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

NEPVA—2021—2024

FACULTY OF SCIENCE

B.Sc. (NEP) (First Year) (First Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

PHYSICS

SPHYCT–1101

(Fundamentals of Physics-I)

(Saturday, 14-12-2024) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—40

N.B. *:—* (*i*) *All* questions carry equal marks.

(*ii*) Q. No. **1** is compulsory.

(*iii*) Solve any *three* of the remaining five questions (Q. **2** to Q. **6**)

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

1. Solve the following questions (compulsory) : 10

(*a*) Define Newton's law of Gravitation and state the mathematical expression.

(*b*) Define density of liquid. Write its SI unit.

(*c*) Define sound intensity. Give its unit.

(*d*) Define intrinsic and extrinsic semiconductors.

P.T.O.

2. State and derive Newton's Law of Gravitation. 10

3. (*a*) State and prove Archimedes principle. 10

(*b*) Explain streamline and turbulent flow.

4. (*a*) State and prove Newton's formula for velocity of sound in air. 10

(*b*) Explain the effect of temperature and pressure on velocity of sound in air.

5. (*a*) Explain forward biasing in PN-junction diode. 10

(*b*) What is LED ? Explain its working.

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

(*a*) State *three* Kepler's laws of planetary motion.

(*b*) Explain pressure measurement in fluids

(*c*) Write a note on origin of sound.

(*d*) Write a note on *n*-type semiconductors.