

Name/Title of Paper- Computer System Architecture

Time: Three hours

Maximum Marks-80

Note: Answer from both the section as directed.

SECTION-A

1. Answer the following very short-answer type questions : 1X10

- Define shift register.
- What is Excess 3 code?
- What is timing and control?
- What is shift micro operation?
- Define assembler.
- Describe parallel processing.
- Write input output interface.
- What is instruction cycle?
- Write transfer modes?
- Define ROM.

SECTION-B

2. Answer the following questions: 2X5

- What do you mean by decoder and multiplexer?
- Define Register transfer language.
- Define Stack organization.
- What is Programmed Input output?
- What do you mean by direct mapping?

SECTION-CAnswer all questions: 12X5

Unit-I

3. (a) Simplify the following Boolean function using four variable K-map
 $F(w, x, y, z) = \Sigma (3, 7, 11, 13, 14, 15)$

(b) convert the following numbers to indicated base.

- $(10101.010)_2$ to $(\dots\dots\dots)_10$
- $(6834)_10$ to $(\dots\dots\dots)_{16}$
- $(56.50)_{10}$ to $(\dots\dots\dots)_8$
- $(C1A2)_{16}$ to $(\dots\dots\dots)_2$

OR

(a) Show how a JK flip flop can be converted to:

- T flip-flop
- D flip-flop

(b) Explain the following.

- 4 bit register
- Half and Full adder

Unit-II

4. Explain different Micro-operation with suitable example.

OR

- (a) Explain the concept of bus and memory transfer.
- (b) What is interrupt? Discuss input-output and interrupt.

Unit-III

5. (a) Describe genera register organization.

(b) What is the role of pipelining in CPU design?

OR

(a) Describe and differentiate RICS and CISC.

(b) Define and state different addressing modes.

Unit-IV

6. (a) define and describe DMA. Explain it with suitable example and diagram.

(b) Write algorithm for division and multiplication.

OR

Write notes on.

- (i) Input output processor
- (ii) Asynchronous data transfer

Unit-V

7. (a) Differentiate dynamic and static RAM.

(b) Explain the concept of cache memory organization.

OR

Write notes on.

- (iii) Virtual Memory
- (iv) Associative Memory
- (v) Draw memory hierarchy