Roll No.							

25-PH-44-A

M.Sc. IV SEMESTER [MAIN/ATKT] EXAMINATION MAY - JUNE 2025

PHYSICS

Paper - IV

[Communication Electronics]

[Max. Marks : 75] *[Time : 3:00 Hrs.]* *[Min. Marks : 26]*

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt all five questions. Each question carries an internal choice.
Each question carries **15 marks.**

Q. 1 a) What is Double Side Band supressed carrier modulation ? Describe with necessary diagram ? **(10 Marks)**

b) Explain Vestigial Side Band Modulation ? **(05 Marks)**

OR

a) Define the process of Modulation ? Why it is necessary for the transmission of intelligence ? **(10 Marks)**

b) Explain envelope detector with block diagram. **(05 Marks)**

Q. 2 a) Explain the term surface wave, sky wave and space wave propagation. For radio wave propagation which is used ? **(10 Marks)**

b) Explain the term Virtual Height ? **(05 Marks)**

OR

a) What is Geostationary Satellite ? Explain in detail. Can it cover polar region? **(10 Marks)**

b) Explain Orbital Spacing. **(05 Marks)**

Q. 3 a) Compare ideal, natural and flat top sampling technique. **(10 Marks)**

b) What is Quantization of Signals ? Give its types. **(05 Marks)**

OR

a) Define and explain PAM its generation and detection. **(10 Marks)**

b) What is Differential PCM, Delta Modulation ? Explain. **(05 Marks)**

P.T.O.

Q. 4 What is matched filter in digital communication ? Find out the probability of error of matched filter. **(15 Marks)**

OR

Calculate the error probability for BPSK and BFSK digital modulation technique. **(15 Marks)**

Q. 5 Write short notes on **any two** of the following - **(7½ Marks each)**

i) SSB Modulation.

ii) Link modules in Satellite Communication.

iii) Sampling Theorem.

iv) Base band signal receiver.