AR16

CODE: 16EE1004 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Regular & Supplementary Examinations, June-2018

BASIC ELECTRICAL &ELECTRONICS ENGINEERING

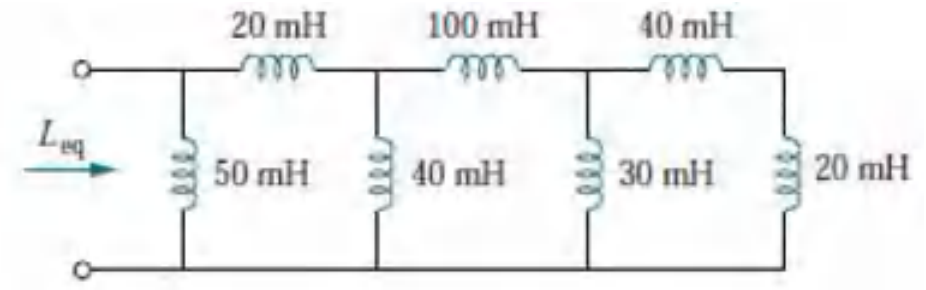
(Common to CE & ME Branches)

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 Calculate the equivalent inductance for the inductive ladder network shown below? 6M



b Three resistances 2 ohms, 4 ohms and 6 ohms are connected in series across 24V supply. Find the voltages across three resistors and current through each resistor. 8M

(OR)

2. a Define the following terms 8M
(i) voltage (ii) non-linear elements (iii) passive elements (iv) ohm's law

b Explain Star-delta transformation? 6M

UNIT-II

3. a Explain the construction of DC Generator 7M

b Derive the E.M.F equation of a DC Generator 7M

(OR)

4. a Explain the operation of 3-point starter. 7M

b Explain in detail about Speed control methods in DC motor 7M

UNIT-III

5.	a	An ideal 25kVA transformer has 500 turns on the primary winding and 40 turns on the secondary windings. The primary is connected to 3000V,50 Hz supply. Calculate i) primary and secondary currents on full-load ii) secondary e.m.f and iii)the maximum core flux.	8M
	b	Explain the O.C Test on a single-phase transformer with suitable diagrams	6M
		(OR)	
6.	a	Explain torque – speed characteristics	6M
	b	Explain the principle operation of induction motor.	8M

UNIT-IV

7.	a	Explain the operation of Alternator with construction	10M
	b	The armature of an 8-pole, 3-phase, 50Hz alternator has 18 slots and 10 conductor/slot. A flux of 0.04 Wb is entering the armature from one pole. Calculate the induced e.m.f per phase.	4M
		(OR)	
8.		Explain the working Principle of Moving-Iron instrument with neat diagram	14M

UNIT-V

9.	a	Explain the V-I characteristics of PN junction diode with neat sketch.	7M
	b	Explain the working of half wave rectifier	7M
		(OR)	
10.		Draw and explain input and output characteristics of CB configuration.	14M

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AR16

CODE: 16ME1001 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Regular Examinations, June-2018

ENGINEERING DRAWING

(For EEE Branch)

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
Assume missing dimensions suitably, if any

UNIT-I

1. Draw a vernier scale of R.F.1/25 to read centimeters upto 4 metres and on it, show lengths representing 2.39 m and 0.91 m. 14M

(OR)

2. Draw an involute of a circle with dia.30mm.Also draw a normal and a tangent to the involute of a circle at any point on it. 14M

UNIT-II

3. a) A point B is above the 30mm H.P. and 25mm behind the V.P.Draw the front view and the top view. 4M

   b) The length of the top view of a line parallel to the V.P. and inclined at 45° to the H.P.is 50 mm. One end of the line is 12 mm above the H.P. and 25 mm in front of the V.P. Draw the projections of the line and determines its true length. 10M

(OR)

