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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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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(R₃), R₁ (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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