BSCCS

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2013

(UG–CCSS)

Electronics – Complementary Course

EL 3CO—COMMUNICATION SYSTEMS

Time : Three Hours   Maximum : 30 Weightage

Answer **all** *questions.*

1 Explain the necessity of modulation.

2 Define frequency and phase modulation.

3 What is signal to noise ratio ?

4 What is single sideband suppressed carrier modulaiton ?

5 Define bit of information.

6 What are equiprobable events ?

7 What is meant by the code of the Bondot form ?

8 What are the limitations of a TRF receiver ?

9 What is meant by image frequency ?

10 What does a noise limiter do in a AM receiver ?

11 What is meant by diffraction of radio waves ?

12 What is meant by 'Radio Horizon' in relation to space wave propagation ?

$(12 \times \frac{1}{4} = 3$ weightage$)$

13 In an FM system if mf is doubled by having the modulation frequency, what will be the effect on the maximum deviation ?

14 What is adjacent-channel interference ?

15 Distinguish between possibility and probability.

16 What is the effect on noise in an information carrying channel ?

17 Bring out the difference between pulse modulation on one side and amplitude modulation on the other side.

20 Bring out the differences between AM and FM receivers.

21 Explain the principles of refraction of electromagnetic waves.

(9 × 1 = 9 weightage)

III. Answer any *five* questions :

22 Define amplitude modulation and modulation index. Use a sketch to explain AM.

23 Give a comparison of wideband and narrowband FM.

24 Define a bit of information. What are equiportable events ? How is the number of bits of information required in a situation calculated ?

25 Explain PCM. Show how an irregular complete was form can be quantized.

26 Explain what is meant by AGC. Give its functions.

27 Describe the difference between FM and AM receivers.

28 Discuss the main abnormal ionosphere variations.

(5 × 2 = 10 weightage)

IV. Answer any *two* :

29 Derive an expression for the depth of modulation in an AM transmitter. Find the relation between output power and depth of modulation. If a 500 watt carrier is modualted to a depth of 0.6, calculate the total power in the modulated wave.

30 With the help of a block diagram, explain the working of Superheterodyne.

31 Write short note on (a) Skip distance ; (b) Maximum usable frequency ; (c) Obtain an expression for the skip distance in terms of critical frequency of the layer.

(2 × 4 = 8 weightage)