24227

B.Tech. 5th Semester (Electrical Engg.-I) Examination

December–2013

ANALOG ELECTRONIC CIRCUITS

Paper–EE-305-F

Time allowed : 3 hours] *[Maximum marks :100*

Note : Question no. 1 is compulsory, and attempt one question from each of the four sections. All questions carry equal marks.

1. (a) Differentiate single stage and Multistage Amplifier. 4

   (b) What do you mean by Barkhausen criteria? 4

   (c) What is crossover distortion ? 4

   (d) Explain Logarithmic amplifiers. 4

   (e) What do you mean by offset error ? 4

Section-A

2. Draw the circuit diagram of RC coupled amplifier. Discuss the frequency response curve of RC coupled amplifier. What is the effect of an emitter bypass capacitor on low frequency ? 20

3. (a) Discuss how the application of negative feedback in amplifier affects

   (i) stability of gain (ii) Bandwidth

   (iii) Noise. 10

(b) Find out the effect of negative feedback on input and output impedance. An amplifier has an internal gain of 80; the harmonic distortion in the output is 12%. To reduce the distortion within a tolerable limit of 3% calculate the feedback factor in the amplifier. 10

Section-B

4. Explain the working of crystal oscillator with a neat and clean circuit diagram. Discuss general form of oscillator. 20

5. (a) Explain the working of Phase shift oscillator with diagram. 10

(b) Explain the working of Wien-bridge oscillator with diagram. 10

Section-C

6. (a) Discuss class A power amplifier with output transformer as load. Explain its working and find an expression for its efficiency. 10

(b) What do you mean by Push-pull amplifier ? Find out the efficiency for the same. 10

7. (a) What are the characteristics of ideal OPAMP? 10

(b) Explain the following in context with practical Op-Amp ?

(i) CMMR (ii) Output impedance

(iii) Slew rate (iv) Input impedance

10

Section-D

8. Explain the working of op amp as :

(a) Practical integrator 5

(b) Voltage follower 5

(c) Differentiator 5

(d) Scale changer. 5

9. Explain how op amp can be used as :

(a) Anti-log amplifier. 7

(b) Regenerative comparator. 7

(c) Miller and Bootstrap sweep generator. 6