M.Sc. Second Semester (Applied Electronics) (New) (CBS)

15017 : Communication Engineering

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P. Pages : 2

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Time : Three Hours

Max. Marks : 80

Notes :
1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Define the following terms.   6
   i) Sound Intensity.
   ii) Loudness.
   iii) Frequency response.
   iv) Loudness level.

   b) Explain the following external noise.   7
   i) Atmospheric Noise.
   ii) Extraterrestrial Noise.
   iii) Industrial Noise.

OR

2. a) Define signal. Give classification of signal as   7
   i) Periodic & Non-periodic.
   ii) Analog & Digital
   iii) Deterministic & Non-deterministic.

   b) Explain the following internal noise.   6
   i) Thermal Agitation noise
   ii) Shot noise.

3. a) Explain duct propagation phenomena and their characteristics.   7

   b) Explain the mechanism of wave propagation in free space.   6

OR

4. a) Explain surface wave propagation. What is the angle of tilt and how does it affect field strength at a distance from transmitter.   7

   b) Explain the following.   6
   i) Critical frequency.
   ii) Skip distance.
   iii) Fading.

5. a) Explain following terms   7
   i) Radiation resistance
   ii) Antenna efficiency
   iii) Antenna polarization.

b) Explain Yagi-Uda Antenna with radiation pattern in detail. 7

OR

6. a) Discuss the following terms. 7
   i) Directivity and power Gain (ERP).
   ii) Bandwidth.
   iii) Beam width.

   b) Explain construction and sailent feature of Rhombic antenna. 7

7. a) Explain the need of modulation. 6

   b) Explain the generation of DSBSC signal using a Balanced Modulator. 7

OR

8. a) Explain the generation of SSB signal using phase shift method. 7

   b) Calculate the percentage power saving when the carrier and one of the sidebands are suppressed in an AM wave modulated to a depth of 6
   a) 100% and
   b) 50 %

9. a) What are the major factors that influence the choice of Intermediate Frequency (IF). Draw two stage IF amplifiers and explain in brief. 7

   b) Explain the following terms. 7
   i) Image frequency and its rejection.
   ii) Double spotting.

OR

10. a) Draw practical diode detector circuit and explain in brief. State principles of AGC, draw characteristics of AGC. 7

    b) Define conversion transconductance. Draw circuit diagram of separately excited FET mixer and explain in brief. 7

11. a) Draw and explain Basic Reactance Modulator for FM generation. 7

    b) Draw and explain Foster Seeley discriminator. 6

OR

12. a) Explain generation of FM using Armstrong method. Draw its block diagram and phasor diagram. 7

    b) Draw and explain phase Discriminator. 6

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