

[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
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16112(D)

B. Tech 3rd Semester Examination
Computer Architecture and Organization (CBS)
CS-303

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Candidates are required to attempt five questions in all selecting one question from each of the sections A, B, C and D of the question paper and all the subparts of the question in section E.

SECTION - A

1. Explain the role of different components of a digital computer. (12)
2. Draw and explain the logic diagram for a common bus system for four registers, where each register has eight bits. (3×4=12)

SECTION - B

3. Discuss in detail the stack organization and explain how expressions are evaluated using stack organization? (12)
4. Explain the various instruction formats for evaluating the following expression:
 $X = X + B / (C - D)$ (12)

SECTION - C

5. Write short notes on the following:
 - (a) Asynchronous data transfer
 - (b) Priority interrupt
 - (c) DMA
 - (d) Cache memory (12)

2

16112

6. Define the following types of memories:

- (a) Cache
- (b) Associative
- (c) Virtual
- (d) Auxiliary

(3×4=12)

SECTION - D

7. Discuss in detail the working of parallel processing system. (12)
8. How inter-process communication is facilitated? What are the barriers for it? Explain. (12)

SECTION - E

9. Attempt all questions
 - (a) What is the difference between memory mapped I/O and Isolated I/O?
 - (b) Define Micro-programmed control.
 - (c) What do you mean by address masking?
 - (d) What do you mean by interrupt cycle?
 - (e) What is the purpose of program counter?
 - (f) How memory mapping is done in relative addressing mode? Briefly discuss.
 - (g) What additional login is required to give a no match result for a word in an associative memory when all key bits are zeros?
 - (h) What do you mean by address interleaving?
 - (i) Briefly discuss the programmed I/O mode.
 - (j) What is the difference between Hand Shaking and Strobe control?
 - (k) What do you mean by Daisy Chaining priority?
 - (l) What is a high impedance state? (12×1=12)