No. of Printed Pages : 2

BIELE-004

B.Tech. ELECTRICAL ENGINEERING (BTELVI)

00305

Term-End Examination

June, 2014

BIELE-004 : RF CIRCUITS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. Assume the missing data, if any.*

1. Discuss the RF frequency behaviour of the following components : *10*
   (a) Inductor
   (b) Capacitor
   (c) Resistor

2. Define lossless transmission line with derivation of its input impedance. *10*

3. Explain the RF models of bipolar junction transistor and pn junction diode with neat sketch. *10*

4. Discuss the need of 'neutralization' in radio frequency amplifier design and explain the neutralization process with neat diagram in detail. *10*

5. Discus the low noise amplifier (LNA) topologies based on power match versus noise match in detail. *10*

6. Describe multiplier-based mixer and explain active double-balanced mixer with neat sketch. *10*

7. Describe the need of "modulation of power amplifier" process along with suitable linearization technique. *10*

8. What is resonator ? Explain the concept of quarter wave resonator used in RF oscillator design. *10*

9. Explain the approach of combination synthesizers used in RF circuits and show how it is different from direct digital synthesis method. *10*

10. Explain the working of negative resistance oscillator circuit with neat diagram. How is it different from the concepts used in ideal oscillator circuit ? *10*