Total No. of printed pages = 3

ET-401/CE-I/4th Sem/2013/N

COMMUNICATION ENGINEERING – I

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) What do you understand by a communication system ? Draw a neat block diagram of such a system.

   (b) State and explain the different types of signals that may be used in a communication system. 2+4+8=14

2. Define modulation. Why is it necessary to modulate a signal before transmission ? What are the different types of modulation used in analog communication ? Explain with neat diagram. 2+3+3+6=14

[Turn over

3. (a) Explain the process of generation of a DSB/SC wave using balanced modulator. 6

(b) What are the advantages of DSB/SC over normal AM ? 4

(c) What is the difference between SSB and VSB modulation technique ? 4

4. (a) Discuss how a signal may be propagated as a surface wave, space wave and sky wave.

(b) State the different layers present in the ionosphere and explain how it affects in the transmission of a signal. 9+5=14

5. (a) What are transmission lines ? What are the basic parameters of a transmission line ? Discuss the different losses that take place in a transmission line.

(b) Discuss how standing waves are formed in a transmission line. How is it related to USWR ? 3+5+6=14

6. (a) Differentiate between : 2×3=6

(i) Resonant and non-resonant antenna.

(ii) Isotropic radiator and omnidirectional antenna

(iii) Grounded and ungrounded antenna.

(b) Define the following terms related to antenna :

(i) Directivity

(ii) Antenna efficiency. 2×4=8

7. Write short notes on any *two* : 7×2=14

(i) Frequency modulation

(ii) Generation of SSB

(iii) Impedance matching

(iv) Dipole antenna.