CBCS SCHEME

USN | | | | | | | | | | |

18CS34

Third Semester B.E. Degree Examination, July/August 2022
Computer Organization

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. With neat diagram, explain the basic operational concepts of computer. **(10 Marks)**

b. Explain:
(i) Processor clock
(ii) Clock rate
(iii) Basic performance equation
(iv) Performance measurement **(10 Marks)**

OR

2 a. Explain all addressing modes with assembler syntax. **(10 Marks)**

b. State and explain the possibilities of encoding of machine instruction of 32 bit word. **(10 Marks)**

Module-2

3 a. Explain interrupt and interrupt hardware. State steps in enabling and disabling interrupts. **(10 Marks)**

b. Explain interrupt nesting and handling simultaneous requests in interrupts. **(10 Marks)**

OR

4 a. Explain DMA transfer with bus arbitration. **(10 Marks)**

b. Explain USB tree structure and protocols. **(10 Marks)**

Module-3

5 a. Draw the internal organization of a 2M × 8 dynamic memory chip and explain working with fast page mode. **(10 Marks)**

b. State and explain the types of read only memory and memory hierarchy. **(10 Marks)**

OR

6 a. What is cache memory? Explain different mapping functions with diagrams. **(10 Marks)**

b. Explain memory interleaving with diagram. State hit rate and miss penalty. **(10 Marks)**

Module-4

7 a. Explain different types of number representations with example and draw the addition/substraction logic unit. **(10 Marks)**

b. Design and explain the 4-bit carry look-ahead adder. **(10 Marks)**

OR

8 a. Explain Booth algorithm. Perform (+13) × (−6) using Booth algorithm. **(10 Marks)**

b. Draw the circuit arrangement for binary division. Perform (1000) ÷ (11) using restoring division. **(10 Marks)**

Module-5

9 a. With neat diagram, explain single-bus organization of computer and fundamental concepts. (10 Marks)

b. State the steps required in execution of Add (R_3), R_1, and explain the execution of branch instruction. (10 Marks)

OR

10 a. Explain the information required to generate control signals and structure of micro programmed control unit. (10 Marks)

b. Explain basic idea of pipe lining and 4-stage pipeline structure. (10 Marks)

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