

**E 3948**

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Reg. No.....

Name.....

**B.C.A. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016**

**Third Semester**

**Core Course—COMPUTER ORGANISATION AND ARCHITECTURE**

(2013 Admission onwards)

Time : Three Hours

Maximum : 80 Marks

**Part A (Short Answer Questions)**

*Answer all questions.*

*1 mark each.*

- ✓ 1. How many bits make a byte ?
2. How many address lines are needed to address each memory locations in a  $2048 \times 4$  memory chip ?
3. Expand CISC.
4. Give an example of arithmetic instruction.
- ✓ 5. Give an example of an auxiliary memory.
6. What is the other name of associative memory ?
7. Expand MIPS.
8. What is VLSI ?
9. Write the formula for calculating time between instructions in a pipelined processor.
10. Which concept is used to measure the performance of a pipeline ?

(10 × 1 = 10)

**Part B (Brief Answer Questions)**

*Answer any eight questions.*

*2 marks each.*

11. Define Computer H/W.
- ✓ 12. What is the straight-line sequencing ?
13. What is an interrupt ?
14. What is meant by effective address ?
15. What is the purpose of decoder in general register organization ?
- ✓ 16. Define multiprogramming.
17. What is the function of bootstrap loader ?

**Turn over**

18. What is batch processing ?
19. What is Execution time / Response time ?
- ✓20. Define parallel processing.
21. What is pipeline stall ?
22. Define bandwidth of a system.

(8 × 2 = 16)

### Part C (Short Essays)

Answer any **six** questions.  
4 marks each.

23. Explain any *four* addressing modes.
24. Explain bus structure.
25. Explain any *four* addressing methods.
- ✓26. Explain how  $X = (A + B) * (C + D)$  executed using three and two address instruction formats.
27. Explain a RAM chip with a block diagram.
28. List and explain any *two* methods that could be implemented in uniprocessor architecture to achieve parallel processing.
29. Explain SIMD computer.
30. What are the *four* major steps involved in executing an instruction in a digital computer ?
31. Explain any *two* inter connection mechanism in Multiprocessor Systems.

(6 × 4 = 24)

### Part D (Long Essays)

Answer any **two** questions.  
15 marks each.

32. Draw and explain the block diagram of a simple computer with *five* functional units.
33. Explain stack memory in detail. How the expression  $(A * B) (C * D)$  executed in stack ? ✓
34. Describe different mapping techniques in Cache memory. ✓
35. Discuss the Principles of Linear Pipelining with floating point adder

(2 × 15 = 30)