

END SEMESTER / RETEST EXAMINATION-2020

(New Syllabus)

Semester - 4th

Subject Code : ET-401

COMMUNICATION ENGINEERING - I

Full marks – (Part-A – 25 + Part-B- 45) = 70

Time - Three hours

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

All questions of PART - A are compulsory.

Answer any five questions from PART - B.

PART- A

1. Fill in the blanks with suitable words.

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- a) Modulation index in FM signal varies inversely as the _____ frequency.
- b) Balanced modulator can generate _____ sidebands.
- c) Frequency modulation has _____ number of sidebands.
- d) In AM bandwidth is _____ the audio signal frequency.
- e) EM waves travel in the direction of _____.
- f) A short dipole is also called _____ doublet.
- g) A Marconi antenna is grounded antenna with a length equal to _____.
- h) Parallel wire line is also known as _____ line.
- i) SWR is the ratio of maximum _____ to minimum _____.
- j) Electrical signals are broadly classified into _____ types.

2. Write TRUE or FALSE.

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- a) Radio waves are EM waves.
- b) Space waves are also known as tropospheric waves.



- c) Shortwave travels as sky wave.
- d) Wavefront is basically a locus of point acquiring similar frequency.
- e) Velocity of EM waves depends on modulation method.
- f) Filter method is used for removing carrier.
- g) Waveguide cannot support a TEM mode.
- h) The modes that have the highest cutoff frequency is called the dominant mode.
- i) PAM is analog system.
- j) FM requires less bandwidth than AM.

3. Specify the correct answer.

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- a) Polarization of EM wave is due to -
 - i) Reflection ii) Transverse nature of EM Waves iii) Longitudinal nature of EM waves
- b) Demodulation is done at -
 - i) Transmitter ii) Receiver iii) Both (i) & (ii)
- c) In phase modulation the modulation index is proportional to -
 - i) Carrier voltage ii) Modulating Frequency iii) Signal strength
- d) In FM the frequency deviation is proportional to-
 - i) Modulating frequency ii) Amplitude of modulating signal iii) Both (i) & (ii)
- e) D layer of ionosphere occurs only during -
 - i) Day time ii) Night time iii) Summer time

PART-B

4. What is signal? What are the different types of signal? Discuss in detail. 1+2+6 = 9

5. a) Derive an expression for FM wave.

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