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B033312(033)

B. Tech. (Third Semester) Examination, Nov.-Dec. 2021

A) CTE   (New Scheme)

INFORMATION AND TECHNOLOGY

Computer Architecture, organization and microprocessor

(BT-3033)

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : *All question is compulsory. Attempt any **two** part from (b), (c) and (d) to each unit. Part (a) is of 4 marks and Part (b), (c) and (d) has 8 marks.*

Unit-I

1. (a) What do you mean by pipelining and explain its need in computer architecture.   4

(b) Explain Von Neumann architecture with proper diagram.   8

(c) Explain Instruction format. Also explain instruction cycle.   8

(d) What is bus interconnection? Explain MAR, MBR and PC in brief.   8

Unit-II

2. (a) What do you mean by divide overflow condition with suitable example.   4

(b) Draw and explain flow chart of addition and substraction of two fixed point signed magnitude binary number.   8

(c) Explain Booth multiplication algorithm with suitable example.   8

(d) Explain multiplication algorithm for floating point numbers.   8

Unit-III

3. (a) Draw and explain each bit of Flag Register of 8086 Microprocessor.   4

(b) What do you mean by Addressing Mode? Explain various addressing modes with example.   8

(c) Draw and explain the architecture of 8086 Microprocessor.   8

(d) WAP to arrange10 data bytes in Asceding Order.   8

Unit-IV

4. (a) Define interrupt. Why it is also known as "Vector Call"?   4

(b) Explain the interrupt hardware structure of 8086 microprocessor.   8

(c) What is stack? Explain the stack structure of 8086 Microprocessor with diagram.   8

(d) Write a program to generate a delay of 100 ms using an 8086 system that runs on 10 MHz frequency.   8

Unit-V

5. (a) What is DMA? Why DMA data transfer is fastest
       among all data transfer techniques.   4

    (b) What are the difference between Memory mapped
       I/O and I/O mapped I/O.   8

    (c) Interface two 4K X 8 EPROM and two 4K X 8
       RAM Chips with 8086. Select suitable maps.   8

    (d) Explain the concept of paging and segmentation.   8