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

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE) (2012 Onwards)/(Electrical & Electronics Engg.) (2011 Onwards)
B.Tech. (Electronics & Electrical Engg.) (2012 to 2017) (Sem.–3)

ELECTRONIC DEVICES AND CIRCUITS

Subject Code : BTEE-304
M.Code : 57095

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION 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. Answer briefly :

a) What do you mean by diffusion current? Explain.

b) Compare intrinsic and extrinsic semiconductors.

c) Why biasing is required? Explain.

d) Define I_{CBO} and I_{CEO}. How they are different?

e) What are h-parameters? Discuss their importance.

f) What do you mean by unregulated power supply? Discuss.

g) Discuss the importance of op-amps in engineering.

h) What do you mean by CMRR? Explain.

i) Compare active and passive filters.

j) What do you mean by line regulation? Explain.

SECTION-B

2. Draw and explain the basic principle, construction and characteristics of Schottky diodes.

3. Describe the basic structure and operation of a JFET. Also draw and explain the V-I characteristics of JFET. How is it different from BJT?

4. Draw the diagram and explain the working of operational amplifier as comparator and Schmitt trigger.

5. Draw the circuit diagram and explain the working of a Wien bridge oscillator. Also compare its operation with that of Hartley oscillator.

6. Discuss in detail the working of Zener diode voltage regulators.

SECTION-C

7. a) Discuss **any one** of the transistor configuration. Also draw and explain its input and output characteristics.

   b) Why clippers and clampers are required? Draw the diagram and discuss the working of clamping circuits.

8. Explain (in detail) :

   a) SMPS

   b) Current to voltage converter using op-amps

9. Explain the Timer 555 and its applications as mono-stable and bi-stable multi-vibrators.

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.