

Code: 13ME1001

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I B. Tech I Semester Regular Examinations, February-2014

ENGINEERING DRAWING

(Civil Engineering)

Time: 3 hours

Max Marks: 70

PART-A

Answer all questions

[10X1=10M]

1. a) What is Scale.
- b) Define Ellipse.
- c) What is principle of projection?
- d) What are the possible positions of a straight line with respect to the planes of projection?
- e) What is perpendicular plane?
- f) When a plane is parallel to a reference plane its projection on that plane is _____
- g) What is polyhedra?
- h) What is frustum?
- i) What is isometric scale?
- j) What is the difference between orthographic projection and isometric projection?

PART- B

Answer one question from each unit

[5X12=60M]

Unit - I

2. Construct a diagonal scale to read kilometer, hectometer and decameter given that 1 km is represented by 5 cm on the drawing, it should be long enough to measure upto 4 km. Find the R.F. and show a length of 2.68 on the scale.
- (OR)
3. Two fixed points A and B are 100 mm apart. Trace the complete path of a point P moving (in the same plane as that of A and B) in such a way that, the sum of its distances from A and B is always the same and equal to 125 mm. Name the curve.

Unit - II

4. a) Draw the projections of a line 80 mm long when it is in the H.P. and inclined at 50° to V.P. One end of the line is 10 mm in front of V.P.
 - b) The front view of a 75 mm long line measures 55 mm. The line is in the H. P. and one of its ends is in the V.P. Draw its projections.
- (OR)
5. a) Two pegs fixed on a wall are 4.5 meters apart. The distance between the pegs measured parallel to the floor is 3.6 meters. If one peg is 1.5 meters above the floor, find the height of the second peg and the inclination of the line joining the two pegs, with the floor.
 - b) Draw the projections of a line 65 mm long lying in V.P. and inclined to H.P. at 35° . The end which is nearer to H.P. is 20 mm above it.

Unit – III

6. Draw an equilateral triangle of 75 mm side and inscribe a circle in it. Draw the projections of the figure, when its plane is vertical and inclined at 30° to the V.P. and one of the sides of the triangle is inclined at 45° to the H.P.

(OR)

7. Draw the projections of a regular pentagon of 40 mm side having inclined at 30° to the H.P. and perpendicular to the V.P. and one side inclined at an angle of 45° to V.P. Also draw its side view.

Unit - IV

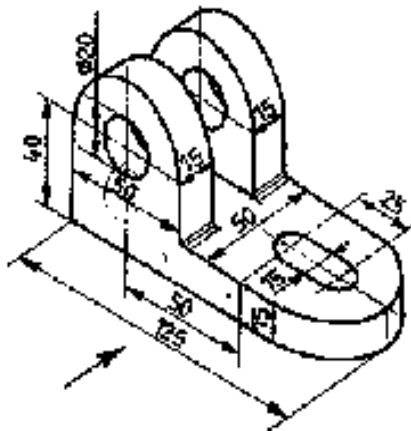
8. A cube of 30 mm sides is held on the one of its corners on H.P. such that one of the bottom square faces containing that corner is inclined at 30° to H.P. Two of its square faces are equally inclined to the V.P. Draw the top and front views of the cube.

(OR)

9. A hexagonal pyramid has an altitude of 60 mm and side of the base 30 mm. The pyramid rests with one of its sides of the base on H.P. such that the triangular face containing that side is perpendicular to H.P. Draw the top and front views.

Unit - V

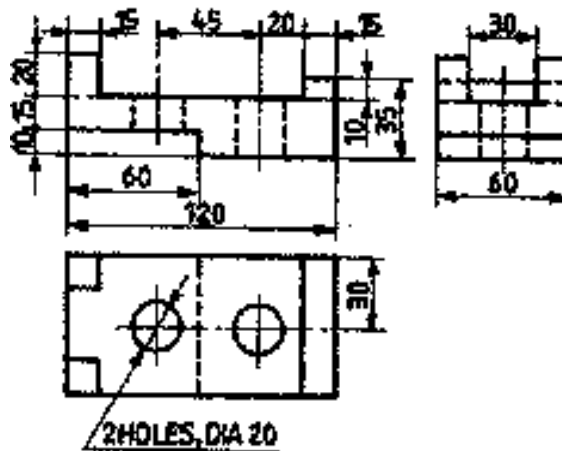
10. Draw the front and top views of the block shown in figure below.



All dimensions are in mm

(OR)

11. Draw the isometric projection of the block whose orthographic projections are shown in figure below.



All dimensions are in mm

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**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

**I B.Tech. I Semester Regular Examinations, February-2014
FUNDAMENTALS OF ELECTRICAL ENGINEERING
(Electrical and Electronics Engineering)**

Time: 3 hours

Max Marks: 70

PART – A

Answer all questions

[10X1=10M]

1. a) State Current division rule
b) Draw the characteristics of practical voltage source
c) Define apparent power value
d) Define peak factor
e) Define Reluctance
f) Define Magneto motive force (m.m.f)
g) Define Deflecting torque
h) Define Controlling torque
i) Define Fuse
j) Define Adopter

PART – B

Answer one question from each unit

[5X12=60M]

UNIT-I

2. a) State ohm's law, Kirchoff's current law, Kirchoff's voltage law.
b) Find the current in the various branches of the Fig.1

[6M]

[6M]

