Roll No. ..... Total Pages : 03

PMCA/M-23 24625

COMPUTER ORGANIZATION & NETWORKING FUNDAMENTALS

CSDE-11

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. 1 is compulsory. Attempt *Four* more questions selecting *one* question from each Unit.

1. Answer the following questions in brief : 4×4=16

(a) What is software ? How do you classify software ? Explain.

(b) What are universal gates ? Why are they called universal gates ? Justify.

(c) What is flip-flop ? Distinguish between synchronous and asynchronous flip-flop.

(d) What is Internet ? How is it different from intranet ? Explain.

Unit I

2. Explain the following I/O devices : 16
Optical mouse, Pen drive, Scanner and laser printer.

3. Perform the following conversions :

(a) $(23.75)_{10} = (\ ?\ )_{16} = (\ ?\ )_8 = (\ ?\ )_2$ 8

(b) Perform in 2's complement representation : 8

$(-19)_{10} + (12)_{10}$

Unit II

4. (a) Explain the following :
truth table, minterms, maxterms, XOR gate and equivalence gate. 8

(b) Simplify the following Boolean expression using K-map : 8

$F(w, x, y, z) = \Sigma(0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14)$

5. (a) What is decoder ? Design 2-to-4 line decoder with enable input. 8

(b) What is BCD adder ? Design a BCD adder to add two BCD digits. 8

Unit III

6. (a) What is JK flip-flop ? Draw its circuit diagram and characteristic table. Also discuss race around condition in this flip-flop. 8

(b) What is D-type flip-flop ? Draw its circuit diagram,

characteristic table and excitation table. 8

7. (a) Distinguish between synchronous and asynchronous counter. Design a 4-bit synchronous binary counter. 8

(b) What is register ? Design a 4-bit register with parallel load. 8

Unit IV

8. (a) What is computer network ? Explain ring, 2D mesh and tree topologies used in computer networks. 8

(b) Explain the following hardware components: NIC, repeaters, gateways and media converters. 8

9. Explain the following terms :

FTP, HTTP, URL, Modem. 16