Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(EE)/(Electrical & Electronics)/(Electronics & Electrical) (2011 Onwards)
B.Tech.(Electrical Engineering & Industrial Control) (2012 Onwards)

(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) State few applications of Zener diode.

b) Find the base current for CE transistor circuit if $I_c = 80mA$ and $\beta = 170$.

c) State Miller's theorem.

d) Define conversion efficiency of power amplifier.

e) State the Barkhausen criterion for an oscillator.

f) Draw the structure of UJT.

g) List the types of multivibrator.

h) What is the need of summing amplifier?

i) List out some advantages of double tuned amplifier.

j) What is meant by saturation region?

SECTION-B

2) Derive the expression for the space charge or transition capacitance of PN diode with reverse bias with a neat diagram.

3) Explain Zener diode as a voltage regulator.

4) Explain how the amplification factor, input impedance, output impedance and bandwidth are modified with negative feedback.

5) What is MOSFET? Explain the construction and characteristics of N- channel MOSFET with the help of suitable diagram.

6) Explain the working of 555 timer as oscillator.

SECTION-C

7) Briefly explain voltage -series feedback amplifier with neat diagram and derive an expression for input output resistance.

8) Design a RC phase shift oscillator to generate 5kKz sine wave with 20V peak to peak amplitude. Assume $h_{fe} = \beta = 150$, C = 1.5nf, $h_{re} = 1.2k\Omega$.

9) Write the ac equivalent circuit for voltage divider JFET configuration and determine Z_i, Z_o and Av.

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.