4. A line AB, 90 mm long is inclined at 30° to the H.P. Its end A is 12 mm above the H.P. and 20 mm in front of the V.P. Its front view measures 65 mm. Draw the top view of AB and determine its inclination with the V.P. 14M

UNIT-III

5. a) Draw the projections of a circle of 50 mm diameter having its plane vertical and inclined at 30° to the V.P. Its centre is 30 mm above the H.P. and 20 mm in front of the V.P. 7M

   b) Draw the projections of a rhombus having diagonals 65 mm and 30 mm long. The smaller diagonal is parallel to both HP and VP while the other is at an angle of 30° to HP. 7M

(OR)

6. Draw the projections of a regular hexagon of 25 mm side, having one of its sides in the H.P. and inclined at 60° to the V.P., and its surface making an angle of 45° with the H.P. 14M

UNIT-IV

7. a) Draw the projections of a hexagonal pyramid, base 30 mm side and axis 60 mm long, having its base on the H.P. and one of the edges of the base inclined at 45° to the V.P. 4M

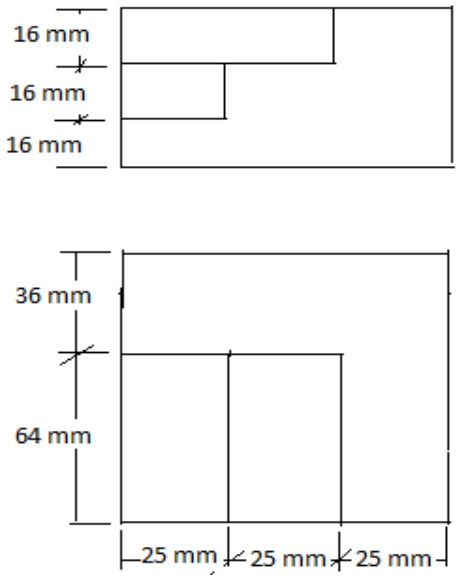
   b) Draw the projections of a cone, base 75 mm diameter and axis 100 mm long, lying on the H.P. on one of its generators with the axis parallel to the V.P. 10M

(OR)

8. A regular pentagonal pyramid with the sides of its base 30 mm and height 80 mm rests on an edge of the base. The base is tilted until its apex is 50 mm above the level of the edge of the base on which it rests. Draw the projection of the pyramid when the edge on which it rests, is parallel to the V.P. and the apex of the pyramid points towards V.P. 14M

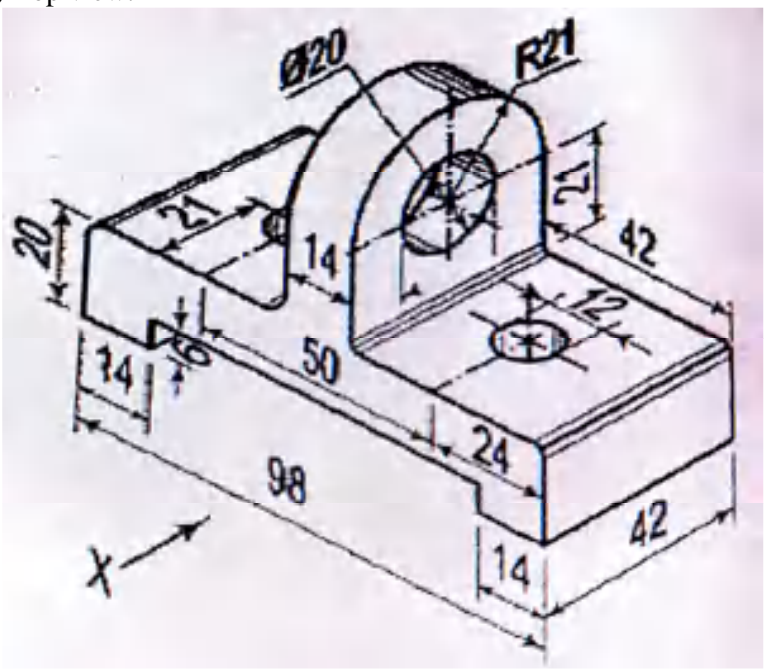
UNIT-V

9. Draw the isometric view of the model of steps, two views of which are shown in fig. below 14M



(OR)

