Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech.(CE) (2018 Batch) (Sem.–3)

BASIC ELECTRONICS & APPLICATIONS IN CIVIL ENGINEERING

Subject Code : BTEC-305-18

M.Code : 76374

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

Answer briefly :

1. What is photo diode?
2. What are active elements?
3. What is the significance of the number system?
4. Simplify Y = A'B'C' + A'B'C + A'BC + ABC'.
5. Draw the logic diagram of SR latch using NOR gate.
6. Differentiate between NMOS and PMOS.
7. What is operating point?
8. Write the applications of the LED's.
9. Explain the term virtual ground.
10. Define race around condition.

SECTION-B

11. Explain the voltage divider bias configuration.

12. Discuss various types of Logic Gates. Also discuss their applications.

13. Explain the working of the function generator.

14. Explain the working of JK Flip flop with neat diagram.

15. Explain the Zener diode as a voltage regulator.

SECTION-C

16. Reduce the following using K-map technique :

    $F(A, B, C, D) = \Sigma m(0, 3, 4, 7, 8, 10, 12, 14)$

17. Explain the characteristics of an Ideal Op-amp. Explain any two applications.

18. Explain the Common Base configuration. Sketch the input and output characteristics. Explain the operating regions by indication on the characteristics curve.

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.