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October 2016

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Answer any fifteen questions in PART – A and division (A) or division (B) of each question in PART – B.

(2) Each question carries 1 (one) mark in PART – A and 12 (twelve) marks in PART – B.]

PART – A

1. Find the decimal value of 725_8
2. State DeMorgan's theorems.
3. What is the gray code and excess 3 code for the decimal number 5?
4. What is meant by tri-state logic?
5. How many address lines are needed in 1 to 16 demultiplexer?
6. Find the 2's compliment of $(10100111)_2$
7. What is decoder?
8. Draw the logic circuit of a half subtractor.
9. Name the sequential circuit that is used for storing 1 bit of information.
10. What is meant by race condition?
11. What are the different types of triggering?
12. What is called as mod-N counter?
13. What is SD RAM?
14. What is meant by anti-fuse?
15. Differentiate between RAM and ROM.
16. What is meant by expanding memory?
17. What are peripherals?
18. What are the addressing modes used in 8085 microprocessors?
19. In 8085 microprocessor, what will be the function performed by XCHG instruction?

[Turn over.....

20. Which instruction is used in 8085, to add two 16 bit data directly in register pair?

PART – B

21. (A) (i) Convert 5A1C hexadecimal into its equivalent decimal number.
(ii) Explain, how the logic gates are derived by using NOR gates.

(Or)

(B) (i) Simplify the Boolean expression: $\bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$.
(ii) Explain the working of a CMOS NAND gate with a neat circuit.

22. (A) With necessary diagrams, explain how a 7 segment decoder is working.

(Or)

(B) (i) Using 1's compliment, add the two signed binary numbers +3 and +4.
(ii) With logic circuit and truth table, explain the working of a full adder.

23. (A) Explain the working of a 4 bit asynchronous counter. Draw output waveforms.

(Or)

(B) What are the different modes, a shift register can operate? Explain how a shift register works in serial in serial out (SISO) mode.

24. (A) Explain the organisation of a RAM memory.

(Or)

(B) Give the classification of ROM according to programming process. Explain the organisation of a ROM memory.

25. (A) With a neat block diagram, explain the architecture of 8085 microprocessor.

(Or)

(B) Explain about memory read and write machine cycles of 8085 microprocessor.
