This question paper contains **2** printed pages]

NA—40—2023

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2023

(New Course)

PHYSICS

Paper-II

(Mathematical Methods in Physics)

(Monday, 11-12-2023) **Time : 10.00 a.m. to 12.00 noon.**

Time—2 *Hours* *Maximum Marks*—40

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

1. Explain scalar triple product and vector triple product with proper examples. 15

Or

(*a*) Explain complex algebra for two complex number. 8

(*b*) Find $Z_1 + Z_2$ and $Z_1 \times Z_2$ 7

$Z_1 = 5+3i$

$Z_2 = 2+4i$

2. Evaluate coefficients of Fourier series a_0, a_n and b_n . 15

Or

(*a*) Explain application of chain rule. 8

(*b*) Explain rules for finding complementary function for linear homogenous partial differential equation. 7

P.T.O.

3. Write short notes on any *two* : 10

(*a*) Find Fourier series for square wave.

(*b*) Addition, substraction, multiplication of complex number and its complex conjugates.

(*c*) Condition for maxima and minima.

(*d*) Divergence and curl of vector.