

This question paper contains 3 printed pages.]

Your Roll No.

1226

B.Sc. (Hons.)/II **A**

PHYSICS – Paper XVI

(Digital and Computer Lab.)

Time : 45 Minutes

Maximum Marks : 15

(Write your Roll No. on the top immediately on receipt of this question paper.)

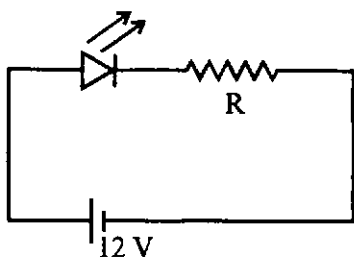
Answer any **15** questions.

Each question carries **one** mark.

1. Give a circuit for XOR gate using NAND Gates only. **1**
2. Give the pin out diagram of 7400 IC. (State correct voltages also) **1**
3. Write the dual expression for the given Boolean relation : **1**

$$A \cdot (B + C) = A \cdot B + A \cdot C$$

4. For the given circuit suggest a value for the resistance 'R' so that LED glows within the safe limits. 1



5. Draw the K-map for the following Boolean equation : 1

$$Y = \bar{A} \cdot \bar{B} + A \cdot B + A \cdot C + ABC$$

6. Why a dual power supply is required for an Op-Amp ? 1

7. Explain whether it is proper to connect the outputs of one NAND gate and one NOR gate together. 1

8. A 7402 NOR gate has an output 'Y' which is connected to the input of 'N' other 7402 NOR gates. What is the maximum value of 'N' ? 1

9. Which of the following instructions affect the 'CY' flag in 8085 μ p ? 1

- (i) DAA
- (ii) MOV A, B
- (iii) INX B

10. Distinguish between RAM and ROM. 1
11. How many machine cycles constitute the instruction MOV A, C ? 1
12. What is the largest number contained by data bus at any given instant of time ? 1
13. Give an instruction(s) to transfer the contents of memory location 2500 H to accumulator. 1
14. What is the total number of pins in 8085 μ p ? 1
15. Why is data bus bi-directional ? 1
16. If the contents of 'F' register is FOH, write the states of carry and zero flags. 1
17. What is the difference between Read and Read In Statements in Pascal ? 1
18. Which of the following are incorrect integer expressions ? 1
- (i) $A \text{ div } B + P$
 - (ii) $A \text{ div } - C$
 - (iii) $A/B + C$
 - (iv) $-A + B$
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