

Total No. of printed pages = 6

**END SEMESTER (REGULAR/RETEST) EXAMINATION
MAY/JUNE 2026**

Semester : 2nd

Branch : Common

Course Code : BS-202 (NEP)

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.

Instruction : All questions are compulsory.

1. Choose the correct options : $1 \times 5 = 5$
- (a) Free surface of a liquid has a tendency to contract and minimize its surface area. This is due to
- (i) Surface Tension
 - (ii) Viscosity
 - (iii) Elasticity
 - (iv) None of the above
- (b) If the listener moves away from the source of sound, the frequency
- (i) Decreases
 - (ii) Increases
 - (iii) Remains same
 - (iv) Changes between high and low periodically

[Turn over

- (c) Nano materials are between the dimensions
- (i) 1 to 1000 nanometers
 - (ii) 1 to 10 nanometers
 - (iii) 1 to 100 nanometers
 - (iv) 1 to 10000 nanometers
- (d) The mode of heat transfer that does not need a medium is
- (i) Radiation
 - (ii) Convection
 - (iii) Conduction
 - (iv) None of the above
- (e) X Rays are deflected by
- (i) Magnetic field
 - (ii) Electric field
 - (iii) Both
 - (iv) Neither

2. Fill in the blanks

$$1 \times 5 = 5$$

- (a) Angle of Dip is _____ at equator.
- (b) The stress required to double the length of a wire Young's Modulus Y is _____
- (c) In SHM, the velocity is minimum at _____ position.
- (d) A _____ image can be obtained on a screen Angle of Dip at equator is _____.
- (e) Temperature 67°C is _____ in Kelvin.

3. True or False :

$1 \times 5 = 5$

- (a) In CGS system, density of a substance becomes equal to specific gravity.
- (b) Sound is a transverse wave.
- (c) Incident angle is smaller than Critical angle whenever total internal reflection occurs.
- (d) Two Magnetic lines never intersect each other.
- (e) Laser is a coherent and monochromatic light.

4. (a) Define Stress and Strain.

2

(b) State and explain Pascal's law of Transmission of liquid.

2

(c) (i) What would be the pressure at a depth of 10 m in water if density of water is 1 g/cm^3 ?

2

Or

(ii) A piece of metal weigh 100 gm in air and 88 gm in a liquid of specific gravity of 1.5. Find specific gravity of metal.

(d) Write any two applications of nano materials.

1

(e) Write the factors on which evaporation depends.

2

5. (a) (i) Distinguish between heat and temperature on the basis of molecular theory.

2

Or

(ii) Explain the anomalous behaviour of water.

- (b) Define (any *three*) 3
- (i) Calorie
 - (ii) Specific Heat
 - (iii) Coefficient of linear expansion
 - (iv) Latent heat.
- (c) When 200 gram of water at 50 C is poured with a copper calorimeter at 20 C. The final temperature becomes 25 C. Find the thermal capacity of calorimeter. 3
6. (a) Define periodic motion. How velocity of Sound change with density? 1+1=2
- (b) Write Newton's formula of velocity of sound. 1
- (c) Sound travels in air with a speed of 330 m/s. Calculate the frequency if wavelength 30 m. 2
- (d) Differentiate between Reverberation and Echo OR between Progressive waves and stationary waves. 2
- (e) State Snell's Law. If Focal length of convex lens is 40 cm. What is the power of the lens? 1+1=2
7. (a) What is an optical fibre? 1
- (b) With neat ray diagram, show the formation of real image by Convex Lens. 2
- (c) (i) An object is placed in front of a concave mirror of radius of curvature of 60 cm at a distance of 10 cm. Find the position, nature and magnification of the image formed. 3
- Or
- (ii) An ray of light passing through a glass prism of prism angle 60° undergoes a minimum deviation of 30° . Calculate the velocity of light in glass (velocity of light in air is 3×10^8 m/s).

- (d) (i) Define magnetic permeability. 1+2
 (ii) Write the different types of magnetic substance based on permeability.

8. (a) (i) State and explain inverse square law of magnetism. 3

Or

- (ii) Derive the expression of magnetic intensity due to magnetic dipole on end on position.
 (b) (i) State photoelectric effect. 1+2=3
 (ii) Derive Einsteins Photoelectric equation.
 (c) Explain the principle of laser. 2
 (d) Define binding energy and write the relation between binding energy and mass defect. 2

Course Outcome :

Branch : Common

Course Code : BS-202 (NEP)

APPLIED PHYSICS II

Question No.		CO
1.	a	1
	b	2
	c	1
	d	1
	e	5

Question No.		CO
2.	a	4
	b	1
	c	2
	d	3
	e	1
3.	a	1
	b	2
	c	3
	d	4
	e	5
4.	a	1
	b	1
	c	1
	d	1
	e	1
5.	a	1
	b	1
	c	1
6.	a	2
	b	2
	c	2
	d	2
	e	3
7.	a	3
	b	3
	c	3
	d	4
8.	a	4
	b	5
	c	5
	d	5