



**B.Tech- I Semester Regular Examinations, December/January-2025**

**Elements Of Electronics Engineering-24EC11RC04**

**SCHEME OF VALUATION**

Q.No	Description
1.a)	Statement of mass action law -----> 2M Mathematical equation -----> 1M Intrinsic semiconductors -----> 1M Extrinsic semiconductor types -----> 3M
1.b)	Forbidden gap energy levels description ----->2M Energy levels diagram -----> 2M Significance -----> 3M
2a)	Intrinsic carrier concentration for silicon at room temperature description ----->4M Comparison with germanium-----> 3M
2b)	Effect of temperature on conductivity in semiconductor description -----> 4M Mathematical relation of Intrinsic carrier concentration with temperature ----->3M
3a)	VI Characteristics of PN Junction diode -----> 3M Comparison between the characteristics of silicon diode and germanium diode -----> 4M
3b)	Diode current equation -----> 2M Calculating $I_0$ -----> 2M Calculating I for the given Voltage =0.75v -----> 3M
4a)	Full wave rectifier circuit diagram with capacitor filter -----> 2M Operation -----> 2M Input and output wave forms ----->3M
4b)	Definitions: Ripple factor ----->1M PIV -----> 1M %Regulation -----> 1M %Rectification -----> 1M Comparison of Halfwave and Full wave rectifiers with these values -----> 3M
5 a)	BJT in CB Configuration Circuit diagram ----->3M Input characteristics -----> 2M Output characteristics -----> 2M
5 b)	Fixed bias Circuit diagram -----> 2M Input circuit kvl equation and $I_c$ equation ----->1M Output circuit kvl equation and $V_{ce}$ equation -----> 1M Derivation of Stability factor -----> 3M
6 a)	CE amplification factor $\beta$ ratio -----> 1M CB amplification factor $\alpha$ ratio -----> 1M CC amplification factor $\gamma$ ratio -----> 1M Relation between current amplification factors for all 3 types of transistor configurations ----->4M
6 b)	BJT in CE Configuration Circuit diagram ----->3M Output characteristics with the active, saturation and cut-off regions -----> 4M

<b>7 a)</b>	Two Stage RC coupled amplifier Circuit diagram -----> 4 M Explanation -----> 2M Frequency response -----> 1M
<b>7 b)</b>	CB amplifier h parameter model circuit diagram -----> 3M Four parameters equations -----> 4M
<b>8 a)</b>	CE amplifier h parameter model circuit diagram -----> 3M Four parameters equations -----> 4M
<b>8 b)</b>	Transistered amplification parameters -----> 1M Comparison for all three types of configurations -----> 6M
<b>9 a)</b>	Construction of JFET (N-channel / P-channel ) -----> 3M Operation with necessary diagrams -----> 4M
<b>9 b)</b>	Construction of N-channel MOSFET (Depletion / Enhancement ) -----> 3M Operation with necessary diagrams -----> 4M
<b>10 a)</b>	Transconductance -----> 2M pinchoff voltage -----> 3M amplification parameter -----> 2M
<b>10 b)</b>	Minimum 7 differences between the FET and BJT -----> 7M

**Prepared by**

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