QP CODE: 25024391

25024391

Reg No : .....

Name : .....

M.Sc DEGREE (CSS) EXAMINATION, APRIL 2025

Fourth Semester

M Sc PHYSICS

ELECTIVE - PH800403 - COMMUNICATION SYSTEMS

2019 ADMISSION ONWARDS

78BE6A3C

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Draw the companding curves of PCM.
2. Discuss the concept of multiplexing. Why it is needed?
3. Explain amplitude shift keying.
4. What is PCN and PCS and state the difference?
5. Compare 2G and 3G mobile telephone standards.
6. List out the different antenna noises.
7. Optical fibers with low losses and reduced signal dispersion are wavelength dependent. Explain.
8. Write a note on Optical fiber end preparation.
9. What are the different bandwidth requirements for radar receiver?
10. What are the different applications of continuous wave Doppler radar system?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. How the trailing edges of PWM pulses are position modulated?
12. Briefly explain the handoff strategies with suitable diagram.
13. Discuss briefly any two techniques for improving coverage and capacity in cellular systems.
14. Give a brief explanation of geostationary satellite communication.
15. Discuss the different types of noise and their significance in the design of a satellitelink with necessary expression.

16. Explain (i) phase velocity (ii) group velocity in optical fibers.

17. Describe with the aid of simple ray diagrams: (a) the multimode step index fiber (b) the single-mode step index fiber. Compare the advantages of these two types of fiber for use as an optical channel.

18. Explain Beacon range equation.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain various digital codes.

20. Describe different major multiple access techniques used in mobile communication.

21. Compare stimulated Brillouin and stimulated Raman scattering in optical fibers and indicate the way in which they may be avoided in optical fiber communications.

22. Explain radar range equation. What are the different factors influencing the maximum range of radar?

(2×5=10 weightage)