



Reg. No. : .....

Name : .....

**Third Semester B.Tech. Degree Examination, January 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. Explain the principle of inverter.
2. Obtain expression for output voltage of an RC differentiator.
3. Define ripple factor, TUF and rectification efficiency.
4. Draw the circuit of an emitter follower. What is the value of its voltage gain ?
5. Draw the circuit diagram of 555 monostable multivibrator with triggering circuit.
6. Give any two merits of negative feedback.
7. Draw the block diagram of operational amplifier.
8. Mention any three advantages of active filters.
9. Explain how Barkhausen criterion is satisfied in Wienbridge oscillators.
10. List merits of SMPS.

**(10×4=40 Marks)**



## PART – B

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

## Module – I

11. a) Consider a full wave rectifier with filter using large capacitor. Derive the expression for ripple factor. 10
- b) Design a bridge rectifier with C to meet the following specifications. dc output voltage = 15 V, output ripple  $\pm 4V$ , load resistance =  $15\Omega$ , diode drop = 0.7 V, Transformer is fed from 230 V, 50 Hz. Specify the transformer, diode and capacitor. 10

OR

12. a) Draw the circuit of a two-level clipper and explain its working. Draw its transfer characteristics. 8
- b) Draw the block diagram of a UPS and explain. 6
- c) Draw the response of a lowpass RC circuit to square wave and pulse inputs. 6

## Module – II

13. a) Analyse a common emitter amplifier and obtain expressions for voltage gain, current gain and input resistance. 12
- b) Draw the circuit of an RC phase shift oscillator and explain its working. Compare the features with Wienbridge oscillator. 8

OR

14. a) Draw the circuit of a Colpitts oscillator and explain. Give expression for frequency of oscillation and condition for oscillation. 10
- b) Draw the circuit of an astable multivibrator using BJT and explain its working. Draw relevant waveforms. 10



Module – III

15. a) Draw the circuit of a second order lowpass filter using opamp. How the circuit function as a filter ? Obtain the expression for its cut-off frequency. 13
- b) Compare the performance of Butterworth and Chebyshev filters. 7

OR

16. a) Draw the circuit of a non inverting amplifier using opamp. Derive expression for output voltage. 10
- b) With the help of a circuit diagram, explain the operation of Wienbridge oscillator using opamp. Write down the expression for frequency of oscillation. 10

(3×20=60 Marks)