Roll No. [| | | | | | | | | | |]   Total No. of Pages : 2

Total No. of Questions : 09

B.Tech. (EE/EEE) (Sem.–3)

ELECTRONIC DEVICES AND CIRCUITS

Subject Code : EE-207

Paper ID : [A0405]

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 has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

1. Write briefly :

   (a) Give the band structure of conductor.

   (b) Why p-type impurities are called as acceptor impurities?

   (c) What is mass action law?

   (d) Discuss the effect of temperature on conductivity of semiconductors.

   (e) Why is the collector region wider than the emitter region in a transistor?

   (f) A silicon diode has a saturation current of 7.5μA at room temperature. Calculate the saturation current at 400K.

   (g) Discuss the application of thermistor.

   (h) Calculate the voltage gain of negative feedback amplifier with an internal gain of 125 and feedback factor is 0.1.

   (i) Why is positive feedback necessary to produce oscillations?

   (j) Why is negative feedback used in OP-AMP?

SECTION-B

2. Discuss the conduction of current in metals. Defi

3. Discuss the effect of temperature on conduct Explain why semiconductors behave as insulator

4. Define ripple factor and derive its value for full

5. Explain how the negative feedback in an am distortion and noise?

6. Give the characteristics of ideal operational a transfer characteristics of OP-AMP in open loop

SECTION-C

7. Explain the continuity equation.

8. (a) Discuss the working of an NPN transistor in

   (b) Plot the drain characteristics of n-channel voltage. What is the difference between ohmi

9. (a) What are the factors which determine the stab

   (b) Using accurate analysis explain how is opera the voltage divider biasing circuit.