Turn Over

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B.Sc DEGREE (CBCS)) REGULAR/ IMPROVEMENT/ REAPPEARANCE / MERCY **CHANCE EXAMINATIONS, FEBRUARY 2025**

Fourth Semester

Core Course - EL4CRT12 - DIGITAL COMMUNICATION

(Common for B.Sc Electronics and Computer Maintenance Model III, B.Sc Electronics Model III)

2017 Admission Onwards

5CBDE675

Time: 3 Hours

Part A

Answer any ten questions. Each question carries 2 marks.

- 1. State the properties of information.
- 2. Define analog and digital communication.
- 3. List the advantages of DPCM compared to PCM.
- 4. List the Conditions at which a Delta modulation is possible.
- 5. What is meant by non-coherent receiver?
- Define PSK. 6.
- 7. Define QPSK.

- 8. Explain spread spectrum modulation.
- 9. Define direct sequence spread spectrum.
- 10. What is meant by ubiquitous network?
- 11. What are the different layers of a mobile computing architecture?
- 12. Explain the concept of mobile computing through internet.

 $(10 \times 2 = 20)$

Part B

Answer any six questions. Each question carries 5 marks.

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Max. Marks: 80



- 13. Calculate the entropy if bit zero occurs with probability of 1/4 and bit one occurs with probability of 3/4?
- 14. What are the advanatges and disadvantages of digital communication over analog communication?
- 15. Calculate the data rate required PCM transmission for a 4KHz analog signal with 8 bit anlog to digital converter. Also find sampling frequency, number of quantization levels?
- 16. Explain companding in detail and how does it improves the performance of PCM.
- 17. With neat diagram, explain the generation of differential encoded data from a given binary data?
- 18. With an example explain how the pseudo noise sequence is generated.
- 19. Explain frequency hopping spread spectrum.
- 20. Write short note on Policy Manager.
- 21. Compare LEO, MEO, and GEO.

(6×5=30)

Part C

Answer any **two** questions.

Each question carries **15** marks.

- 22. Explain in detail the different line coding schemes , with its advantages and disadvanatges.
- 23. With the help of a neat block diagram explain the time division multiplexing of digital signals.
- 24. With neat diagram, explain the generation of ASK and FSK. Compare them based on the bandwidth required.
- 25. What is meant by spread spectrum technology? How is it classified? Explain the different types in detail.

(2×15=30)