

Code No: EC3521

SRGEC-R20

II B.Tech II Semester Supplementary Examinations, January 2023

FUNDAMENTALS OF COMMUNICATION SYSTEMS

(Open Elective - I)

Time: 3 Hours**Max. Marks: 70**

Note: Answer one question from each unit.
All questions carry equal marks.

5 × 14 = 70M**UNIT-I**

1. a) Explain the concepts of bandwidth and frequency spectrum. (7M)
- b) Write the differences between baseband and bandpass signals. (7M)

(OR)

2. a) List the characteristics, applications, advantages and disadvantages of optical fiber cables. (7M)
- b) Classify different electronic communication systems based on nature of information signal and explain. (7M)

UNIT-II

3. a) Write the principle involved in TDM with a neat sketch. (7M)
- b) Explain the following primary communication resources. (7M)
(i) Transmitted power (ii) Bandwidth

(OR)

4. a) Write the principle involved in the conversion of analog signal into a digital signal. (7M)
- b) For a standard telephone circuit with a signal to noise power ratio of 1000 and a bandwidth of 5.4 kHz, determine the Shannon limit for information capacity. (7M)

UNIT-III

5. Explain about frequency spectrum and bandwidth of an amplitude modulated wave. (14M)

(OR)

6. a) Give the difference between linear modulation and over modulation. (7M)
- b) The carrier wave is represented by the equation $V_c(t) = 10 \sin \omega t$. Draw the waveform of an AM wave for modulation index of 0.5. (7M)

UNIT-IV

7. a) Draw the spectrum of single tone frequency modulated wave and explain. (7M)
- b) Explain the modulation index and the bandwidth for FM and PM systems. (7M)

(OR)

8. a) Draw the single tone phase modulated wave and explain it. (7M)
- b) Derive the equation for single tone phase modulated wave. (7M)

UNIT-V

9. a) With a neat block diagram, explain briefly about the elements of digital communication system. (7M)
- b) Write the advantages and disadvantages of a digital communication system. (7M)

(OR)

10. a) Explain working principle of ASK modulator with neat diagram. (7M)
- b) Draw ASK signal to transmit the data stream 1111000111. (7M)
