

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Winter Examination – 2022

Course: B. Tech. Branch : Electronics and Computer Engineering Semester : III

Subject Code & Name: BTESC304 & Computer Architecture & Operating Systems

Max Marks: 60M

Date: 15/03/2023

Duration: 03:00 Hr.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

Q. 1 Solve Any Two of the following.

12M

- | | | |
|--|-----------|---|
| A) Describe the structural overview of computer with detail block diagram? | BL2 & CO1 | 6 |
| B) Differentiate between RISC and CISC architecture? Which one is more powerful and why? | BL2 & CO1 | 6 |
| C) Explain in detail different types of addressing modes with example of each? | BL2 & CO1 | 6 |

Q.2 Solve Any Two of the following.

12M

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|---|----------|---|
| A) Differentiate between RAM and ROM with respect to devices characteristics? | BL3& CO2 | 6 |
| B) Explain in detail block diagram of memory management unit (MMU) and explain different functions performed by it? | BL2& CO2 | 6 |
| C) Write a short note on i) Logical and Physical address mapping in memory ii) Page replacement algorithms | BL3& CO2 | 6 |

Q. 3 Solve Any Two of the following.

12M

- | | | |
|--|----------|---|
| A) What is the difference between a hardwired implementation and a micro programmed implementation of a control unit design? | BL2& CO3 | 6 |
| B) With a neat sketch explain the block diagram of Direct memory access (DMA) controller? | BL2& CO3 | 6 |
| C) Draw and explain basic concept of pipelining? How we can improve the performance of system by using pipelining? | BL1& CO3 | 6 |

Q.4 Solve Any Two of the following.

12M

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|---|----------|---|
| A) Draw and explain in detail inter process communication? State the role of dispatcher and scheduler in inter process communication? | BL1& CO4 | 6 |
| B) Write a short note on i) System Services ii) Concept of virtual Machines iii) Functions of operating systems | BL2& CO4 | 6 |
| C) State the scheduling criteria and explain any one scheduling algorithm in details with diagram? | BL3& CO4 | 6 |

Q. 5 Solve Any Two of the following.

12M

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|--|----------|---|
| A) Explain the concept of semaphore? State its types? | BL2& CO5 | 6 |
| B) What is deadlock? Explain deadlock prevention and deadlock avoidance concept? | BL3& CO5 | 6 |

C) Write a short note on i) Deadlock detection ii) Recovery from deadlock

BL1& CO5

6

***** End *****