

**BACHELOR OF COMPUTER  
APPLICATION II YEAR  
EXAMINATION, 2010**

**Paper — BCAD-301**

**COMPUTER SYSTEM ARCHITECTURE**

*Time : 2½ Hours*

*Maximum Marks : 70*

*(Write your Roll No. at the top immediately  
on receipt of this question paper.)*

*Answer all Sections as per instructions given  
in each Section .*

**SECTION - I** (1 × 10 = 10)

*Answer ALL questions.*

Fill in the blanks :

1. VLSI is the short form for \_\_\_\_\_.
2. Full form for BIT is \_\_\_\_\_.
3. BIT can take up the values \_\_\_\_\_ and \_\_\_\_\_.
4. \_\_\_\_\_ and \_\_\_\_\_ are called universal gates in logic gates study.
5. According to DeMorgan's law,  $\overline{(A+B)}$  = \_\_\_\_\_.
6. Karnaugh map in digital electronics is used to \_\_\_\_\_.

P.T.O.

7. The purpose of Interrupts is to \_\_\_\_\_ .
8. RAM and ROM are types of \_\_\_\_\_ memory.
9. Page faults is defined as \_\_\_\_\_ .
10. DMA is the short form of \_\_\_\_\_ .

**SECTION - II** (6 × 5 = 30)

*Answer any SIX questions.*

11. Construct a digital circuit for the Boolean expression  
 $Z = (\bar{X} + Y) \cdot (\bar{X} \cdot Y) + X + \bar{Y}$ .
12. Given the  $F(ABCD) = \sum(0, 2, 7, 9, 12, 13, 15)$ , obtain the truth table and SOP expression of F.
13. Simplify the following Boolean function to a minimum number of literals  $X + \bar{X} \cdot Y$ .
14. Draw the truth table and logic diagram of Half Adder.
15. Define the term Decoder. Design a 2-4 decoder giving its truth table and logic diagram.
16. Define the term Flip Flop. Explain S-R flip flop and what kind of problem occurs in SR F/F ?

17. Discuss the situation when  $J=K=1$  in JK Flip Flop. What is the race around condition and how can it be eliminated ?
18. Explain different types of addressing modes with simple examples.

**SECTION - III**      ( $3 \times 10 = 30$ )

*Answer any THREE questions.*

19. Explain the term Virtual memory. Explain segmentation and paging concepts.
20. What do you understand by Programmed Input/Output? How is DMA different from it ?
21. Define Micro-operations. Describe its categories with examples.
22. Design a mod 8 counter using JK Flip flops.
23. Design truth table and logic diagram for Full Subtractor and solve it using K-Map.