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18EC35

Third Semester B.E. Degree Examination, Dec.2019/Jan.2020
Computer Organization and Architecture

Time: 3 hrs.   Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a.   With a neat diagram, explain basic operational concept of computer.   **(10 Marks)**
    b.   Explain in brief different types of key parameters that affect the processor performance.
                                                                                (05 Marks)
    c.   Explain the Bus Structures.   **(05 Marks)**

OR

2   a.   Illustrate Instruction and Instruction sequencing with an example.   **(10 Marks)**
    b.   Define Byte Addressability, Big-endian and Little-endian assignment.   **(06 Marks)**
    c.   Represent 85.125 in IEEE floating point using single precision.   **(04 Marks)**

Module-2

3   a.   What is an addressing mode? Explain any five types of addressing modes with example.
                                                                                (10 Marks)
    b.   Write a program to add 'n' number using indirect addressing mode.   **(06 Marks)**
    c.   Explain various assembler directives used in assembly language program. **(04 Marks)**

OR

4   a.   Explain stack operation with an example   **(10 Marks)**
    b.   Explain subroutine linkage with an example using linkage register.   **(06 Marks)**
    c.   Explain the shift and rotate operations with example.   **(04 Marks)**

Module-3

5   a.   Showing the possible register configuration in I/O interface, explain program controlled
         input/output.   **(10 Marks)**
    b.   What is an interrupt? With an example illustrate the concept of interrupt. **(10 Marks)**

OR

6   a.   Explain in detail, the situations where a number of devices capable of initiating interrupts
         are connected to processor. How to resolve the problems?   **(10 Marks)**
    b.   Explain the registers involved in a DMA interface, to illustrate DMA. **(06 Marks)**
    c.   Explain the concept of Vectored Interrupt.   **(04 Marks)**

Module-4

7   a.   With figure, explain Internal Organization of 2M×8 dynamic memory chip. **(10 Marks)**
    b.   Illustrate Internal structure of static memories.   **(10 Marks)**

OR

8   a.   With a neat diagram, explain virtual memory organization.   **(10 Marks)**
    b.   Briefly explain any four non-volatile memory concepts.   **(05 Marks)**
    c.   Briefly explain secondary storage devices.   **(05 Marks)**

Module-5

9 a. Explain the three-bus organization of the processor and its advantages. (10 Marks)
   b. Discuss the organization of hardwired control unit. (05 Marks)
   c. Discuss the control sequence for execution of instruction $ADD(R_3), R_1$ (05 Marks)

OR

10 a. With a block diagram, describe the organization of a micro programmed control unit. (10 Marks)

   b. Describe the sequence of control signals to be generated to fetch an instruction from memory in a single bus organization. (10 Marks)

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