

MAY 2016

**P/ID 17454/
RCD/PCAG**

Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Convert the following :
 - (i) $(10110001101011.111100000110)_2 = (?)_8$
 - (ii) $(306.D)_{16} = (?)_2$.

Or

 - (b) Perform the subtraction with the following decimal numbers using 10's complement.
 - (i) $72532 - 03250$
 - (ii) $03250 - 72532$
2. (a) Explain about the working principles of Decoders.

Or

 - (b) Write short notes on ROM.
3. (a) Draw the logic diagram of D flip-flop and explain its working principle.

Or

 - (b) Describe Bidirectional Shift registers with a neat diagram.

4. (a) Explain about Status register.

Or

- (b) Write short notes on the design of Arithmetic circuit.

5. (a) Discuss on the design of Accumulator.

Or

- (b) Explain different Register-reference instructions with an example.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

6. Describe the working of basic Logic gates.
7. Simplify the given expression into sum of products using K-Map and draw logic circuit.
 $F(A, B, C, D) = \sum (1, 3, 4, 5, 6, 7, 9, 12, 13)$
8. Explain, in detail, Multilevel NOR Gate with a neat diagram.
9. Discuss on the working principles of Multiplexers.
10. Describe Synchronous counter with a neat diagram.

11. Explain about Scratchpad memory in detail.
 12. Write a detailed note on Programmable Logic Array (PLA).
 13. Describe the process of the execution of an instruction.
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