SET-2

INDIRA UNIVERSITY, PUNE

SCHOOL OF INFORMATION TECHNOLOGY-BSC (CYS)

Term End Examination (2025 Pattern) December – 2025 - Semester – I

Subject Name: Computer Organization & Architecture **Max. Marks: 25**
Subject Code: 25CYS109T **Time: 1:30 Hrs.**

Instructions

- All Questions are Compulsory.

CO #	Cognitive Ability	Course Outcome
CO1	**Remember**	Recall the basic concepts of number systems & codes, terminology of computer organization, architecture, and system components.
CO3	**Apply**	Apply knowledge of SOP/POS equations & computer system architecture.
CO4	**Analyse**	Analyze the performance of different SOP/POS equations and system components.

Q1.	**Attempt any 5 out of 7. (1 mark each) (5 Marks)** a) What is a 1's complement of binary number (1010)? b) What is the base of the decimal number system? c) What is the basic difference between Half Adder & Full Adder? d) Define the modulus of the counter. e) Draw the symbol for 2 i/p EX-NOR gates with i/p's A & B? f) List the types of buses used in computer organization. g) Name two types of RAM.	CO1
Q2.	**Attempt any 2 out of 4. (5 marks each) (10 Marks)** a) Represent the given Gray code (101101) into BCD code and $(A9)_{16}$ to Excess-3 code. b) Determine & mention Boolean laws which are used in simplifying the given Boolean equation & draw the simplified logical diagram. **Y = A' B + A C + B C + B + A'A** (Here A'= compliment of A) c) Construct & explain the logic circuit diagram of 1:4 De-Mux with active high strobe. d) Construct & explain the general I/O interface diagram.	CO3
Q.3.	**Attempt all questions. (5 marks each) (10 Marks)** a) Identify the methods used to represent signed binary numbers. b) Analyse the 4-bit ALU block diagram using combinational circuits. OR a) Analyse the importance of memory hierarchy in increasing the efficacy of CPU. b) Interpret the Boolean simplification of **Y=(A+B)(A+C)** and explain the change in gate count.	**CO4**