Reg. No ..... Name **25P4030**

MSc DEGREE END SEMESTER EXAMINATION- MARCH 2025

SEMESTER 4 : PHYSICS

COURSE : **21P4PHYT15EL : COMMUNICATION SYSTEMS**

(For Regular - 2023 Admission and Supplementary 2022/2021 Admissions)

Duration : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1.	What is a communications satellite?	(U, CO 1)
2.	Mention a few functions performed by RADAR?	(An, CO 2)
3.	Explain DPCM in digital communication.	(A, CO 1)
4.	Define skew rays and meridional rays?	(A, CO 1)
5.	Define hard hand off.	(A, CO 1)
6.	Define pulse Doppler radars.	(A, CO 2)
7.	How do you characterize uplink and downlink in satellite communication?	(U, CO 1)
8.	What are the reasons for choosing Hexagonal cells in cellular systems?	(A, CO 1)
9.	State sampling theorem.	(A, CO 1)
10.	What are single-mode fibres?	(E, CO 1)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weights: 2**

11.	For pulse radar with a maximum unambiguous range of 60 km, what is the maximum allowable pulse repetition frequency?	(R, CO 2)
12.	Explain doppler effect employed in radar system.	(A, CO 2)
13.	Describe various multiplexing techniques in Digital Communication.	(A, CO 1)
14.	Differentiate hard and soft handoff?	(A, CO 1)
15.	Explain the Umbrella cell approach in mobile communication.	(A, CO 1)
16.	Describe the differences between step-index multimode fiber vs graded-index multimode fiber.	(A, CO 1)
17.	Write down the features of CDMA in Satellite networking.	(Cr)
18.	What are the features of LEO?	(U, CO 1)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Illustrate operation of cordless telephone system with the help of neat sketch	(A, CO 1)
20.	Describe working principle and applications of graded-index multimode fiber	(A, CO 1)
21.	With a block diagram, explain the basic principle of operation of RADAR system.	(E)
22.	Briefly describe PCM with the help of a block diagram and explain.	(A, CO 1)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	To understand the basic principles of different communication systems.	U	1, 3, 4, 5, 7, 8, 9, 10, 13, 14, 15, 16, 18, 19, 20, 22	33
CO 2	To understand the basic principles underlying radar and their applications	An	2, 6, 11, 12	6

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;