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(2064)

14845

MCA 2nd Semester Examination

Computer Architecture (N.S.)

MCA-204

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 : Candidate is required to attempt five questions in all selecting one question from each of the section A, B, C, D of the question paper and all the subparts of the questions in E section. Section E is compulsory.

SECTION - A

1. (a) Draw the block diagram of dual 4- to- 1- line multiplexer and explain its operation by means of a function table. (6)

   (b) Write short note on I/O interrupt. (6)

2. (a) An 8 bit register contains the binary value 10011100. What is the register value after arithmetic shift right? Starting from the initial number 10011100, determine the register value after an arithmetic shift left and state whether there is an overflow. (6)

   (b) Write a short note design of basic computer. (6)

SECTION - B

3. List the assembly language program (of the equivalent binary instructions) generated by the compiler for the following if statement IF (A-B) 10, 20, 30. The program branches to statement 10 if A – B < 0; to statement 20 if A – B = 0; and to statement 30 if A – B > 0. (12)

4. Write short notes on:–

   (a) Design of control unit

   (b) Stack organization

   (c) RISC (12)

SECTION - C

5. Draw a space time diagram for six -segment pipeline showing the time it takes to process eight tasks. (12)

6. What is parallel processing? What are different types of processing? (12)

SECTION - D

7. Write short note on:

   (a) Multiport

   (b) Parallel virtual machine

   (c) DMA

   (d) Associative memory

   (e) Peripheral devices (12)

8. What is different modes of data transfer? Explain with example. (12)

SECTION - E

9. Write short answers for the following. All questions are compulsory.

(a) What is decoder?

(b) What do you mean by machine language?

(c) What is vector processing?

(d) What is an array processor?

(e) What is serial communication?

(f) Define main memory.

(g) What do you mean by time shared?

(h) What is virtual memory?

(i) What do you mean by binary counter?

(j) What are different instruction format? (1.2×10=12)