



C14-CM-303/C14-IT-303

4233

BOARD DIPLOMA EXAMINATION, (C-14)
OCT/NOV—2016
DCME—THIRD SEMESTER EXAMINATION
DIGITAL ELECTRONICS

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Draw the symbols of OR and EX-NOR gates along with truth table. 1½×2=3
2. Draw the half-adder circuit diagram. 3
3. List the advantages of serial adder over parallel adder. 3
4. Classify digital logic families. 3
5. Define positive and negative edge triggering. 1½×2=3
6. State the need for *J-K* flip-flop. 3
7. List the drawbacks of ripple counter. 3
8. Define register. List their types. 1½+1½=3

- * 9. Differentiate between RAM and ROM. 3
10. List out the applications of encoder. 3

PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain realization of AND, OR, NOT, EX-OR operations using NOR gate only. 10
12. (a) Simply $F(A, B, C, D)$ $m(0,1,4,5,8,10)$ by using *K-map*. 5
 (b) Draw the circuit and explain the function of full-adder. 5
13. Draw the logic circuit, truth table and timing diagram for a clocked *D* flip-flop. Explain its operation. 2+2+2+4=10
14. Explain the working of master-slave *J-K* flip-flop using diagram and truth table. 5+3+2=10
15. Draw and explain module-8 (mod-8) ripple counter. 4+6=10
16. Draw and explain the working of a 4-bit shift-left register. 4+6=10
17. Explain the working of the following registers : 5+5=10
 (a) Serial in-Serial out
 (b) Parallel in-Parallel out
- * 18. (a) Explain the 1×4 demultiplexer with diagram. 5
 (b) Draw the diagram of a 4-bit synchronous counter. 5
