

PWDCA/MCA-I/MSc.CS(SW)-I

Roll No.

Total Pages : 3

MCA/M-15

10311

COMPUTER ORGANIZATION AND NETWORKING FUNDAMENTALS

Paper-CS-DE-11

Time Allowed : 3 Hours]

[Maximum Marks : 80

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. Answer the following questions in brief : $8 \times 2 = 16$
 - (a) Write $(905)_{10}$ in cyclic and excess-3 BCD codes.
 - (b) Why 2's complement is preferred over other representations?
 - (c) State and prove 2-variables DeMorgan's laws.
 - (d) Design 4 : 1 multiplexer.
 - (e) Draw the diagram of T-type flip-flop and write its characteristic table.
 - (f) Distinguish between Synchronous and Asynchronous binary counters.
 - (g) What do you mean by DNS? Explain.
 - (h) Compare Gateways, Bridges and Routers.

UNIT-I

2. (a) What is Computer and explain the various classifications of computers in detail? 8

10311/K/571/1,800

P. T. O.

(b) What do you understand by Storage device? Explain the working of optical disk in detail. 8

3. (a) Convert $(365)_8$ into Ternary and Hexadecimal number systems. 8

(b) Perform $(49)_{10} - (34)_{10}$ in 1's and 2's complement. 8

UNIT-II

4. (a) State postulates of Boolean Algebra and prove $x + (x \cdot y) = x$ by using these postulates. 8

(b) Simplify $F(A, B, C, D) = \Sigma(0, 1, 2, 3, 5, 7, 8, 10, 12, 13, 15)$ by using Quine McCluskey procedure. 8

5. (a) What is Full Subtractor? Draw its truth table. Design it by using half subtractors and a logic gate. 8

(b) What is Decoder? Design BCD decoder. 8

UNIT-III

6. (a) Define RS, D-type and T-type Flip-flops. Draw their diagrams, characteristic tables and excitation tables. 8

(b) What is JK flip-flop? Explain its working with the help of diagram and characteristic table. Also, explain race problem in this flip-flop. 8

7. (a) Explain the working of Serial-in, Parallel-out 4-bit shift register with its diagram. 8

(b) What is Binary counter? Design 4-bit synchronous binary counter and explain its working. 8

UNIT-IV

8. (a) Explain start topology, and NIC used in computer networks. 8

(b) What are different types of Transmission media? Explain construction and working of Co-axial cable. 8

9. Write short notes on the following : 4x4=16

(a) Web browser

(b) HTTP

(c) FTP

(d) Types of Internet connections.