A–1190

Total Pages : 3 **Roll No. .....**

MPHY-609

M.Sc. Physics (MSCPH)

Communication System

Examination February, 2026

Time : 2:00 Hrs. Max. Marks : 35

Note* :–** This paper is of Thirty Five (35) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section–A

Long Answer Type Questions (2×9½=19)

***Note* :–** Section 'A' contains Five (05) Long-answer type questions of Nine and Half (9½) marks each. Learners are required to answer any *two* (02) questions only.

1. Discuss in detail with a neat diagram about two cavity Klystron. Write an expression for output power and efficiency.

2. What is radar ? Derive Radar range equations. Write the applications of Radar.

3. Write short notes on the following :

   (i) Antenna Theorem

   (ii) Gain of an Antenna

   (iii) Capture area of an Antenna

4. Define modulation and demodulation. What is the need of modulation ?

5. Assume the wave equation and its solution, derive the expression for voltage and current at any point on the transmission line.

Section–B

Short Answer Type Questions (4×4=16)

Note **:–** Section 'B' contains Eight (08) Short-answer type questions of Four (04) marks each. Learners are required to answer any *four* (04) questions only.

1. What do you mean by AM, FM and PM signals ?
2. Draw and Explain block diagram of ISB (independent sideband) transmitter.
3. Write the application of travelling wave tube (TWT).
4. Write down advantage and disadvantage of modulation.
5. Derive the receiver noise of the radar system.
6. Explain Moving Target Indicator (MTI) radar with a neat block diagram.
7. Explain Microwave antennas.
8. Explain suppressed carrier balanced modulation.

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