Total No. of printed pages = 3

Et-401/CE-I/4th Sem/2015/M

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 is modulation ? Why do we do modulation ? What are the different types of modulation ? 3+3+3=9

   (b) Explain with the help of a block diagram Armstrong's system of generating FM wave. 5

2. (a) Deduce the power relation of an AM wave. 5

   (b) In an antenna, the antenna current (RMS) before modulation is 10 amps. After modulation, it rises to 11.6 amps. Determine percentage modulation. If the carrier power is 10 KW, what is the power after modulation ? 5+4=9

[Turn over

3. Briefly explain ground wave, sky wave and space wave propagation of radio waves. 14

4. (a) What are transmission lines ? Classify the different types of transmission lines. 2+2=4

   (b) Explain about characteristic impedance of a transmission line. 5

   (c) What are standing waves ? 5

5. (a) What is the function of an antenna ? 4

   (b) What are resonant and non-resonant antennas ? 5

   (c) Draw a typical Yagi Uda antenna and label its directors, reflectors and dipole. 5

6. (a) What are the advantages of DSB/SC transmission over normal AM ? 4

   (b) Explain how can you generate DSB/SC waves using a balanced modulator. Draw a neat diagram to explain its working principle. 10

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

(a) Radio frequency bands

(b) Generation of AM using grid modulated class C amplifier

(c) Vestigial sideband transmission

(d) Ionospheric layers

(e) Losses in transmission lines.