V Semester B.C.A. Degree Examination, March/April 2022
(CBCS) (F+R) (Y2K14 Scheme)
COMPUTER SCIENCE
BCA 503 : Computer Architecture

Time : 3 Hours   Max. Marks : 100

Instruction : *Answer all Sections.*

SECTION – A

I. Answer **any ten** questions :   (10×2=20)

1) Define Universal gate with Logic circuit.

2) Define combinational and sequential circuits.

3) What is CMOS and ECL ?

4) Define state table and state diagram.

5) Find 1's complement of $(456)_{10}$.

6) Define Flip Flop.

7) What is the format of any instruction ?

8) What is PSW ?

9) What is normalization ?

10) Define virtual memory.

11) What is Polling ?

12) What is Memory Management System ?

SECTION – B

II. Answer **any five** questions :   (5×5=25)

13) Design Half adder and Full adder circuits with logical gates.

14) Explain PIPO shift Register.

P.T.O.

15) Discuss Error Detection and Correction Codes.

16) Explain any five memory reference instructions.

17) Explain I/O commands.

18) Explain types of CPU organization.

19) Write a note on memory mapping.

20) Write and explain Associative Memory.

SECTION – C

III. Answer **any three** question :   (3×15=45)

21) a) Derive a 3 bit parity generator using odd parity system.   8

    b) Simplify F(A, B, C, D) = Σm(1, 5, 6, 12, 13, 15) + Σd (2, 4) using K-map.   7

22) a) Explain different weighted codes.   8

    b) Explain classification of IC families.   7

23) Explain with neat flowchart the computer operation and design.   15

24) Explain different types of addressing modes with examples.   15

25) a) Explain working of DMA controller with block diagram.   8

    b) Explain I/O interface unit.   7

SECTION – D

IV. Answer **any one** question :   (1×10=10)

26) a) Discuss priority encoder in detail.   6

    b) Distinguish between FGI and FGO.   4

27) a) What are the characteristics of RISC and CISC architecture ?   5

    b) What is a binary counter ? Explain 4 bit counter.   5