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)**

* * * * *