

(3 Hours)

[Total Marks:80]

- N.B.** (1) Question no.1 is compulsory.
 (2) Solve ANY THREE questions out of remaining.
 (3) ASSUME SUITABLE DATA wherever necessary
- Q.1**
- (a) Explain Zener diode as voltage regulator. 5M
 - (b) Explain Barkhausen's criterion for sustained Oscillation. 5M
 - (c) Explain the construction and working of Schottky Diode. 5M
 - (d) Explain why JFET is voltage controller device. 5M
- Q.2**
- (a) Explain the operation of full wave bridge rectifier with capacitor filter with the help of circuit diagram and waveform. 10M
 - (b) Explain single stage CE amplifier. 10M
- Q.3**
- (a) Explain construction, working, characteristics of n channel MOSFET. 10M
 - (b) Draw h parameter module for CE Amplifier and derive equations for A_v , R_i , R_o , A_i . 10M
- Q.4**
- (a) Explain dual input balanced 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 RC Phase shift 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) Photo diode
 - (b) LED
 - (c) Darlington pair
 - (d) Thermal runaway
