NED UNIVERSITY OF ENGINEERING & TECHNOLOGY

FIRST YEAR(BACHELOR OF SCIENCE IN COMPUTER SCIENCE & INFORMATION TECHNOLOGY/ COMPUTER SCIENCE & INFORMATION TECHNOLOGY SPECIALIZATION IN ARTIFICIAL INTELLIGENCE/ DATA SCIENCE/ CYBER SECURITY)
FALL SEMESTER EXAMINATIONS 2022
BATCH 2022

Time: 3 Hours | **Dated:04-02-2023** | **Max.Marks:60**

Applied Physics - PH-122

CLO-2

1. **Discuss** the following with diagrams. (Max. Marks:15)
a. Working of laser
b. Working of P-N junction
2. **Explain:** (Max. Marks:15)
a. Black body radiation.
b. Compton effect

CLO-3

3. **Solve** the following problems: (Max. Marks:15)
a. A jet lands on an aircraft carrier at 72 m/s. **Determine** is its acceleration (assumed constant) if it stops in 1.5 s due to an arresting cable that snags the jet and brings it to a stop? If the jet touches down at position xi= 0, **find** is its final position?
b. **Find** average, average deviation, standard deviation, standard error and probable error for the following values of radius of curvature of the surface of convex lens measured with spectrometer.

Observations	Radius of curvature
1	12.20
2	12.41
3	12.32
4	12.25
5	12.35
6	12.45

c. Of the 600 mg of potassium in a large banana, 0.0112% is radioactive 30K, which has a half-life $T_{1/2}$ of 1.35×10^9 y. **What** is the activity of the banana? molar mass of potassium is 39.102 g/mol
4. **Derive** the following: (Max. Marks:15)
a. Magnetic field of solenoid.
b. The equation of acceleration for linear oscillator and also **determines** its angular frequency.