Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

End Term (Even) Semester Examination May-June 2025

Roll no.....

Name of the Program and semester: Diploma in Engineering (Semester II)
Name of the Course: Applied Physics-II
Course Code: DTPH-202

Time: 3 hour Maximum Marks: 100

Note:

(i) All the questions are compulsory.
(ii) Answer any two sub questions from a, b and c in each main question.
(iii) Total marks for each question is 20 (twenty).
(iv) Each sub-question carries 10 marks.

Q1. (2X10=20 Marks)
(CO-1)

a. What do you mean by wave motion? Define mechanical waves and its types.

b. Define the term Echo. A man standing 825 meters away from a cliff (steep rock) fires a gun. After how long will he hear its echo? Speed of sound in air is 330 m/s.

c. What do you mean by reverberation? Define reverberation time. Mention the methods to control the reverberation time in a big hall or auditorium.

Q2. (2X10=20 Marks)
(CO-2)

a. What do you mean by the refraction of light? Explain the reason for the phenomena of the refraction of light.

b. Define concave lens. The length of a concave lens is 15 cm. Determine the distance of the object to be placed, so that the image formed is 10 cm away from the lens.

c. What is a simple microscope? Explain its working and mention its few applications.

Q3. (2X10=20 Marks)
(CO-3)

a. What do you understand by electric potential? 27 drops of same size are charged at 220 V each. They coalesce to form a bigger drop. Calculate the potential of bigger drop.

b. What is a capacitor? Define capacitance. Discuss its unit and dimensional formula.

c. State and explains the Kirchhoff's law. Mention the basic principle of both the laws.

Q4. (2X10=20 Marks)
(CO-4)

a. What do you understand by conductor, insulator and semiconductor of electricity? Give two examples of each.

b. Explain the meaning of forward biasing and reverse biasing action for a p-n junction diode.

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c. What is photoelectric effect? Discuss the laws of photoelectric emission.

Q5. (2X10=20 Marks)
(CO-5)

a. What are Logic gates? Why we call them gate? Explain the basic gates in brief and write their Boolean expression.

b. Explain the working of LASER by drawing energy-level diagram.

c. What is superconductivity? Outline the difference between type-I and type-II superconductors.