

(Time: 3 Hours)

[Total Marks:80]

- N.B.** (1) Question no.1 is compulsory.
 (2) Attempt any three questions from Question No. 2 to 6
 (3) Make any suitable assumption wherever required.

- Q.1** Answer the following
- (a) Draw and explain re Model. **5M**
 - (b) Explain Barkhausen criterion for sustained Oscillation. **5M**
 - (c) Explain the construction and working of LED. **5M**
 - (d) Explain why JFET is voltage controller device. **5M**
- Q.2** (a) Explain the operation of full wave center tap rectifier with LC filter with the help of circuit diagram and waveform. **10M**
 (b) Explain single stage CE amplifier & Draw its Frequency Response. **10M**
- Q.3** (a) What are the types of MOSFET. Explain their consrtruction & working. **10M**
 (b) Draw h parameter model for CE Amplifier and derive equations for A_v, R_i, R_o, A_i **10M**
 What are the types of MOSFET. Explain their construction & working.
- Q.4** (a) Explain dual input unbalanced output BJT differential amplifier. **10M**
 (b) Explain in brief effect of negative feedback on input impedance, output impedance, band- width, voltage gain. **10M**
- Q.5** (a) Explain the operation of Wien Bridge Oscillator with the help of suitable diagram. **10M**
 (b) Explain UJT as relaxation Oscillators. Find the frequency of Oscillator. **10M**
- Q.6** Write short note on following. **20M**
- (a) Thermal run away in transistors
 - (b) Expression for Darlington pair
 - (c) UJT Relaxation Oscillator