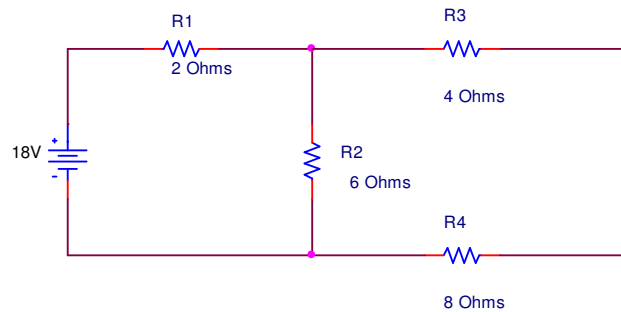


Fig. 1

OR

3. a) Explain the volt-ampere relationship for R, L and C parameters
b) Derive the expressions for energy stored in inductor and capacitor

[6M]

[6M]

UNIT-II

- 4.a) A voltage $V(t) = 150 \sin 250 t$ is applied to the coil of resistance 10Ω and inductive reactance of 15Ω . Find the (i) power delivered by the circuit (ii) power factor [6M]
- b) A series RLC circuit has a quality factor of 5 at 50 rad/sec. The current flowing through the circuit at resonance is 10 A and the supply voltage is 100 V. The total impedance of the circuit is 20Ω . Find the circuit constants. [6M]

OR

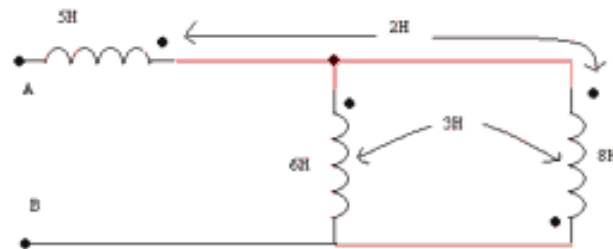
5. a) A sine wave of $V(t) = 200 \sin 50t$ is applied to a 10Ω resistor in series with a coil. The reading of a voltmeter across the resistor is 120 V and across the coil 75 V. Calculate the true power delivered. [6M]
- b) A series RLC circuit has a quality factor of 5 at 50 rad/sec. The current flowing through the circuit at resonance is 10 A and the supply voltage is 100 V. The total impedance of the circuit is 20Ω . Find the circuit constants. [6M]

UNIT-III

6. Two coils with inductances in the ratio of 5:1 have a coupling coefficient $k = 0.5$. When these coils are connected in series aiding, the equivalent inductance is 44.4 mH. Find L_1 , L_2 and M . [12M]

OR

7. a) Derive the expression for co-efficient of coupling for coupled circuit. [6M]
- b) Calculate the effective inductance of the circuit shown below across A and B. [6M]

**UNIT-IV**

8. Describe the construction and working of a PMMC instrument. Derive the equation for deflection if the instrument is spring controlled? [12M]

OR

- 9.a) Explain the various basic classification of electrical measuring instruments. [6M]
- b) With the help of neat diagram, explain the principle of a moving iron instrument. [6M]

UNIT-V

10. Explain about all Electrical Wiring accessories in detail. [12M]

OR

11. Explain the estimation of cost selection of interior wiring system suitable to a given building. [12M]

Code: 13EC1001**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****1 B. Tech 1 Semester Regular Examinations, February 2014****ELECTRONIC DEVICES****(Electronics and Communication Engineering)****Time: 3 hours****Max Marks: 70****PART – A****Answer all questions****[10x1=10M]**

1. a) Give the equation for the velocity of an electron in an electric field.
b) Why we will prefer magnetic deflection in tubes used in TV?
c) How extrinsic semiconductor is formed and how many types?
d) What are the applications of Hall-effect?
e) What type of diode is used for voltage stabilization?
f) What is the ripple frequency in full wave rectifier with center-tapped if the input frequency is f ?
g) What are the conditions of emitter and collector junctions in PNP transistor used as an amplifier?
h) In which configuration the voltage gain is unity?
i) What are the advantages of IGFET over JFET?
j) What is the advantage of gate control in SCR.

PART – B**Answer one question from each unit****[5X12=60M]****Unit - I**

2. a) Draw and explain each block of cathode ray oscilloscope. [9+3M]
b) Give the different types of oscilloscopes.

(OR)

3. a) Explain the magnetic deflection in cathode ray tube and obtain the equation for magnetic deflection sensitivity.
b) Compare electric and magnetic deflection systems [8+4M]

Unit – II

4. a) Explain drift and diffusion currents in semiconductors and derive drift current in semiconductor.
b) Explain Mass action law if an intrinsic semiconductor is doped with n-type impurity. [6+6M]

(OR)

5. a) Draw and explain energy band diagrams of insulator, Semiconductor and metals.
b) Obtain the continuity equation for holes and electrons in semiconductor. [6+6M]

Unit – III

6. a) Explain through its characteristics of a PN-junction diode.
b) Explain the operation of tunnel diode with the help of Energy level diagrams. [6+6M]

(OR)

7. a) Explain diode resistances and capacitance.
b) Draw and explain the operation of Bridge rectifier and its parameters. [5+7M]

Unit – IV

8. a) Explain how the transistor acts as an amplifier.
b) Compare two configurations with respect to A_i , A_v , R_i and R_o . [6+6M]

(OR)

9. Draw and explain output and input characteristics of an NPN transistor in CB configuration. [12M]

Unit – V

10. What are the different types of MOSFETs and explain n-channel enhancement MOSFET construction, operation and its characteristics. [12M]

(OR)

11. Explain the operation of SCR and its Characteristics, operation and give its equivalent two transistor model also give its ratings. [12M]