10. Draw the following views of the object shown fig. below: (i) Front view. (ii) Side view. (iii) Top view. 14M



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AR16

CODE: 16ME1001 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech. II Semester Regular & Supplementary Examinations, June-2018

ENGINEERING DRAWING

(For ECE Branch)

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. Construct a parabola, with distance of the focus from the directrix as 50 mm and also draw normal and tangent to the curve at a point 40 mm from the directrix. 14M

(OR)

2. The foci of an ellipse are 100 mm apart and the minor axis is 60 mm long. Determine the length of the major axis and the ellipse by oblong method. 14M

UNIT-II

3. Draw the projections of a 75 mm long straight line in the following positions: (i) Parallel to the both HP & VP and 25mm from each (ii) Perpendicular to the HP and 20 mm in front of the VP and its one end 15 mm above the HP (iii) Inclined at 45^0 to the VP, in the HP and its one end in the VP. 14M

(OR)

4. A point P is 15 mm above the H.P. and 20 mm in front of the V.P. Another point Q is 25 mm behind the VP and 40 mm below the H.P. Draw the projections of P and Q keeping the distance between their projectors equal to 90 mm. draw straight lines joining (1) their top views and (2) their front views. 14M

UNIT-III

5. Draw the projections of a circle of 75 mm diameter having the end A of the diameter AB in the horizontal plane, the end B in the vertical plane, and the surface inclined at 30^0 to HP and at 60^0 to the VP. 14M

(OR)

6. Draw the projections of a circle of 75 mm diameter having the end A of the diameter AB in the horizontal plane, the diameter passing through A makes an angle of 45^0 to H.P. 14M

UNIT-IV

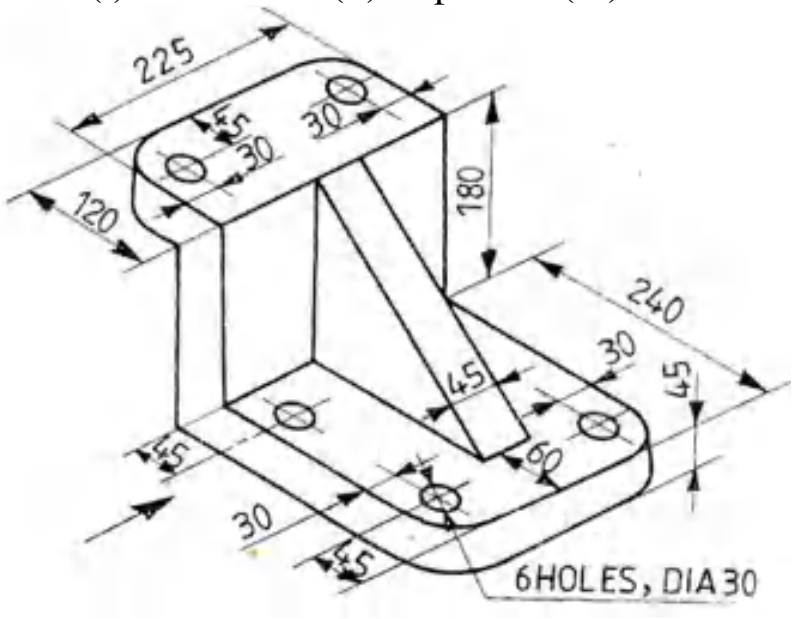
7. Draw the projections of a cone, base 75 mm diameter and axis 100 mm long, lying on the ground on one of its generators with the axis parallel to the VP. Draw its projections. 14M

(OR)

8. Draw the projections of a pentagonal prism, base 25 long, resting on one of its rectangular faces on the ground, with the axis inclined at 45^0 to the VP. 14M

