

B. Tech (Third Semester Computer Science & Engineering (C.B.C.S))
Winter – 2022

End Semester Examination

Course Name: Computer Architecture and Organization

Course Code: BCS2305
Time: 3 Hours]



ADS/EFV5/63-8G/1487
[Max. Marks: 60

Instructions to Candidates:

1. All questions carry marks as indicated.
2. All the sub- questions (a, b, c, d, and e) of Que.1 in Section A are compulsory.
3. Solve any two sub-questions in Que. 2 to Que.6 in Section B.
4. Assume suitable data wherever necessary.
5. Use of non-programmable calculator is permitted.

Section A

- Que. 1. (a) Name the functional units of a computer and how they are interrelated 2 (CO1)
- (b) Give the purpose of guard bits used in floating point operations? 2 (CO2)
- (c) Compare cache memory, main memory and secondary memory w. r. t. speed, size and cost. 2 (CO3)
- (d) Explain any two input devices and any two output devices. 2 (CO4)
- (e) What is RISC? 2 (CO5)

Section B

- Que. 2. (a) Enlist different types of addressing Modes with example of each. (Any Five) 5 (CO1)
- (b) Differentiate between hardwired and micro programmed control units? 5 (CO1)
- (c) Write a control sequence to execute the following instruction. 5 (CO1)
- Add (RS), Rd
- Que. 3. (a) Explain basic principle of Booth's algorithm and using bit pair recoding method, multiply the following pair of signed 2's complement numbers: - 5 (CO2)
- A=010111 B=110110, Where A is multiplicand and B is multiplier.
- (b) State non-restoring division algorithm and perform the division 11/3. 5 (CO2)
- (c) Explain in details about carry looks ahead adder with diagram. 5 (CO2)

- Que.4 (a) Show the Working of virtual memory? Explain how the logical address is translated into physical address in the virtual memory system with a neat diagram. 5 (CO3)
- (b) Discuss the various mapping techniques used in cache memories. 5 (CO3)
- (c) Distinguish Between Static RAM and Dynamic RAM? 5 (CO3)
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- Que. 5. (a) What is DMA? Explain the block diagram of DMA. Also describe how DMA is used to transfer data from peripherals. 5 (CO4)
- (b) List the different types of interrupts. Explain briefly about mask able interrupt. 5 (CO4)
- (c) Explain the basic concepts of pipelining and comparing it with sequential processing. Draw needed diagrams. 5 (CO4)
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- Que. 6. (a) Explain the difference between SISC and RISC processors. 5 (CO5)
- (b) What is Loosely Coupled and Tightly Coupled System. 5 (CO5)
- (c) Draw & Explain the block diagram of RISC Processors. (any one). 5 (CO5)

