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Total No. of Questions : 09

B.Tech.(ME)   Sem.–3)
# BASIC ELECTRONICS ENGINEERING
Subject Code : BTEC305-18
M.Code : 76420
Date of Examination: 15-12-2023

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) Define the functioning of rectifiers.

   b) What are the applications of zener diodes?

   c) Enlist various opto electronic devices.

   d) Draw the basic structure of BJT.

   e) What is the significance of operating point in BJTs?

   f) Draw the block diagram of Op-Amp.

   g) Describe the concept of virtual ground.

   h) What are the applications of Op-Amp?

   i) Write truth table of T and D flip flops.

   j) Draw NAND and XOR gates symbols.

SECTION-B

2. Explain full wave rectifier with a suitable diagram.

3. Draw and explain nMOS.

4. Design square wave generator using Op-Amp.

5. Convert decimal number 55.5 into binary, octal and hexadecimal number systems.

6. What are the limitations of SR flip flop? How can we overcome these in JK flip flop?

SECTION-C

7. Explain various breakdown mechanisms with neat and clean diagrams.

8. Design all three configurations of bipolar junction transistor.

9. Subtract 21 from 32 using 1's complement method.

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.