A-106

Total Pages : 3   Roll No. -------------

MPHY-609

Communication System

M.Sc. Physics (MSCPHY)

4th Semester, Examination 2024 (June)

Time: 2:00 hrs   Max. Marks: 35

Note : This paper is of Thirty five (35) marks divided into Two (02) Section 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)

Note : Section 'A' contains Five (05) long-answer-type questions of Nine and Half (9.5) marks each. Learners are required to answer any Two (02) questions only.

[2x9.5=19]

P.T.O.

Q.1.   Derive an expression for the exit velocity of electron beam in case of two cavity klystron.

Q.2.   What do you by Modulation? Describe briefly principle and working of single side band modulation.

Q.3.   Describe in details the radar transmitting and receiving system with reference to radar antennas.

Q.4.   Discuss the working principle of high Frequency antenna with diagram? What are its propagation characteristics?

Q.5.   What are the different types of Microwave antenna? Explain them with suitable diagram. Give advantages of Microwave antennas.

Section-B (Short-Answer-Type Questions)

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.

[4x4=16]

Q.1.   Briefly explain the working of reflex klystron.

Q.2.   What is Carson's rule for finding the Bandwidth of an FM (widebrand) signal?

Q.3.   Briefly explain the characteristics of a radio receiver.

Q.4.   What are basic properties of antenna?

Q.5.   Explain the working of microwave antenna.

Q.6.   Explain the basic principle of radar.

Q.7.   How does the Travelling wave tube (TWT) work?

Q.8.   For an FM signal, f_{max} is given by 1.8 MHZ. The total

frequency swing is given by 800 kHz. Find f_c,

Δf and f_{min}.

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