SUBJECT CODE : 19PH/ME/CS45

B.Sc DEGREE EXAMINATION – APRIL 2022
BRANCH II– PHYSICS
FOURTH SEMESTER

COURSE   : MAJOR – ELECTIVE
PAPER   : COMMUNICATION SYSTEMS
TIME   : 3 HOURS   MAX MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS: **(10x 3 = 30)**

1. Why sound waves cannot be transmitted directly in space?
2. What is the importance of modulation factors in communication system?
3. What are three main mechanisms involved in propagation of radio waves?
4. What is line of sight propagation in data communication?
5. Mention any three applications of Radar system
6. What are main properties of a microwave?
7. A step index fibre has a numerical aperture of 0.16 and a core refractive index of 1.450. Calculate cladding refractive index.
8. Define the term numerical aperture.
9. What are the advantages of cellular system?
10. Write note on wireless communications.

SECTION – B
ANSWER ANY FIVE QUESTIONS: **(5 x 5 = 25)**
11. Explain amplitude modulation.
12. What is modulation? Why is modulation necessary in communication system?
13. Discuss ground wave propagation with suitable diagram.
14. How does a reflex klystron work?
15. Write short note on basic structure of optical fibre.
16. Distinguish between step index and graded index fibre.
17. Explain the process in making a call in mobile communication.

SECTION – C
ANSWER ANY THREE QUESTIONS: **(3 x 15 = 45)**
18. What is Frequency modulation (FM)? What do you understand by sideband frequencies in FM wave? Explain its advantages over amplitude modulation.
19. Explain the propagation of the Sky wave and explain the stratification in ionosphere during day and night time.
20. Explain a RADAR system with block diagram? Derive an expression for RADAR range equation?
21. Write a note on generation of wireless mobile communication.

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