NS – 613

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

$F(A, B, C, D) = \Sigma(0, 2, 4, 6, 10, 11, 12, 13, 14, 15)$

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