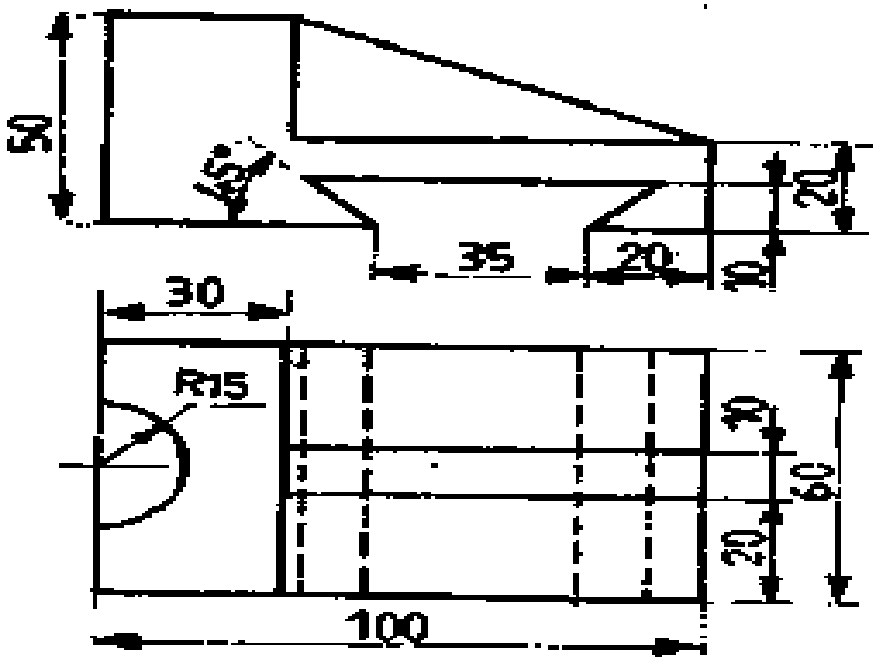
UNIT-V

9. Draw (i) Front View (ii) Top View (iii) Side View 14M



(OR)

10. Draw the isometric view for the following orthographic views. 14M



AR16

CODE: 16ME1001 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech. II Semester Supplementary Examinations, June-2018

ENGINEERING DRAWING

(For EEE Branch)

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. Construct a parabola, with distance of the focus from the directrix as 50 mm and also draw normal and tangent to the curve at a point 40 mm from the directrix. 14M

(OR)

2. The foci of an ellipse are 100 mm apart and the minor axis is 60 mm long. Determine the length of the major axis and the ellipse by oblong method. 14M

UNIT-II

3. Draw the projections of a 75 mm long straight line in the following positions: (i) Parallel to the both HP & VP and 25mm from each (ii) Perpendicular to the HP and 20 mm in front of the VP and its one end 15 mm above the HP (iii) Inclined at 45^0 to the VP, in the HP and its one end in the VP. 14M

(OR)

4. A point P is 15 mm above the H.P. and 20 mm in front of the V.P. Another point Q is 25 mm behind the VP and 40 mm below the H.P. Draw the projections of P and Q keeping the distance between their projectors equal to 90 mm. draw straight lines joining (1) their top views and (2) their front views. 14M

UNIT-III

5. Draw the projections of a circle of 75 mm diameter having the end A of the diameter AB in the horizontal plane, the end B in the vertical plane, and the surface inclined at 30^0 to HP and at 60^0 to the VP. 14M

(OR)

6. Draw the projections of a circle of 75 mm diameter having the end A of the diameter AB in the horizontal plane, the diameter passing through A makes an angle of 45^0 to H.P. 14M

