Total No. of printed pages = 8

RETEST EXAMINATION (NEP)
NOVEMBER/DECEMBER 2025

Semester : 2nd (NEP)

Branch : All

Course Code : BS-202

Course Name : APPLIED PHYSICS - II

Full Marks – 60

Pass Marks – 24

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

(i) Objective questions (Question Nos. 1-3) are compulsory.

(ii) Answer rest of the questions as directed.

1. Fill in the blanks : $1 \times 5 = 5$

   (a) The size of a nucleus is approximately _____.

   (b) The upward force exerted by a fluid on an immersed body is called _____.

   (c) A convex lens is also called a _____ lens.

[Turn over

(d) The SI unit of magnetic field strength is _____.

(e) The _____ frequency is the minimum frequency of light required to eject electrons from a metal.

2. Write True or False : 1×5=5

(a) Vapour pressure of a liquid increases with temperature.

(b) All periodic motions are simple harmonic motions.

(c) LASER produces incoherent light.

(d) Pascal's law can be applied to liquids at rest only.

(e) Observed frequency increases when the source moves away from the observer.

3. Choose the correct answers : 1×5=5

(a) The SI unit of temperature is

(i) Celsius (ii) Fahrenheit

(iii) Kelvin (iv) Rankine

(b) Surface tension decreases with

(i) Decrease in temperature

(ii) Increase in temperature

(iii) Increase in pressure

(iv) Increase in volume

(c) Sound travels fastest in

(i) Air (ii) Water

(iii) Steel (iv) Vacuum

(d) Focal length of a concave lens is

(i) Positive (ii) Negative

(iii) Zero (iv) Infinite

(e) At the magnetic equator, the angle of dip is

(i) 0° (ii) 45°

(iii) 90° (iv) 180°.

4. (a) (i) Define elastic limit. 1

Or

(ii) A force of 10 N stretches a spring by 4 cm. What is the extension produced by 15 N ? 1

(b) Write two factors on which hydrostatic pressure depends. 2

(c) Write the relation between Celsius and Kelvin scales of temperature. 2

(d) (i) A steel wire of length 2 mand cross-sectional area $1m^2$ is stretched by a load of 2 kg. If the extension produced is 1 mm, calculate the Young's modulus of the material. 2

Or

(ii) What is a siphon ? State its working principle. 2

(e) Write one medical and one industrial application of nanoparticles. 2

5. (a) Write the expression for velocity of sound in a gas according to Newton's formula, defining each term used. 3

(b) (i) Write the difference between noise and music. 2

Or

(ii) Write the difference between Echo and Reverberation. 2

(c) Name two substances with high thermal conductivity. 2

(d) What is the difference between heat conduction and heat convection ? 2

6. (a) State the laws of reflection of light and illustrate them with a diagram. 3

(b) An object is placed 30 cm from a convex lens of focal length 15 cm. Find the position and nature of the image. 3

(c) (i) The refractive index of water is 4/3. Find the critical angle for water air interface. 2+1=3

Or

(ii) Define critical angle. Derive an expression for it in terms of refractive of the media. 3

7. (a) (i) Explain the concept of magnetic field lines with two important properties. 3

Or

(ii) Define magnetic permeability and susceptibility. How are they related ? 3

(b) Why does a freely suspended magnet always point in the north-south direction ? 3

(c) State the difference between α, β, and γ radiation. 3

8. (a) Explain with reasons : 3

(i) Water kept in an earthen pot becomes cool in summer.

(ii) Alcohol evaporates faster than water.

(b) State any three applications of lasers in daily life or technology. 3

(c) (i) An iron ball of mass 5 kg has a specific heat capacity of 460 J/kg.K. How much heat is required to raise its temperature from 25° C to 75° C ? 3

Or

(ii) Mention two factors on which the heat produced in a conductor depends according to Joule's law. 3

NOT FOR STUDENT USE

COURSE OUTCOME (CO)

Course Code : BS-202

Course Name : **APPLIED PHYSICS - II**

Questions No.	COs
1.	
(a)	CO5
(b)	CO1
(c)	CO3
(d)	CO4
(e)	CO5

Questions No.	COs
2.	
(a)	CO1
(b)	CO1
(c)	CO3
(d)	CO1
(e)	CO2
3.	
(a)	CO1
(b)	CO1
(c)	CO2
(d)	CO3
(e)	CO4
4.	
(a)	CO1
(b)	CO1
(c)	CO1
(d)	CO1
(e)	CO5

Questions No.	COs
5.	
(a)	CO2
(b)	CO2
(c)	CO1
(d)	CO1
6.	
(a)	CO3
(b)	CO3
(c)	CO3
7.	
(a)	CO4
(b)	CO4
(c)	CO5
8.	
(a)	CO1
(b)	CO 3
(c)	CO1