



91482

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PART - B

(5×13=65 Marks)

11. a) i) Describe the Epitaxial growth process. (7)  
 ii) Explain the different types of IC packages. (6)

(OR)

- b) Briefly explain the various process involved in fabrication monolithic IC which integrates diode, capacitance and FET.
12. a) Discuss the frequency response characteristics and compensation of an operational amplifier.

(OR)

- b) i) Explain the application of Op-Amp as differentiator. (7)  
 ii) Find  $V_0$  for the given circuit shown in Figure (1). (6)

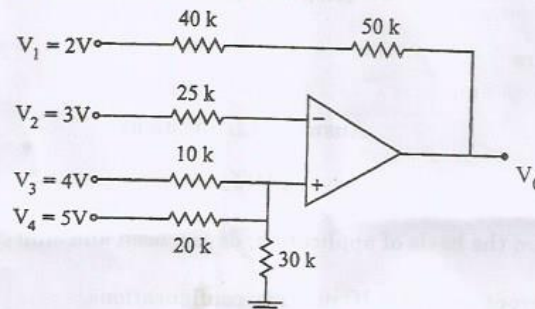


Figure (1)

13. a) i) Design a second order Butterworth Low pass filter having upper cut-off frequency of 1 KHz. (7)  
 ii) Explain how to measure the phase difference between two signals. (6)

(OR)

- b) i) Draw a sample and hold circuit and explain its operation. (6)  
 ii) Design a circuit of a clipper which will clip the input signal below a reference voltage. (7)
14. a) Briefly explain the functional block diagram of NE 565 PLL-IC to operate as a frequency divider.

(OR)

- b) i) Explain the functional block diagram of 555 timer IC. (6)  
 ii) Design a monostable multivibrator with pulse duration of 1m sec using 555 timer IC. (7)



15. a) What do you mean by the fixed voltage and variable voltage regulator ? List its various applications.

(OR)

b) Write short notes on :

i) LM380 Power Audio Amplifier. (7)

ii) ICL 8038 Function Generator. (6)

PART - C

(1×15=15 Marks)

16. a) Develop an op-amp based circuits to perform following mathematical operations :

i) Integration (5)

ii) Logarithmic (5)

iii) Multiplication. (5)

(OR)

b) Develop an op-amp based instrumentation amplifier for industrial applications.