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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CSE/IT) (2011 Onwards) (Sem.-3)

DIGITAL CIRCUITS & LOGIC DESIGN

Subject Code : BTCS-303

Paper ID : [A1125]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) Solve $(10101)_2 + (10011)_2$.
- b) What is 1's complement? Explain with example.
- c) Explain De-Morgan's theorem.
- d) Which device can be used to change from serial data to parallel data?
- e) What do you understand by volatile memory?
- f) What is the difference between PROM and EPROM?
- g) Write the name of various types of Analog to Digital Convertors.
- h) What is the use of Dynamic RAM?
- i) What can be done to avoid racing problem in JK-Flip flop?
- j) Write one advantage of ECL logic family.

SECTION-B

2. Explain the principle of Duality.
3. Draw and explain the operation of TTL 2- input AND Gate.
4. Explain the working of 'T' and 'D' Flip-flops.
5. Explain the working of weighted type Digital to Analog Converter.
6. Explain the working of 6-Transistor static RAM cell.

SECTION-C

7. Find the minimum sum of products expression for the function
 $f(a, b, c, d) = \sum m(1, 3, 4, 6, 7, 9, 11, 12, 13, 15)$ using K-Map method.
8. Design a 32 to 1 Multiplexer using 4 to 1 Multiplexer and explain its working.
9. a) Design a 4 bit synchronous ring counter. Explain its working with the help of timing diagram.
b) Explain the working of 4 bit successive approximation type ADC.