



PART B — (5 × 16 = 80 marks)

11. (a) Describe in detail any two isolation technique used to provide isolation between various components in IC fabrication with illustrations. (8 + 8)

Or

- (b) Explain in step by step basis, the fabrication of Planar PN Junction Diode with neat illustrations.

12. (a) (i) Discuss in detail the DC characteristics of an Op-Amp. (12)  
(ii) Explain the functions of Op-amp as an Integrator. Draw the waveforms. (4)

Or

- (b) (i) With a neat diagram explain the working shunt feedback amplifiers and series feedback amplifiers. (12)  
(ii) Explain the function of an Op-amp as an differentiator. Draw the waveforms. (4)

13. (a) Explain the principle of Instrumentation amplifier and derive the gain for that circuit.

Or

- (b) With neat sketches explain in detail about I/V and V/I converter using op-amp.

14. (a) (i) Draw and explain the functional block diagram of IC 555 timer. (8)  
(ii) Describe any two application of IC555 timer when it is working in monostable mode. (8)

Or

- (b) (i) Draw the block diagram of 566 voltage control oscillator and explain it briefly. (8)  
(ii) Explain any two applications of PLL. (8)

15. (a) (i) With block schematic explain the working principle of switched mode power supply. (10)  
(ii) A 555 timer configured in astable mode with  $R_A = 4 \text{ kohm}$ ,  $R_B = 8 \text{ Kohm}$  and  $C = 0.1 \mu \text{ f}$ . Determine the frequency of the output waveform. (6)

Or

- (b) (i) What are the requirement of an video amplifier. (4)  
(ii) Briefly explain LM380 audio amplifier. (12)