

Q.2a. Briefly define monolithic, thin film, thick film and hybrid integrated circuits.

Ans : Reference Book I- Page 298

b. Draw the equivalent circuit, block schematic of an Op-Amp, and list the characteristics of an ideal Op-Amp.

Ans : Text Book I- Page 41 & 53

Q.3a. Explain Op-Amp circuit bandwidth and slew rate.

Ans : Reference Book I- Page 649

b. Draw the circuit of inverting summing amplifier using Op-Amp and derive the expression for its output.

Ans : Text Book I- Page 136

Q.4a. Explain the working of Sample and Hold circuit using Op-Amp with the help of waveforms. (8)

Ans : Text Book I- Page 153

b. Explain the working of Schmitt Trigger circuit using Op-Amp.

Ans : Text Book I- Page 213

Q.5a. Explain the working of Astable Multivibrator using Op-Amp.

Ans : Text Book I- Page 216

b. Explain the working of Parallel comparator type A/D Converter.

Ans : Text Book I- Page 216

Q.6a. Describe the relative advantages of parallel and serial transmission of binary data.

Ans : Text Book II -16

b. Perform the following conversions;

(i) $(100101)_2 = (\quad)_{10}$

(ii) $(372)_8 = (\quad)_{10}$

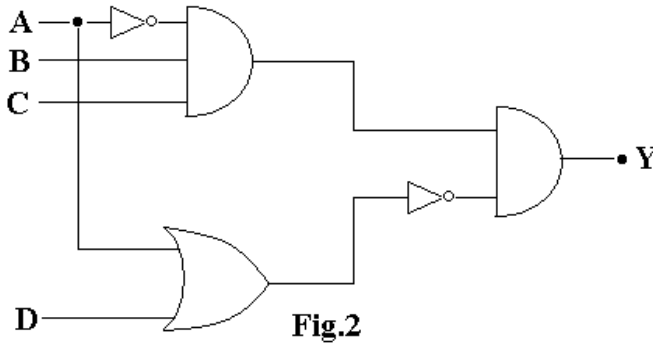
(iii) $(5431)_8 = (\quad)_2$

(iv) $(2AF)_{16} = (\quad)_{10}$

(v) $(3A6)_{16} = (\quad)_2$

Ans : Text Book II- Page 29

Q.7 a. Determine the output expression for the circuit shown in Fig.2 and find the output, if A=0, B=1, C=1 and D=1.



Ans : Text Book II- Page 69

b.Simplify the expression $x = \bar{A}\bar{B}\bar{C} + \bar{A}BC + ABC + A\bar{B}\bar{C} + A\bar{B}C$ using Karnaugh map.

Q.8 a.Draw the block diagram of a 5-bit parallel Adder circuit using full-adders and explain. (8)

b.What is a Multiplexer? Explain with a diagram the working of a 4-input multiplexer.

Q.8 a. Page 283 to 285 of reference 2
 b. Page 527 to 528 of reference 2

Q.9 a. Explain the working of a clocked JK flip flop with neat diagram and waveforms. (8)

- b. Draw the diagram of a 4-bit Ring-Counter and explain its working with waveforms.

Q.9 a. Page 199 to 200 of reference 2
b. Page 370 to 372 of reference 2

Text book

1. Linear Integrated Circuits, Fourth Edition 2010, Reprint-2011, D Roy Choudhury, Shail B. Jain, New Age International Publishers

2. Digital Systems – Principles and Applications, Tenth Edition, Ronald J Tocci, Neal S Widmer and Gregory L. Moss, Pearson Education, 2009