UNIT-IV

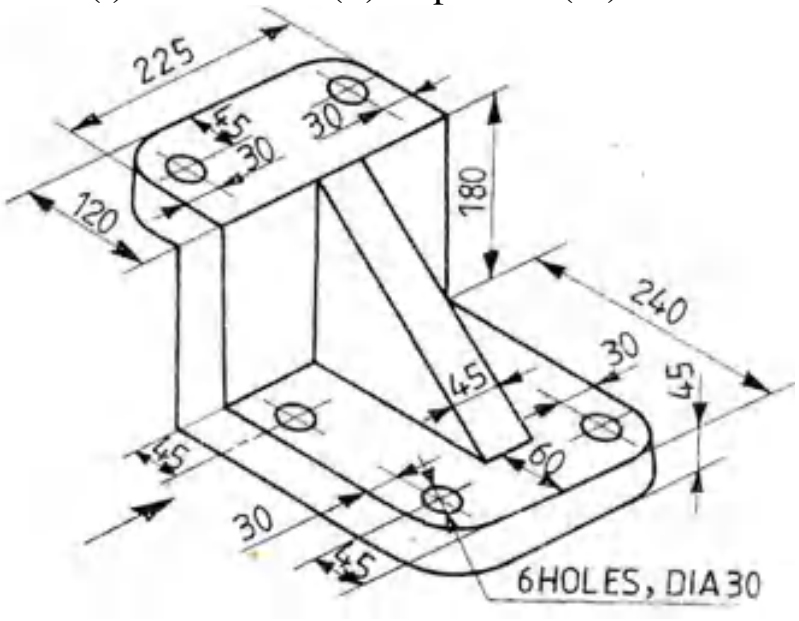
7. Draw the projections of a cone, base 75 mm diameter and axis 100 mm long, lying on the ground on one of its generators with the axis parallel to the VP. Draw its projections. 14M

(OR)

8. Draw the projections of a pentagonal prism, base 25 long, resting on one of its rectangular faces on the ground, with the axis inclined at 45^0 to the VP. 14M

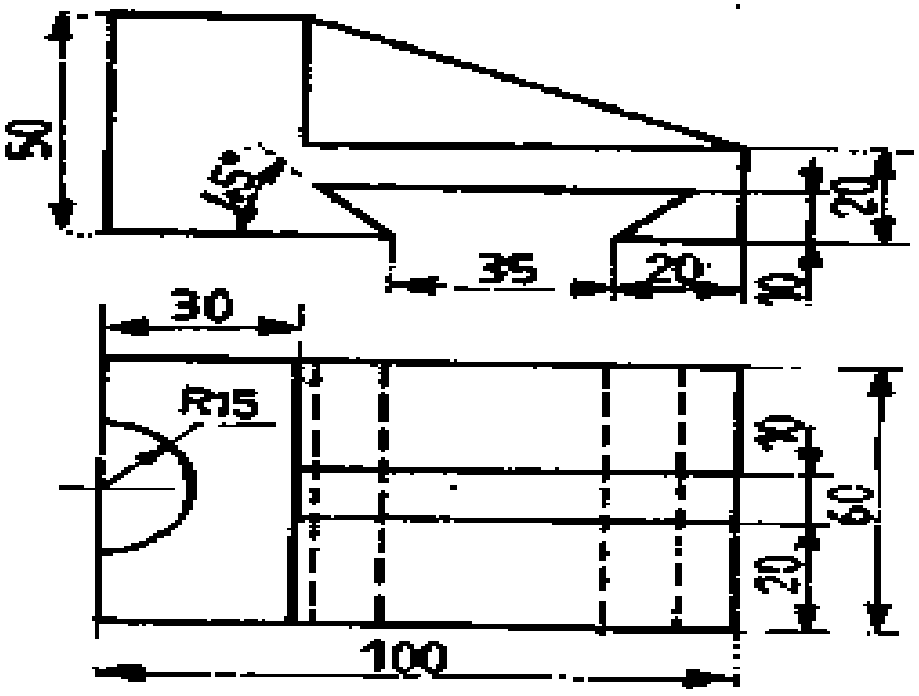
UNIT-V

9. Draw (i) Front View (ii) Top View (iii) Side View 14M



(OR)

