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**

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**

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