CBCS SCHEME

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

15CS34

Third Semester B.E. Degree Examination, June/July 2023
Computer Organization

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 a. Draw and explain the connections between the processor and the main memory. **(06 Marks)**

b. Compare Big Endian and Little Endian byte ordering. **(06 Marks)**

c. Write the basic performance equation. Explain the role of each of the parameters in the equation on the performance of the computer. **(04 Marks)**

OR

2 a. Define addressing mode. Explain index and indirect modes with example. **(06 Marks)**

b. Illustrate ROTATE and SHIFT instruction. **(06 Marks)**

c. Discuss the stack structure and its operaion. **(04 Marks)**

Module-2

3 a. With neat sketch explain any two methods for handling interrupts from multiple devices. **(08 Marks)**

b. What is synchronous bus transfer? Explain with a neat timing diagram. **(08 Marks)**

OR

4 a. With block diagram, explain how a keyboard is connected to a processor. **(08 Marks)**

b. Write a short note on: (i) PCI (ii) SCSI **(08 Marks)**

Module-3

5 a. Explain the internal organization of a 2M × 8 DRAM chip. **(06 Marks)**

b. Describe the principles of magnetic disk. **(06 Marks)**

c. Define memory access time, memory cycle time, pit rate and miss penalty. **(04 Marks)**

OR

6 a. What is cache memory? Explain various types of cache mapping techniques with neat block diagram. **(08 Marks)**

b. What is virtual memory? Explain the method for translating virtual address to physical address. **(08 Marks)**

Module-4

7 a. Explain the design of 4-bit carry-lookahead adder. **(08 Marks)**

b. Perform multiplication for (+13) and (–6) using Booth's algorithms and explain Booth's algorithm process. **(08 Marks)**

OR

8 a. Perform division operation using Restoring method for divided = $(1000)_2$ and divisor = $(11)_2$ **(08 Marks)**

b. Explain IEEE standard for floating point number. **(08 Marks)**

Module-5

9 a. Draw and explain multiple bus organization of CPU. Write the control sequences for the instruction ADD R1, R2, R3. **(08 Marks)**

b. Explain hardwired control unit organization. **(08 Marks)**

OR

10 a. Explain briefly the block diagram of a digital camera. **(08 Marks)**

b. Explain the general purpose multiprocessor with diagram. **(08 Marks)**

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