Reg. No. : ....

Name : ....

Third Semester B.Tech. Degree Examination, December 2015
(2008 Scheme)
08.304 : ELECTRONIC CIRCUITS (RF)

Time: 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4 marks.**

1. Draw the circuit of a positive clipper. Draw its transfer characteristics.

2. Obtain the condition that an RC lowpass filter function as an integrator.

3. Differentiate online and offline ups.

4. Compare linear and switching regulators.

5. Compare LC and RC oscillators.

6. Mention few applications of 555 timer.

7. What is a Q point ? What is meant by Q-point stabilization ?

8. List any four ideal characteristics of operational amplifier.

9. Draw the circuit diagram of a second order highpass filter using opamp. Write down the expression for cut-off frequency.

10. Explain Barkhausen criteria for feedback oscillators.　　　　　　　**(10×4=40 Marks)**

PART – B

Answer **any one** question from **each** Module. **Each** question carries **20** marks.

Module – I

11. a) Explain the frequency response characteristics of a lowpass filter. How it can be used as an integrator ? Obtain relevant equation.　　8

    b) Draw the block diagram of a switched mode power supply and explain.　　6

    c) Explain the principle of operation of inverters.　　6

OR

12. a) Derive the expression for ripple factor with capacitor filter in a full wave rectifier. **10**

   b) A bridge rectifier uses transformer of turns ratio 5. Supply voltage is 230 V ac. Determine output dc voltage, ripple factor, efficiency and the diode rating if the load resistance is $20\,\Omega$. Assume ideal diodes. **10**

Module – II

13. a) Draw the circuit of an astable multivibrator using 555 timer and explain. Draw relevant waveforms. **10**

   b) With the help of circuit diagram and waveform, explain the principle of operation of colpitts oscillator. **10**

OR

14. a) Draw the circuit of a CE BJT amplifier. Derive expression for voltage gain and output resistance. **10**

   b) Explain the working of a monostable multivibrator using BJT. Draw relevant waveforms. **10**

Module – III

15. a) Draw a summing amplifier using opamp and derive expression for output. **10**

   b) Draw the circuit of bandpass filter using opamp and explain. **10**

OR

16. a) Draw the circuit of phase shift oscillator using opamp and explain how condition for oscillation is met. Write expression for frequency of oscillation and conditions for oscillation. **10**

   b) Write notes on :

   i) Inverting amplifier. **5**

   ii) Chebyshev and Butterworth filters. **5**

(3×20=60 Marks)