V Semester B.C.A. Degree Examination, Nov./Dec. 2016
(CBCS – Fresh – 2016 – 17 & Onwards)
BCA – 503 : COMPUTER ARCHITECTURE

Time : 3 Hours

Max. Marks : 100

Instruction : *Answer all Sections.*

SECTION – A

I. Answer **any ten** questions. **Each** carries **two** marks. (10×2=20)

1) What is Computer Architecture ?   2

2) State and prove DeMorgan's theorem.   2

3) Mention the different logic families of IC.   2

4) Distinguish between RAM and ROM.   2

5) What is Parity bit ?   2

6) Write the BCD code for decimal number $8745.42_{(10)}$.   2

7) What are the two types of control organization ?   2

8) Define program counter.   2

9) Mention the major components of CPU.   2

10) What is PSW ?   2

11) What is Polling ?   2

12) What is memory management system ?   2

SECTION – B

II. Answer **any five** questions. **Each** carries **five** marks. (5×5=25)

13) Prove NAND and NOR gates as universal gates.   5

14) Explain PIPO shift Register with a diagram.   5

15) Discuss the Parity generator and Parity checker.   5

16) Explain the operation of interrupt cycle with a flow chart.   5

P.T.O.

17) Explain input-output instructions.   5

18) Explain the three types of CPU organization.   5

19) Explain the source initiated data transfer using handshaking with a block
    diagram and timing diagram.   5

20) Write a note on memory hierarchy in a computer system.   5

SECTION – C

III. Answer **any three** questions. **Each** carries **fifteen** marks.   (3×15=45)

21) a) Define K-Map ? Simplify the following Boolean function using K-Map :   8
       $F(A, B, C, D) = \sum(0, 2, 4, 6, 10, 11, 12, 13, 14, 15)$

    b) Explain different binary codes.   7

22) a) Define counter. With a neat diagram explain 4-bit synchronous binary
       counter.   8

    b) Explain octal to binary encoder with diagram.   7

23) Explain the design of basic computer with flow chart.   15

24) What is addressing mode ? Explain the different types of addressing modes
    with examples.   15

25) a) Explain DMA controller with a block diagram.   7

    b) Explain the working of associative memory.   8

SECTION – D

IV. Answer **any one** question. **Each** carries **ten** marks.   (1×10=10)

26) a) Explain the working of full adder.   5

    b) Write a note on modes of data transfer.   5

27) a) Explain the common bus system.   5

    b) Write a note on RISC and CISC.   5

_____