C 21523 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION, APRIL 2022

Electronics

ELE 4C 05—COMMUNICATION ELECTRONICS

(2019 Admission onwards)

Time : Two Hours Maximum : 60 Marks

Section A

Answer atleast **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall ceiling 24.

1. How many signals are required to effect modulation ? What are they ?
2. List two advantages of the modulation process compared to no modulation.
3. Define phase modulation.
4. Discuss on the bandwidth of an FM wave.
5. What is de-emphasis ?
6. Define Phase modulation.
7. A message signal made of multiple frequency components has a maximum frequency value of 8 kHz. Find out the minimum sampling frequency required according to sampling theorem.
8. Define quantization error.
9. What is pulse position modulation ?
10. Distinguish between coherent detection and non-coherent detection.
11. How is baud rate related to transmission bandwidth in ASK ?
12. How does differ FM differ from FSK ?

(8 × 3 = 24 marks)

Turn over

Section B

Answer atleast **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall ceiling 25.

13. How AM waves are detected ?

14. With the help of diagrams, explain a basic reactance modulator.

15. Find the carrier and modulating frequencies, the modulation index, and the maximum deviation of the FM represented by the voltage equation

$$v(t) = 20 \cos\left(8\pi \times 10^6\, t + 9 \sin\left(2\pi \times 10^3 t\right)\right).$$

16. Explain FDM.

17. Explain Companding.

18. With block diagrams, explain coherent binary FSK generation.

19. Explain demodulation of coherent BPSK.

(5 × 5 = 25 marks)

Section C

Answer any **one** *question.*
Each question carries 11 *marks.*

20. Write a note on Amplitude Modulation.

21. Explain PCM generation and detection.

(1 × 11 = 11 marks)