**18ECD11**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **January, 2022** | **Electronics and Communication Engineering** | | |
| **Fifth Semester** | **Computer Organization and Architecture** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question* ***No. 1*** *Compulsorily.* | | | (1X10 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each* ***Unit.*** | | | (4X10=40Marks) |

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| 1. | Answer the following. | | | | | |
|  | a) | Define little-endian system | CO1 | | |  |
|  | b) | Write about auto-increment addressing mode | CO1 | | |  |
|  | c) | What is the difference between hard wired and micro programmed control units? | CO2 | | |  |
|  | d) | What is sign and magnitude representation? | CO2 | | |  |
|  | e) | Define instruction hazard? | CO3 | | |  |
|  | f) | What is superscalar operation? | CO3 | | |  |
|  | g) | Write about the concept of cache memory | CO3 | | |  |
|  | h) | Define interrupt? | CO4 | | |  |
|  | i) | How does a computer handle multiple interrupts? | CO4 | | |  |
|  | j) | What is the difference between USB2.0 and USB3.0? | CO4 | | |  |
| **UNIT-I** | | | | | | |
| 2. | a)  b) | Explain the basic operational concepts of a computer with a diagram  Write a RISC style program for multiplication of three operands X,Y,Z | | CO1  CO1 | 5M  5M | |
|  |  | **(OR)** | |  |  | |
| 3. | a)  b) | Explain the concept of overflow in signed arithmetic operations with an example  Write about direct and indirect addressing modes | | CO1  CO1 | 5M  5M | |
|  |  | **UNIT-II** | |  |  | |
| 4. | a)  b) | Illustrate the execution of a complete instruction with an example  With a diagram write about hard-wired control unit | | CO2  CO2 | 5M  5M | |
|  |  | **(OR)** | |  |  | |
| 5. | a)  b) | Illustrate the concept of restoring division with neat sketch  Design a carry look ahead adder for 4-bit addition | | CO2  CO2 | 5M  5M | |
|  |  |  | |  |  | |
|  |  | **UNIT-III** | |  |  | |
| 6. | a) | Draw the block diagram of 4-stage pipeline. Explain the concept of pipelining | | CO3 | 5M | |
|  | b) | What is a hazard, write about different types of hazards | | CO3 | 5M | |
|  |  | **(OR)** | |  |  | |
| 7. | a) | Draw the internal organization of semiconductor memory and explain | | CO3 | 5M | |
|  | b) | Compare speed, size and cost of different memories in a computer with a diagram | | CO3 | 5M | |
|  |  | **UNIT-IV** | |  |  | |
| 8. | a)  b) | With neat diagrams explain how I/O devices are accessed in a computer  What is SCSI? Compare SCSI with PCI | | CO4  CO4 | 5M  5M | |
|  |  | **(OR)** | |  |  | |
| 9. | a)  b) | Explain how interrupts are executed in a computer  With diagrams explain the concept of PCI | | CO4  CO4 | 5M  5M | |

