Section D

8. Explain I/O device interface. Discuss privileged and non-privileged instructions. **14**

9. Explain memory hierarchy. Discuss associative memory and auxiliary memory. **14**

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(T) Roll No. .....

PAPER ID—21132

Bachelor of Technology (Artificial Intelligence and Data Science)

EXAMINATION, 2026

(Fourth Semester)

COMPUTER ORGANIZATION AND ARCHITECTURE

Time : 3 *Hours* *Maximum Marks :* 70

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Section. Q. No. **1** is compulsory. All questions carry equal marks.

1. Write the following : 7×2=14

(a) Define Gray code and its use.

(b) What is error detection code ?

(c) What is Arithmetic Logic Unit (ALU) ?

(d) Define instruction format.

(e) State Amdahl's Law.

(f) What is DMA controller ?

(g) What is Cache coherency ?

Section A

2. Explain complements and number representation. Discuss conversion of fractions. 14

3. Explain arithmetic, logic, and shift microoperations with examples. 14

Section B

4. Explain instruction cycle in detail. Discuss timing and control. 14

5. Compare RISC and CISC architectures. Explain their advantages and limitations. 14

Section C

6. Explain pipeline hazards. Discuss techniques to resolve them. 14

7. Explain parallel processors. Discuss memory interleaving and cache coherency. 14