Reg. No. : | | | | | | | | | | |

Question Paper Code: 93C06

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2022

Third Semester

Computer Science and Business System

19UCB306 - Computational Organization and Architecture

(Regulation 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following operations is/are performed by the ALU? CO2- Ana

   (a) Data manipulation (b) Exponential (c) Square root (d) All of the above

2. A source program is usually in_____ CO1-U

   (a) Assembly language (b) Machine level language

   c) High-level language d) Natural language

3. Which of the following format is used to store data? CO2- Ana

   (a) Decimal (b) Octal (c) BCD (d) Hexadecimal

4. When we perform subtraction on -7 and 1 the answer in 2's complement form is _____ CO3- Ana

   (a) 1010 (b) 1110 (c) 0110 (d) 1000

5. The situation wherein the data of operands are not available is called _____ CO1- U

   (a) Data hazard (b) Stock (c) Deadlock (d) Structural hazard

6. The fetch and execution cycles are interleaved with the help of _____ CO1- U

   (a) Modification in processor architecture (b) Clock

   (c) Special unit (d) Control unit

7. The effectiveness of the cache memory is based on the property of _____ CO1- U

   (a) Locality of reference (b)Memory localization

   (c) Memory size (d) None of the mentioned

8. The bit used to signify that the cache location updated is _____ CO1- U

(a) Dirty bit (b) Update bit (c) Reference bit (d) Flag bit

9. The main reason for the discontinuation of semi conductor based storage devices for providing large storage space is _____ CO1- U

(a) Lack of sufficient resources (b) High cost per bit value

(c) Lack of speed of operation (d) None of the mentioned

10. Which RAID type doesn't use parity for data protection? CO1-U

(a) RAID 1 (b) RAID 4 (c) RAID 6 (d) RAID 5

PART – B (5 x 2= 10 Marks)

11. Distinguish between MAR and MDR CO3- Ana

12. Compare CISC with RISC CO3- Ana

13. Define branch prediction CO1- U

14. Distinguish between SRAM and DRAM CO2-A

15. Identify the importance of solid state drives CO2-A

PART – C (5 x 16= 80 Marks)

16. (a) Explain the various types of addressing modes with example CO1-U (16)

Or

(b) Explain with the example about the operations, opcode and operands of the computer hardware CO1-U (16)

17. (a) Construct a half adder and full adder circuit with its truth table CO2-Ana (16)

Or

(b) Explain in detail about booth's algorithm with an example and draw its flowchart CO2-Ana (16)

18. (a) Explain the basic MIPs implementation with necessary multiplexers and control lines CO2-U (16)

Or

(b) What is pipelining? Discuss about pipelined data path control CO1-U (16)

19. (a) Explain how cache performance can be measured and improved CO2-U (16)

Or

(b) Discuss in detail about the mapping functions in memory hierarchy CO1-U (16)

20.	(a)	What is meant by RAID? Explain in detail about the various RAID levels	CO1-U	(16)
		Or		
	(b)	Explain multi-threading clusters in detail	CO1-U	(16)