

Roll No. ....

Total Pages : 03

**BCA/D-20**

**1198**

COMPUTER ARCHITECTURE

BCA-233

Time : Three Hours]

[Maximum Marks : 80

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

**Compulsory Question**

1. (a) Draw logic diagram of ADDER circuit.
- (b) What is Instruction Code ?
- (c) What is RTL ?
- (d) Explain circular shift left micro-operation with example.
- (e) What do you mean by control memory ?
- (f) What is the function of Microprogram Sequencer ?
- (g) Define Zero address instruction.
- (h) Write functions of I/O Interface. **8×2=16**

**Unit I**

2. (a) Write Instruction Format of a basic computer. **4**

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- (b) What are the functions of Control Unit in Computer ? 4
  - (c) Explain logic circuit for memory read and write operations. 8
3. Explain various Register Reference Instructions. 16

### Unit II

- 4. (a) Explain design of Control Unit. 8
  - (b) Explain various Logic Micro-operations. 8
5. (a) Design 4-bit ALU circuit and explain its I/O operations. 8
- (b) What will be the register value of binary data 10110110 after the following operations ? 8
- (i) Shift Left
  - (ii) Shift Right
  - (iii) Circular Shift Left
  - (iv) Circular Shift Right. 4×2=8

### Unit III

- 6. (a) Explain stack organization with its operations. 8
- (b) Design Microprogram control unit and explain its working. 8

7. Write notes on the following :
- (a) Program Control Data Transfer **8**
  - (b) Program Interrupt. **8**

**Unit IV**

8. (a) Explain the role of Virtual Memory. **8**
- (b) How is Cache Memory useful in increasing processing speed ? **8**
9. Distinguish RISC and CISC. Also describe various RISC instruction sets. **16**