10. Draw the isometric view for the following orthographic views. 14M



AR16

CODE: 16CS1002

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I B.Tech II Semester Regular & Supplementary Examinations, June-2018
Data Structures
(Common to CSE, IT Branches)

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 in one place only

UNIT – I

1. a. Write C programs to find the factorial of given number using recursive function. 7M
   b. Explain the algorithm analysis and complexity. 7M

(OR)

2. a. Define and explain the operations of data structure. 7M
   b. Explain in detail about preliminaries of algorithm. 7M

UNIT – II

3. a. Write an algorithm for Binary search and explain with example? 7M
   b. Explain the insertion sort technique with the following example 39, 9, 45, 63, 18, 81, 108, 54, 72, 36 7M

(OR)

4. a. Write an algorithm for linear Search and give suitable example? 6M
   b. What are the different types of sorting techniques? Explain any one with example. 8M

UNIT – III

5. a. differentiate between stack and queue 3M
   b. Explain the stack operations with example 4M
   c. Write a C program that implement queue operations using arrays 7M

(OR)

6. a. Write a c program to perform infix to postfix conversion of a given expression. 6M
   b. explain about queue applications. Explain the evaluation of arithmetic expression. 8M

UNIT – IV

7. a. Explain the merits and demerits of linked lists. 4M
   b. Write a C program that implement queue operations using linked lists. 10M

(OR)

8. a. Explain about insert and delete operations on circular linked list. 7M
   b. What are the operations of a double linked list? Discuss. 7M

UNIT – V

9. a. Write an algorithm to insert, delete a node from binary search tree. 8M
   b. What are the tree traversal techniques? Explain with an example. 6M

(OR)

10. a. Define a Graph? Explain various graph representations. 7M
    b. Write an algorithm for DFS with example. 7M

AR13

CODE: 13EE1002 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Supplementary Examinations, June-2018

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to MECH & CIVIL Branches)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What are the energy consuming electrical elements?
   b) Current division formula.
   c) Types of DC Generators.
   d) Losses in a DC Motor.
   e) Explain the term slip of an induction motor
   f) Equation for voltage regulation of a transformer.
   g) Types of 3-phase induction motors.
   h) Types measuring instruments.
   i) Output waveform of a full wave rectified wave.
   j) Symbol of PNP transistor.

PART-B

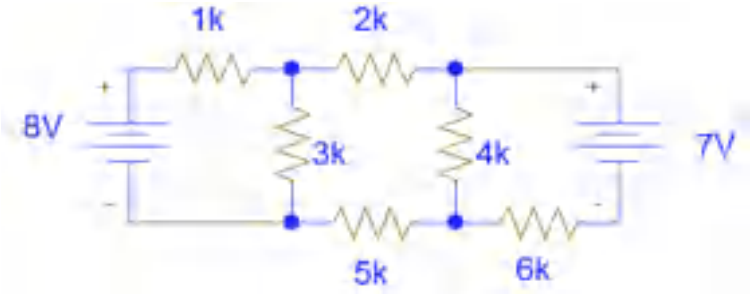
Answer one question from each unit **[5x12=60M]**

UNIT-I

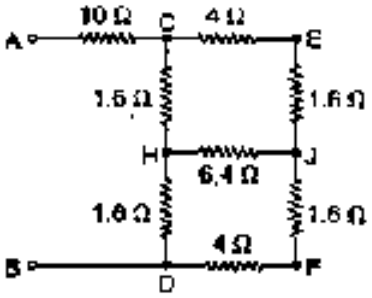
2. a) Write about star-delta transformations. **6 M**
   b) Explain Kirchhoff's laws with suitable examples. **6 M**

(OR)

