

Roll No.

Total Pages : 03

008404

May 2024

**B. Tech. (ECE) (Fourth Semester)
Computer Architecture (EC-404)**

Time : 3 Hours

[Maximum Marks : 75]

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) Differentiate between SR and JK Flip-flop. 1.5
- (b) Represent the decimal number 999 in Binary, Octal and Hexadecimal format. 1.5
- (c) How many bits are required to represent the all keys on keyboard ? 1.5
- (d) What are the characteristics of semiconductor RAM memories ? 1.5
- (e) What is PCI ? Explain. 1.5

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- (f) Define system bus. 1.5
- (g) What is an assembly language ? 1.5
- (h) Define Mux and Demux operation. 1.5
- (i) Define the basic structure of computer. 1.5
- (j) What is micro-programmed control ? 1.5

Part B

- 2. (a) Find the 9th, 10th, 2's and 1's complement of the given numbers X, Y and consider the value of : 8
 $X = 432$, $Y = 212$. Perform the operation $(X - Y)$ and $(Y - X)$ using 9th and 10th complements and binary complements for the given numbers.
- (b) Explain the type of stacks and operation of stacks in computer machines. 7
- 3. Draw the processor organization and explain the basic functional units and flow of data between different units with neat diagrams. 15
- 4. (a) Discuss about the basic instruction types and their formats. 8
- (b) Explain about multiplication and division mechanism in computer system for the two decimal numbers. 7

- 5. (a) Compare and contrast micro-programmed control with hard wired control. 8
- (b) Define an addressing mode. Explain about various addressing modes. 7
- 6. (a) Explain the different types of bus sharing mechanism. 8
- (b) Differentiate between parallel and pipelining processing. 7
- 7. (a) Explain between EPROM and EEPROM. 5
- (b) Computer Architecture and Computer Organization. 5
- (c) Micro-operation and Micro-instruction. 5