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Time : 2 Hours

Digital Electronics & Computers

Subject Code

V	3	3	1
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Total No. of Questions : 5

(Printed Pages : 4)

Maximum Marks : 50

INSTRUCTIONS : (i) Answer each question on a fresh page.

(ii) Write the number of the question and sub-question clearly.

(iii) All questions are compulsory.

(iv) Figures to the right indicate full marks.

(v) Draw neat diagrams wherever necessary.

1. (A) Fill in the blanks : 2

(i) The 2's Complement is the binary number that results when we add 1 to the

(ii) If $A = 1$ and $B = 1$ are given to the input of Half Adder then their Sum is equal to

(B) Answer the following :

(i) Prove $\overline{A+B} = \bar{A} \cdot \bar{B}$ with the help of a neat logic diagram and truth table. 3(ii) With the help of a neat circuit diagram and truth table, explain the working of 2 input DRL OR gate. 3

- (C) Answer the following :
- Draw neat logic diagrams to obtain AND and OR gate using NOR gates. 2
2. (A) Define the following : 2
- (i) Central Processing Unit (CPU)
- (ii) Cache Memory
- (B) Answer the following :
- (i) Differentiate between 8080A and 8085 microprocessor with respect to clock frequency, interrupt lines and instruction set. 3
- (ii) Explain in brief the difference between Monochrome, RGB and Coloured Monitor. 3
- (C) Answer the following :
- Draw a neat block diagram of a Counter type A to D converter. 2
3. (A) Fill in the blanks : 2
- (i) The expression for the frequency of oscillation for Astable multivibrator is
- (ii) Microprocessor based computer graphics are able to display on the monitor.

- (B) Do as directed : 3
- (i) Convert $(4095)_{10}$ to its hexadecimal equivalent.
 - (ii) Convert $(4073)_8$ to its decimal equivalent.
 - (iii) Convert $(10101)_2$ to its decimal equivalent.

- (C) Answer the following in detail : 5
- With the help of a neat circuit diagram explain the working of transistorised Bistable multivibrator.

Or

Explain the working of positive edge triggered J-K Flip-Flop with a neat diagram.

4. (A) Answer the following in one/two words : 2
- (i) What is the hexadecimal equivalent of $(10)_{10}$.
 - (ii) Write the output logic expression of EX- NOR gate.

- (B) Answer the following : 3
- Explain the working of a 4-bit Shift right register with the help of a neat diagram.
- (C) Answer the following in detail : 5
- Explain the working of a 4-bit ripple counter with the help of a neat diagram.

Or

With the help of a neat logic diagram explain the working of a 3-bit ring counter.

5. Answer the following :

- (i) What do you mean by Accuracy and Resolution in D to A converter. 2
- (ii) Draw the block diagram of a microprocessor. 2
- (iii) What do you mean by Volatile and Non-Volatile memory. 2
- (iv) What is the difference between Edge Triggering and Level clocking ? 2
- (v) Briefly explain Laser Printer. 2