3. a) Find the current through the 4k resistor. All resistors are in kilo ohms. **6 M**



b) Find the total resistance in the circuit between the terminals A&B. **6 M**



UNIT-II

4. a) What are the different losses in a DC Machine? Explain. **6 M**
   b) Draw the various characteristics of a DC Shunt Generator. **6 M**

(OR)

5. a) Derive the torque equation of a DC Motor. **6 M**
   b) What are the different parts in a D.C Machine? Explain. **6 M**

UNIT-III

6. a) Explain the operation of a single phase transformer with neat diagrams. **6 M**
   b) Derive the equation for regulation of an alternator using synchronous impedance method. **6 M**

(OR)

7. a) Derive the condition for maximum efficiency of a transformer. **6 M**
   b) Explain the operation of a 3- ϕ induction motor with suitable figures. **6 M**

UNIT-IV

8. a) Compare PMMC and MI instruments. **6M**
   b) What is the different torques needed for an indicating instrument. **6 M**

(OR)

9. With neat diagram explain the operation of moving iron instrument. **12M**

UNIT-V

10. Explain the working of full wave rectifier with neat diagrams **12M**

(OR)

11. a) Explain the operation of a P-N junction diode and draw its VI characteristics. **6 M**
    b) Write about SCR **6 M**

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AR13

CODE: 13ME1001 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Supplementary Examinations, June-2018

ENGINEERING DRAWING
(Common to EEE & ECE)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is representative fraction?
   b) What are the possible positions of a straight line with respect to the planes of projection?
   c) Define eccentricity
   d) List out the main differences between first angle projection and third angle projection
   e) When a plane is perpendicular to a reference plane its projection on that plane is _____
   f) What is an oblique plane?
   g) What are the solids of revolution?
   h) What are the dimensions of the solid that can be seen in the side view?
   i) What is the difference between Isometric view and Isometric projection?
   j) How are the invisible features of an object represented in orthographic projection?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. Construct a diagonal scale of R.F.=1:32,00,000 to show kilometres and long enough to measure upto 400km. Show distances of 257 km and 333 km on your scale. [12M]

(OR)

3. The foci of an ellipse are 90 mm apart and the minor axis is 65 mm long. Determine the length of the major axis and draw half the ellipse by concentric circles method and other half by oblong method [12M]

UNIT-II

4. A line CD measures 80 mm is inclined at an angle of 30^0 to HP and 45^0 to VP. The point C is 20 mm above HP and 30 mm in front of VP. Draw the projections of the line. [12M]

(OR)

5. A line AB is 75 mm long. A is 50 mm in front of VP and 15 mm above HP. B is 15 mm in front of VP and is above HP. Top view of AB is 50 mm long. Draw and measure the front view. Find the true inclinations. [12M]

CODE: 13ME1001 **SET-1**

UNIT-III

6. Draw the projections of regular hexagon of 25 mm side having one of its edge in HP and inclined at 60^0 to VP and its surface making an angle of 60^0 to HP. [12M]

(OR)

7. A rectangular plate 50x25 size is perpendicular to both HP and VP. The longer edges are parallel to HP and then rest one is 20 above it. The shorter edge, nearer to VP is 15 from it. The plane is 50 from the profile plane. Draw the projections of the plane. [12M]

UNIT-IV

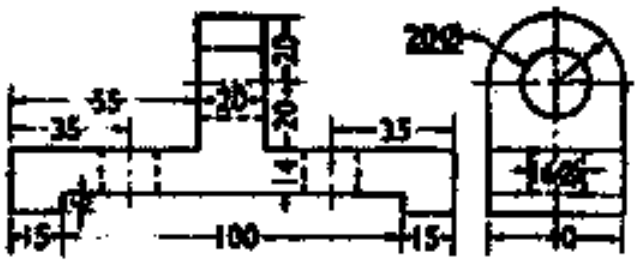
8. An equilateral triangular prism of side of base 25 mm and axis 50 mm long, is resting on an edge of its base on HP. The face containing that edge is inclined at 30^0 to HP. Draw the projections of the prism, when the edge on which the prism rests, is perpendicular to V.P. [12M]

