[Total No. of Questions - 9] [Total No. of Printed Pages - 2]

Dec.-23-0379

CS-303 (Computer Architecture & Organization) [CSE, IT]

B.Tech. 3rd (CBCS)

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 : Attempt five questions in all, selecting one question each from Section A, B, C and D. Section E is compulsory.

SECTION - A

1. Explain the working of 2 to 4 decoder with its functional table. Explain the multiplication and division algorithms with suitable examples. (10)

2. Describe in detail the Booth's multiplication algorithm with its flow chart. Illustrate the basic concepts of ALU design. (10)

SECTION - B

3. Describe the function of various parts of basic computer's control unit with a neat diagram. Explain the various addressing modes of CPU with examples. (10)

4. Explain the control unit of basic computer with timing and control functions. Discuss the working of hardwired control unit in detail. (10)

SECTION - C

5. Explain the process of data transfer using hardware and software interrupts. What is the difference between memory mapped I/O and isolated mapped I/O. (10)

6. Explain the DMA controller. How DMA improves the overall system performance? Summarize the virtual memory organization of digital computers. (10)

SECTION - D

7. Discuss in detail the working of parallel processing system. Explain the interprocessor communication and synchronization process. (10)

8. What is dynamic pipeline scheduling? Explain with flow diagram of arithmetic pipeline for floating point addition and subtraction. (10)

SECTION - E (Compulsory)

9. Short answer type questions:-

   (a) Define encoder and decoder.

   (b) What are the advantages of micro programming?

   (c) Define fixed point number representations

   (d) Define Flyn's classification.

   (e) What is bus arbitration?

   (f) Define associative memory.

   (g) Define address sequencing.

   (h) State arithmetic pipeline method.

   (i) What is the significance of counters?

   (j) Write disadvantages of CISC. (10×2=20)