

**B.Tech. ELECTRONICS AND
COMMUNICATION**

Term-End Examination

December, 2013

BIELE-004 : RF CIRCUITS

Time : 3 hours

Maximum Marks : 70

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- Note :** (i) *Attempt any seven questions.*
(ii) *Assume the missing data (if any).*
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1. Describe the behavior of transmission line for operation at radio frequency. Also derive the expression for the characteristic impedance and the propagation constant. **10**
2. Differentiate bipolar LNA's and CMOS LNA's with suitable circuit diagrams. Explain their importance in RF circuit design. **10**
3. Explain the steps involved in the design of high frequency amplifiers. What are the applications of RF Doublers ? **10**
4. Explain the different types of MIXERS used in RF design. Discuss the qualitative and quantitative analysis of noise in mixers. **10**
5. Discuss the effect of phase noise in RF communication in detail. Also explain the dependency of phase noise of LC oscillator on 'Q' factor. **10**

6. Write technical notes on **any two** of the following : **2x5=10**
- (a) Two - Port Noise Theory.
 - (b) Diode - Ring Mixers.
 - (c) CLASS - AB Amplifiers.
7. Explain the noise models for various active and passive components. **10**
8. Describe the classification of power amplifier in RF circuits on the basis of their efficiency with appropriate derivation and circuit diagram. **10**
9. What is the importance of linearization techniques in power amplifier for RF application? Explain the methods of linearization in detail. **10**
10. Describe the RF synthesizer with static moduli in detail. **10**
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