(OR)

9. A tetrahedron of 40 mm side lies with one of its edges on HP and inclined at 45^0 to VP. The triangular face containing that edge is inclined at 30^0 HP. Draw the top and front views of the solid. [12M]

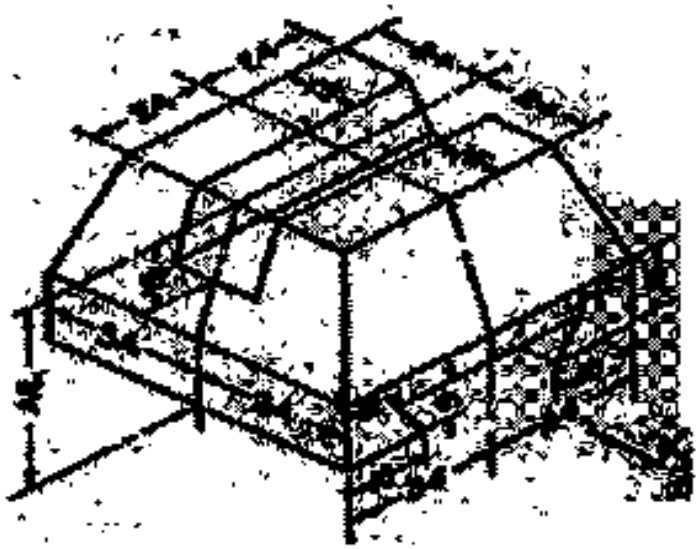
UNIT-V

10. Two views of a casting are shown below. Provide isometric view of the casting. [12M]



(OR)

11. Draw the front view, top view and left side of the object shown below. [12M]



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AR13

CODE: 13CS1002 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Supplementary Examinations, June-2018
DATA STRUCTURES
(Common to CSE and IT)

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

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What are asymptotic notations?
   b) What are common operations that can be performed on a data-structure?
   c) What is the prefix notation of (a + b) * (c + d) ?
   d) What operations can be performed on stacks?
   e) How many binary search trees are possible with 4 nodes
   f) How does a Merge sort operate?
   g) What data structure is used for breadth first traversal of a graph?
   h) How many swaps are required to sort the given array using bubble sort - { 2, 5, 1, 3, 4}
   i) Define BFS
   j) AVL Stands for.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2.	a	What is a Data Structure? Explain various data structure with examples.	**6M**
	b	Write an algorithm to find the factorial number.	**6M**
		(OR)	
3.	a	Difference between space complexity and Time complexity.	**6M**
	b	Write an algorithm to find the Fibonacci series	**6M**

UNIT-II

4.		Difference between single linked list and double linked list	**12M**
		(OR)	
5.		Write a 'c' program for basic operations of stack.	**12M**

UNIT-III

6.	a	What is an insertion sort? How it works.	**6M**
	b	Write an algorithm and Pseudo code for insertion sort	**6M**
		(OR)	
7.	a	What is bubble sort? How it works.	**6M**
	b	Write an algorithm and Pseudo code for bubble sort	**6M**

UNIT-IV

8.	a	Explain various tree traversal techniques with suitable example	**6M**
	b	Explain various AVL tree rotations with suitable example	**6M**
		(OR)	
9.	a	Write an Algorithm for insertion in Binary Search Tree.	**6M**
	b	Write an Algorithm for deletion in Binary Search Tree.	**6M**

UNIT-V

10.	a	What is DFS? Which traversing technique is used in DFS and also explain the concept of DFS with example.	**6M**
	b	What is BFS? Which traversing technique is used in BFS and also explain the concept of BFS with example.	**6M**
		(OR)	
11.	a	Explain Dijkstra's shortest path algorithm with an example.	**6M**
	b	Explain graph representation using adjacency matrix.	**6M**

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