| O.P.Code: 18EE0240 | R18 | H.T.No. | | | | | | | | | |
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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**

(AUTONOMOUS)

## B.Tech I Year II Semester Supplementary Examinations April-2026

### BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Civil Engineering)

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

(Answer all Six Units 6 X 10 = 60 Marks)

**PART-A**

**UNIT-I**

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Define and Explain about ohms law. | CO1 | L1 | 5M |
| | b | Explain about passive elements in detail. | CO1 | L2 | 5M |
| | | **OR** | | | |
| 2 | a | Define RMS value, average value, form factor and peak factor. | CO1 | L1 | 5M |
| | b | Find form factor of the sine Current. | CO1 | L3 | 5M |

**UNIT-II**

| | | | | | |
|---|---|---|---|---|---|
| 3 | | State and prove Reciprocity theorem with an example. | CO2 | L2 | 10M |
| | | **OR** | | | |
| 4 | | The given ABCD parameters are A=2,B=0.9,C=1.2,D=0.5 find Y-parameters. | CO2 | L3 | 10M |

**UNIT-III**

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | Derive Torque equation of dc motor | CO3 | L2 | 5M |
| | b | The counter EMF of Shunt motor is 227 volts the field resistance is 160Ω & field current 1.5A if the line current is 36.5A find the armature resistance also find armature current when the motor is stationary. | CO3 | L3 | 5M |
| | | **OR** | | | |
| 6 | a | Explain principle of operation of transformer. | CO3 | L2 | 5M |
| | b | An ideal transformer has 1000turns on its primary and 500 turns on its secondary the driving voltage of primary side is 100V and the load resistance is 5 Ω, calculate $V_2$, $I_1$ and $I_2$. | CO2 | L3 | 5M |

**PART-B**

**UNIT-IV**

| | | | | | |
|---|---|---|---|---|---|
| 7 | | Draw the Crystal Lattice structure of Si? Explain how charge flows through the lattice? | CO1 | L2 | 10M |
| | | **OR** | | | |
| 8 | | Design a Voltage rectifier with a load? Derive an expression for load current. | CO1 | L3 | 10M |

**UNIT-V**

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | With a neat sketch, Explain the construction and working principle of NPN transistor. | CO2 | L2 | 5M |
| | b | Draw the Output Characteristics of NPN transistor? Explain the operation of NPN transistors in three regions specified in the output characteristics. | CO2 | L2 | 5M |
| | | **OR** | | | |
| 10 | | Draw input and output characteristics CE configuration? Explain the Operation of CE transistor with necessary expressions. | CO2 | L2 | 10M |

**UNIT-VI**

| | | | | | |
|---|---|---|---|---|---|
| 11 | | With a neat sketch explain the working principle of JFET? Explain how the current flows in a JFET. | CO3 | L2 | 10M |
| | | **OR** | | | |
| 12 | a | Discuss how a MOSFET acts as a Switch. | CO3 | L3 | 5M |
| | b | Draw and Explain the importance of Depletion mode MOSFET. | CO3 | L2 | 5M |

***** END *****

| O.P.Code:18ME0302 | R18 | H.T.No. | | | | | | | | | |
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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**
(AUTONOMOUS)

**B.Tech I Year II Semester Supplementary Examinations April-2026**
**ENGINEERING GRAPHICS& DESIGN**
(Common to AGE, ME, EEE)

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

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

| | | | | | |
|---|---|---|---|---|---|
| 1 | Construct an ellipse, with distance of the focus from the directrix as 50 mm and eccentricity as 2/3. Also draw normal and tangent to the curve at a point 40 mm from the directrix. | CO1 | L3 | 12M |
| | **OR** | | | | |
| 2 | Draw an epi-cycloid of rolling circle of diameter 40 mm which rolls outside another circle (base circle) of 150 mm diameter for one revolution. Draw a tangent and normal at any point on the curve. | CO1 | L3 | 12M |

**UNIT-II**

| | | | | |
|---|---|---|---|---|
| 3 | Draw the projections of the following points, keeping the distance between the projectors as 25mm on the same reference lines.<br>A – 20mm above HP and 30mm in front of VP<br>B – 20mm above HP and 30mm behind VP<br>C – 20mm below HP and 30mm behind VP<br>D – 20mm below HP and 30mm in front of VP<br>E – On HP and 30mm in front of VP<br>F – On VP and 20mm above HP<br>G – Lying on both HP and VP | CO2 | L3 | 12M |
| | **OR** | | | |
| 4 | A line AB, 50mm long, has its end A away from the HP and VP than end B. The line is inclined to the HP at 30 degree and to the VP at 45degree. Draw the projections if end A is 35mm above the HP and 50mm in front of the VP. | CO2 | L3 | 12M |

**UNIT-III**

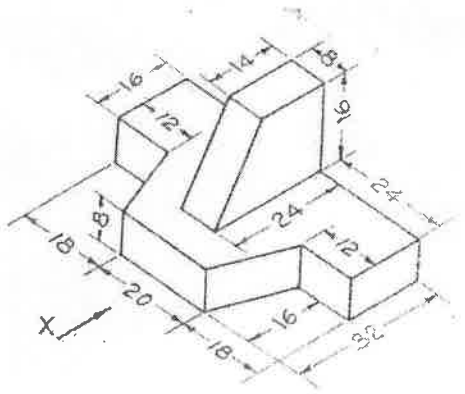
| | | | | |
|---|---|---|---|---|
| 5 | A square plane ABCD of side 30mm, is parallel to HP and 20mm away from it. Draw the projections of the plane, when (i) two of its sides are parallel to VP and (ii) and one of its side is inclined at 300 to VP. | CO3 | L3 | 12M |
| | **OR** | | | |
| 6 | A hexagonal pyramid of a base edge 20 mm and altitude 50 mm rests on one of its base edges on the HP such that the slant face ( triangular surface) containing the resting edge is perpendicular to the HP. The resting edge is inclined at 450 to the VP. Draw the projections of the pyramid. | CO3 | L3 | 12M |

**UNIT-IV**

| | | | | |
|---|---|---|---|---|
| 7 | A cube of side 40 mm, is resting on HP on one of its faces, with a vertical face inclined at 30 degree to VP. It is cut by a section plane inclined at 45 degree to HP and passing through the axis at 8 mm from the top surface. Draw the projections of the solid and also show the true shape of the section. | CO4 | L3 | 12M |
| | **OR** | | | |
| 8 | A cone of base 50 mm diameter and height 65 mm rests with its base on HP. A section plane perpendicular to VP and inclined at 30 degree to HP bisects the axis of the cone. Draw the development of the lateral surface of the truncated cone. | CO4 | L3 | 12M |

**UNIT-V**

| | | | | |
|---|---|---|---|---|
| 9 | Draw the isometric projection of a pentagonal prism of base side 35 mm and axis 60mm. The prism rests on its base on the HP with an edge of the base parallel to the VP. | CO5 | L3 | 12M |
| | **OR** | | | |
| 10 | Draw three views of the blocks shown pictorially in figure according to first angle projection | CO5 | L3 | 12M |

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