 0.05 and 0.01 respectively.
   i) If a relay is selected at random from the output of the company, what is the probability that it is defective?   7M

   ii) If a relay is selected at random is found to be defective, what is the probability that it was manufactured by plant 2?

UNIT-II

3. a) Explain the Conditions for a Function to be a Random Variable   6M
   b) Explain the following
   (i) Moments about the Origin, (ii) Central Moments, (iii) Variance and (iv) Skew   8M

(OR)

4. a) Differentiate Discrete, Continuous and Mixed Random Variables   5M
   b) State and prove the properties of cumulative distribution function   9M

UNIT-III

5. a) Explain the laws of large numbers and the central limit theorem?   7M
   b) Consider the binary communication channel shown below.

    7M
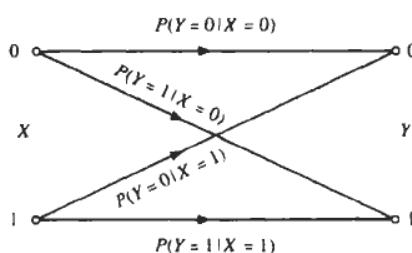
Let (X, Y) be a bivariate r.v., where X is the input to the channel and Y is the output of the channel. Let *P(X = 0) = 0.5*, P(Y = 1| X = 0) = 0.1, and P(Y = 0 | X = 1) = 0.2.

i) Find the joint pdf's of (X, Y).   ii) Find the marginal pdf's of X and Y.

(OR)

6. a) Explain the Joint Moments of Random Variables.   5M
    b) The joint pdf of a bivariate r.v. (X, Y) is given by

$$f_{XY}(x, y) = \begin{cases} k(x + y) & 0 < x < 2, 0 < y < 2 \\ 0 & \text{otherwise} \end{cases}$$ 9M

   where k is a constant.(i) Find the value of k. (ii) Find the marginal pdf's of X and Y.

UNIT-IV

7. a) State and explain various properties of Auto correlation function   6M
    b) A random process is defined as X(t)=A.cos(ω_ct+θ), where 'θ' is a random variable, uniformly distributed over(0,2π). Verify the process is Ergodic in the mean sense and auto correlation sense.   8M

(OR)

8. a) Consider a random variable process X(t)=a cosωt , where 'ω' is a constant and A is a random variable uniformly distribution over (0,1). Find the auto correlation and covariance of X(t)?   8M
    b) Differentiate the Deterministic and Nondeterministic processes.   6M

UNIT-V

9. a) Derive the Relationship between power spectrum and autocorrelation function   7M
    b) A stationary random process X(t) with zero mean and autocorrelation $R_{XX}(\tau)$= $e^{-2|\tau|}$ is applied to a system of function H(ω) = $\frac{1}{2+j\omega}$ develop the PSD of output.   7M

(OR)

10. a) Define cross – power density spectrum and prove its properties   7M
    b) Find the auto correlation function of the random process whose psd is 16/(ω^2+4)   7M

AR16

CODE: 16CS2008   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022
DATABASE MANAGEMENT SYSTEMS
(Common to CSE & IT)

Time: 3 Hours   **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What is a Database model? List out various database models and explain any two of them.	7M
	b)	Demonstrate data abstraction implementation in DBMS.	7M

(OR)

2.	a)	Who are the different database users? Explain their interfaces to database management system.	6M
	b)	With a neat diagram, explain the structure of Database Management System.	8M

UNIT-II

3.	a)	How to ensure the integrity with key constraints in database systems? Explain with primary and foreign key constraints.	6M
	b)	Construct an ER diagram for Car Insurance company Database. Identify entities, attributes for each entity, relationship among entities. Represent necessary constraints in this database design process in detail.	8M

(OR)

4.	a)	Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examinations conducted.	8M
	b)	Write the additional features of E/R Model.	6M

UNIT-III

5.	a)	Describe the importance of nested queries. Give its application in performing various aggregation operations.	7M
	b)	Consider the SAILOR DATABASE	7M

Sailors(sid: integer, sname: string, rating: integer, age: real);
Boats(bid: integer, bname: string, color: string);
Reserves(sid: integer, bid: integer, day: date).
Based on the above schema, write the corresponding SQL queries for the following?
i) Find the names of sailors who have reserved a red boat, and list in the order of age
ii) Find the names of sailors who have reserved at least one boat.
iii) Find the ids and names of sailors who have reserved two different boats on the same day.

