

18. Draw Karnaugh map and simplify the Boolean function.

$$y(A, B, C, D) = \Pi M(1, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15).$$

19. Draw the pin diagram of 8085  $\mu p$  and explain the functions of various pins.

20. Write an ALP to convert an 8-bit binary data to BCD.

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(For the candidates admitted from 2012-2013 onwards)

B.Sc. DEGREE EXAMINATION,  
NOVEMBER/DECEMBER 2014.

First Semester

Computer Science

DIGITAL COMPUTER FUNDAMENTALS AND  
MICRO PROCESSOR

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are computers?
2. What is a machine language?
3. What are logic gates?
4. Simplify the logic expression.  
 $\overline{AB} + \overline{AB} + \overline{AB} + AB$
5. What do you mean by product of sums form?

6. What are NOR and NAND gates?

7. What is the functions of accumulator?

8. What is bus? Why is the data bus bi-directional?

9. What do you mean by table look-up technique?

10. What is called as packed BCD?

PART B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) What are different categories of computers? Explain.

Or

(b) Convert the following

(i)  $(6BC)_{16} = ( )_2$

(ii)  $(6B)_{16} = ( )_{10}$

(iii)  $(950)_{10} = ( )_{16}$

(iv)  $(642)_8 = ( )_{10}$

12. (a) Explain the AND and OR operations.

Or

(b) State and prove DeMorgan's theorems.

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13. (a) What is sum of products form expression? Explain with suitable example.

Or

(b) What do you mean by 'don't care conditions'?

14. (a) List the types of memory and their functions.

Or

(b) Discuss the role of various status flags of 8085.

15. (a) Write an ALP to convert an 8-bit binary to ASCII code.

Or

(b) Write an ALP to subtract two numbers of 2-digit BCD data.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are the essential components of a computer? Draw the schematic block diagram of a computer showing its essential components. Discuss the function of each component.

17. What are the basic law of Boolean algebra? Explain

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