Roll. No.	

B.E / B.Tech (Full Time) DEGREE EXAMINATION, APRIL / MAY, 2014

ELECTRONICS AND COMMUNICATION ENGINEERING

FIFTH SEMESTER

EC9305 TRANSMISSION LINES AND WAVEGUIDES

(REGULATION 2008)

Smith Chart need to be provided

Time: 3 hours Maximum Marks : 100

Answer All Questions

Part – A (10 x 2 = 20 Marks)

1. Define infinite line concept.
2. What is loading?
3. What is a standing wave?
4. Why is stub matching employed?
5. What is an inverse network?
6. What is an equalizer?
7. What are the different velocities of propagation?
8. Define a TEM wave.
9. Define wave impedance.
10. What is a dominant mode?

Part – B (5 x 16 = 80 Marks)

11. (i)Derive Transmission line equation. **(8)**

    (ii)An open wire telephone line has R=10 ohm per km, L=0.0037 henry per km, C=0.0083μF per km and G=0.4 μmho per km. Find its Z_o, α and β at 1000 Hz (8)

12. a A generator having an internal impedance of 50 ohms is connected to a load impedance of 250 ohms by means of a transmission line of characteristic impedance 50 ohms.For a signal of wavelength 20 cm, find the location and length of a 75 ohm short-circuited stub for maximum transfer of energy to load. Use Smith Chart.

(OR)

12. bDiscuss in detail about λ/8, λ/4 and λ/2 lines with relevant expressions.

13. aDiscuss in detail about the design of Constant K LPF and HPF filters with appropriate expressions.

(OR)

13.b(i)Describe the concept of attenuators. (8)

(ii)Elaborate on transients in transmission lines. (8)

14a(i)Discuss in detail about the waves propagating between parallel planes with neat sketch(es) and relevant expressions. **(10)**

(ii)Describe the concept of mode excitation in rectangular guides. (6)

(OR)

14bDescribe about the underlying concepts of wave propagation in a rectangular guide and obtain the solution of wave equation in rectangular guides.

15aDescribe about TE and TM waves in circular guides.

(OR)

15bWrite notes on (i)Cavity resonator (ii)Formation of cylindrical cavity.