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**RETEST EXAMINATION – 2019**

Semester : 4th (Old)

Subject Code : Et-401

**COMMUNICATION ENGINEERING – I**

Full Marks – 70

Time – Three hours

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

**Instructions :**

1. *All* questions of PART – A are compulsory.
2. Answer any *five* questions from PART – B

**PART – A**

Marks – 25

1. **Fill in the blanks with suitable word/words :** 1×10=10

   (a) Ring modulator is used for _____ modulation.

   (b) Electrical signals are broadly classified into _____ types.

[Turn over

(c) The current distribution in half wave dipole is _____ .

(d) PPM signal is _____ of PWM.

(e) In AM bandwidth is _____ the audio signal frequency.

(f) EM waves travel in the direction of _____ .

(g) Space wave propagation takes place within the frequency range of _____ to _____.

(h) The main advantage of PCM is lower _____ .

(i) The folded dipole antenna has an input impedance of _____ .

(j) VSWR in a short-circuited line equals _____ .

2. Write true or false : 1×10=10

(a) Efficiency of DSB-SC is 100%.

(b) A half wave dipole is an isotropic radiator.

(c) Reactance modulators are used to generate AM signals.



(d) Wideband FM can be generated by using Armstrong method.

(e) The range of AM reception is more than FM.

(f) The sky wave propagates in the VHF band.

(g) PAM signal can be demodulated using bandpass filter.

(h) In FM the frequency deviation is proportional to phase of modulating signal.

(i) The director in Yagi antenna is longer than the radiating element.

(j) Microwave link uses only line of sight propagation.

3. Choose the correct answer : 1×5=5

(a) The UHF waves are also called a

(i) Millimeter wave

(ii) Centimeter wave

(iii) Long wave

(iv) Short wave

(b) Demodulation is done at

(i) Transmitter

(ii) Receiver

(iii) Both (i) and (ii)

(iv) None of (i) and (ii)

(c) In phase modulation the modulation index is proportional to

(i) Carrier voltage

(ii) Modulating Frequency

(iii) Signal strength

(iv) Both (i) and (ii)

(d) FM has

(i) two sidebands

(ii) four sidebands

(iii) eight sidebands only

(iv) infinite sidebands

(e) Filter method is used for removing

(i) Amplitude

(ii) Carrier

(iii) Frequency variation

(iv) Sidebands





## PART – B

Marks – 45

4. (a) Define AM and FM. 2

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

(c) Distinguish between AM and FM. 2

5. (a) What are antenna arrays ? How it is formed ? 2

(b) Define the terms : Antenna gain, directive gain and bandwidth. 3

(c) Distinguish between resonant and non resonant antenna giving their radiation pattern. 4

6. (a) Define standing wave in transmission line. 2

(b) Explain briefly the losses in transmission line. 3

(c) Sketch standing wave of voltage and current along an open and short circuited transmission line. 4

7. (a) Name the different layers of ionosphere. 3

(b) Explain how this layers affect transmission of signal during day time and during night time. 4

(c) Give approximate frequency and distance range of skywave propagation. 2

8. (a) Give a neat diagram of electromagnetic spectrum. 4

(b) Distinguish between analog and digital signal with proper example. 5

9. Write and explain the different telephone exchanges you know. 9

10. **Write short notes on any *three* : 3×3 = 9**

**(a) Grounded antenna**

**(b) ISB system**

**(c) Impedence matching**

**(d) LOS propagation.**