

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(ME) (Sem.-3)**  
**BASIC ELECTRONICS ENGINEERING**

Subject Code : BTEC305-18

M.Code : 76420

Date of Examination : 20-06-2024

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**1. Write briefly :**

- (a) Draw VI characteristics of ideal diode.
- (b) Enlist various types of breakdown in diodes.
- (c) What are applications of LEDs?
- (d) Define operating point.
- (e) What are the voltage gain and current gain in common emitter?
- (f) Give introduction to op-amp.
- (g) Explain the concept of virtual ground.
- (h) Prove that  $A'' = A$ .
- (i) Write the truth table of XOR and XNOR gates.
- (j) Add two binary numbers 110101 and 10101.

### SECTION-B

2. Explain the circuit of Zener diode. Also, explain its applications.
3. Explain the structures of nMOS and pMOS.
4. Design a differentiator circuit with the help of 741 Op-amp.
5. Design SR flip flop and explain its working.
6. Simplify  $F = \sum m(1,2,3,5,6,8,9,10,11,12)$  using K-Map.

### SECTION-C

7. Draw and explain common base configuration.
8. Design full wave rectifier using four diodes.
9. Convert decimal numbers 89 and 76 into binary, octal and hexadecimal numbers.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**