(OR)

6. a) Explain Logical connectives AND,OR and NOT impact on SQL Constructs   6M

  b) Write the SQL expressions for the following relational database: 8M

    Sailor schema (sailor id, Boat id, sailor name, rating, age)

    Reserves (Sailor id, Boat id, Day)*Boat Schema* (boat id, Boat name, color)

    i) Find the age of the youngest sailor for each rating level.

    ii) Find the age of the youngest sailor who is eligible to vote for each rating level with at lead two such sailors.

    iii) Find the number of reservations for each red boat.

    iv) Find the average age of sailor for each rating level that at least 2 sailors.

UNIT-IV

7. a) Write the properties of functional dependencies   6M

  b) Does two phase locking protocol ensure conflict serializability? Justify your answer with appropriate examples.   8M

(OR)

8. a) What is lossless join decomposition? Explain the same with an example.   7M

  b) Define transaction and explain desirable properties of transactions   7M

UNIT-V

9. a) Explain about Timestamp Ordering Protocol.   7M

  b) Explain Shadow paging recovery   7M

(OR)

10. a) Explain Log Based Recovery in detail   6M

  b) Explain Hash-Based Indexing in detail.   8M

AR13

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, January-2022
MACHINE DRAWING
(Mechanical Engineering)

Time: 3 Hours   **Max Marks: 70**

PART-A: Answer any two questions from PART-A   **[2 X 15=30Marks]**
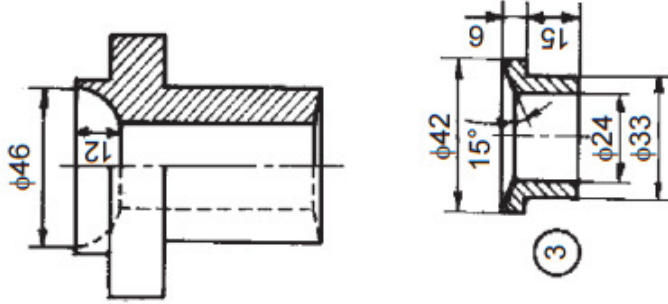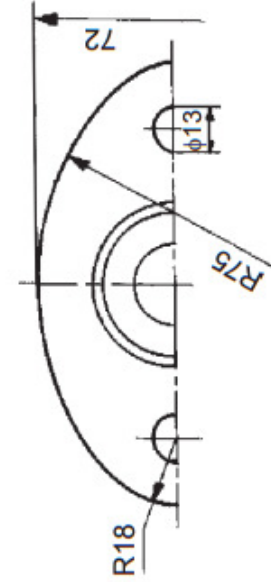**PART-B is Compulsory**
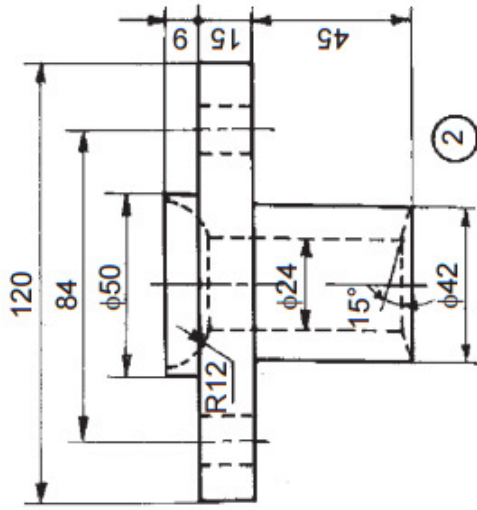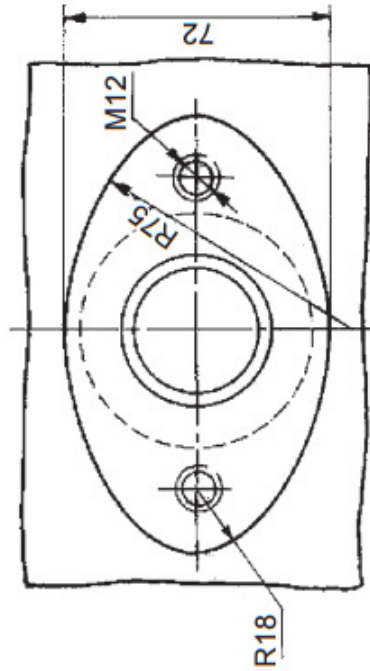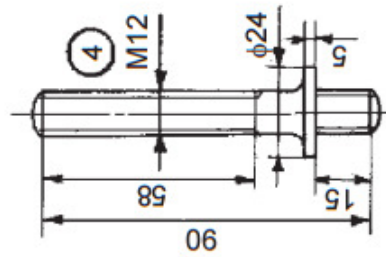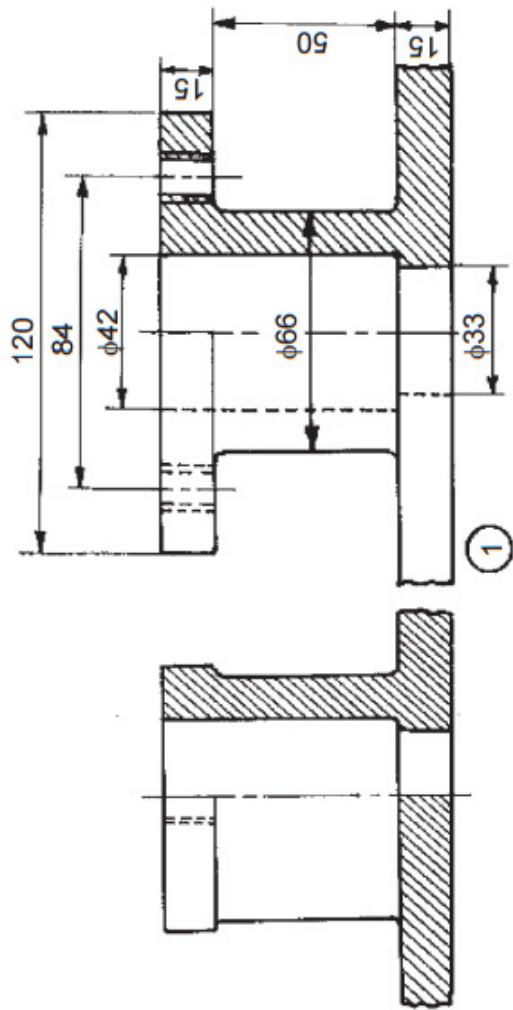
PART-A   **2 X 15=30Marks**

1. Draw the two views of a hexagonal headed bolt of nominal diameter 25 mm and length 100 mm with a hexagonal nut and washer.   (15 M)

2. Draw (a) sectional view from the front and (b) view from above, of the double riveted, double strap, chain butt joint, to join plates of thickness 10 mm.   (15 M)

3. Draw sectional top view and front views of a knuckle joint to connect two rods of 20 mm diameter   (15 M)

PART-B   **[1x40=40M]**

4. Assemble all the parts of Stuffing box in figure below and draw the following views.
    i) Half sectional front view
    ii) Top view

Part ③: φ46, 12, φ42, 15°, 15, 6, φ24, φ33, ③

Part ②: 120, 84, φ50, R12, 9, 15, 45, φ24, 15°, φ42, 72, φ13, R75, R18, ②

Part ①: 120, 84, φ42, φ66, φ33, 50, 15, 15, 72, M12, R75, R18, ①

Part ④: M12, φ24, 5, 58, 90, 15, ④

Parts list

Part No.	Name	Matl	Qty
1	Body	CI	1
2	Gland	Brass	1
3	Bush	Brass	1
4	Stud	MS	2
5	Nut, M12	MS	2