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Question Paper Code	12422
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023
Third Semester
Computer Science and Business Systems
20CBPC302 - COMPUTER ORGANIZATION AND ARCHITECTURE
(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. Define a Program Counter. | 2,K1,CO1 |
| 2. State the Purpose of Memory Unit. | 2,K1,CO1 |
| 3. What is the principle of booth multiplication? | 2,K1,CO2 |
| 4. In Carry Look ahead Adder, what is the generalized function used to predict the carry? | 2,K2,CO2 |
| 5. What is a flag? | 2,K1,CO3 |
| 6. What is meant by latency of memory? | 2,K1,CO3 |
| 7. What are privileged and non-privileged instructions? Give example. | 2,K1,CO5 |
| 8. Compare Static RAM and Dynamic RAM. | 2,K2,CO5 |
| 9. What is memory mapped I/O? | 2,K1,CO6 |
| 10. Summarize the steps involved in accessing secondary memory. | 2,K2,CO6 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

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| 11. a) Explain the Instruction Execution Cycle in detail. | 13,K2,CO1 |
| OR | |
| b) Discuss in detail about the various types of Addressing Modes with suitable examples. | 13,K2,CO1 |
| 12. a) Explain the non-restoring division algorithm for unsigned integer. Divide 7 by 6 using the above algorithm. | 13,K2,CO2 |
| OR | |
| b) Summarize Carry Look Ahead Adder and Ripple Carry Adder with Suitable Examples. | 13,K2,CO2 |
| 13. a) (i) Explain X.86 architecture in detail. | 10,K2,CO3 |
| (ii) Explain the fetch operation involving memory and system bus. | 3,K2,CO3 |

OR

- b) Explain the various design methods for hardwired control unit with suitable diagrams. *13,K2,CO3*

14. a) Explain Direct Memory Access in detail. *13,K2,CO5*

OR

- b) Discuss I/O Device Interfaces in detail. *13,K2,CO5*

15. a) Explain the concept of Hierarchical Memory Organization and characteristics of Memory Hierarchy. *13,K2,CO6*

OR

- b) Discuss Semiconductor memory technologies. *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Explain Data and structural Hazard in detail. *15,K2,CO4*

OR

- b) Illustrate Parallel processors .Apply parallel processor to a real world example. *15,K2,CO4*