# BCA-03

## June - Examination 2026
## BCA (Part-I) Examination
### Basic Electronics
### Paper : BCA-03

[*Time: **3** Hours*] [*Maximum Marks: **70***]

**Note :-** The question paper is divided into three Sections A, B and C. Write answers as per the given instructions in each section.

**Section-A** **7×2=14**

**(Very Short Answer Type Questions)**

**Note :-** Answer **all** questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **30** words. Each question carries **2** marks.

1. (i) Define Semiconductor.

   (ii) What is reverse biasing of a PN junction diode?

   (iii) What is a flip-flop?

   (iv) What is the function of a capacitor in an electronic circuit?

   (v) Define gain of an amplifier.

   (vi) What is propagation delay in digital circuits?

   (vii) What do you mean by Ohm's Law?

**Section-B** **4×7=28**

**(Short Answer Type Questions)**

**Note :-** Answer **any four** questions. You have to delimit your each answer maximum up to **200** words. Each question carries **7** marks.

2. Describe the operation of a bridge rectifier with a neat diagram.

3. Compare half-wave and full-wave rectifier.

4. Explain transistor biasing and its importance.

5. Discuss the working of XOR and XNOR gates with truth tables.

6. Simplify the Boolean expression using Boolean algebra -

   $F = A + AB + A'B$

7. Minimize the following Boolean function using K-Map -

   $F(A, B, C) = \sum (1, 3, 5, 7)$

8. Calculate the equivalent resistance when 4Ω, 6Ω and 12Ω resistors are connected in parallel.

9. Explain the concept of feedback in amplifiers and its advantages.

**Section-C** **2×14=28**

**(Long Answer Type Questions)**

**Note :-** Answer **any two** questions. You have to delimit your each answer maximum up to **500** words. Each question carries **14** marks.

10. Explain Zener diode, its V-I characteristics and its use as a voltage regulator.

11. What are filters? Explain low-pass, high-pass, band-pass and band-stop filters with applications.

12. Describe SR, JK and D flip-flops with truth tables and applications.

13. Explain the working principle, construction and applications of a single-phase induction motor with a neat diagram.

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