

Roll No. ....

**D-3823**

**B. C. A. (Part I) EXAMINATION, 2020**

**(Old Course)**

Paper Third

INTRODUCTORY ELECTRONICS

**(101)**

*Time : Three Hours ]*

*[ Maximum Marks : 50*

**Note :** Attempt any *two* parts from each question. All questions carry equal marks.

**Unit—I**

1. (a) What is semiconductor ? Write down the various features of semiconductor.
- (b) What is transistor ? Describe the working of CE amplifier.
- (c) What do you understand by Logic Family ? Distinguish among various IC logic families.

**Unit—II**

2. (a) What is IC ? Discuss merits and demerits of IC.

**(A-33) P. T. O.**

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- (b) Write down the steps to construct resistor and capacitor in a monolithic integrated circuit.
- (c) Write short notes on the following :
  - (i) P-Substrate
  - (ii) Epitaxial n layer

**Unit—III**

- 3. (a) Perform the following :
  - (i)  $(10110)_2 - (101)_2$  by 2's complement
  - (ii)  $(FA7C)_{16} = (?)_8$
- (b) What is 8421 code ? Write down the advantages and disadvantages of this code.
- (c) What do you understand by Gray Code ? Write down the steps to convert gray code to binary code.

**Unit—IV**

- 4. (a) Which are Universal Gates ? Why are they called Universal Gates ?
- (b) Prove that :
$$\overline{(A+B)} = \bar{A} - \bar{B}$$
- (c) What do you mean by SOP and POS Boolean form ? Explain it with suitable examples.

**Unit—V**

- 5. (a) Draw and explain Half adder combinational circuit.
- (b) Draw and explain JK-flip-flop with suitable diagram.
- (c) What is Multiplexer ? Draw and explain  $4 \times 1$  MUX ?