Physics (New Scheme) | **(INTER PART I)-318-(IV)** | **PAPER: I**
Time: 20 Minutes | **Code: 6477** | **Marks: 17**

OBJECTIVE

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank.

1- 1- The cross product of two anti-parallel vectors is:
(A) 0 (B) 1 (C) Maximum (D) Negative

2- Michelson interferometer can be used to find:
(A) wavelength of light (B) wavelength of sound (C) velocity of sound (D) velocity of light

3- The magnifying power of an astronomical telescope is 10. If the focal length of objective is 100 cm then what is the focal length of eye-piece?
(A) 10 cm (B) 100 cm (C) 1000 cm (D) 5 cm

4- When speed of a body is doubled then its:
(A) K.E is doubled (B) P.E is doubled
(C) acceleration is doubled (D) momentum is doubled

5- When temperature of source and sink of a heat engine becomes equal then the entropy change will be:
(A) zero (B) minimum (C) maximum (D) negative

6- The distance between two consecutive crests is called:
(A) displacement (B) amplitude (C) wave front (D) wavelength

7- If a body of mass 1kg is allowed to fall freely then its weight becomes:
(A) 1 N (B) 9.8 N (C) 980 N (D) zero

8- If the time period of a pendulum is 2 seconds then its frequency will be:
(A) 1 Hz (B) 2 Hz (C) 0.5 Hz (D) 0.25 Hz

9- If blue light is used as compared to red light then fringe spacing:
(A) increases (B) decreases (C) remains same (D) becomes zero

10- If $\vec{A} = 2\hat{i} + 3\hat{j} - \hat{K}$ and $\vec{B} = 4\hat{i} + 6\hat{j} - 2\hat{K}$. The angle between them will be:
(A) 0^o (B) 45^o (C) 60^o (D) 90^o

11- Error in the measurement of radius of sphere is 1%. The error in the calculated value of its area is:
(A) 1 % (B) 2 % (C) 3 % (D) 4 %

12- If the mass of a body is doubled, then acceleration becomes:
(A) one fourth (B) half (C) double (D) constant

13- The diastolic pressure of a normal healthy person is:
(A) 70 to 75 torr (B) 75 to 80 torr (C) 80 to 85 torr (D) 70 to 80 torr

14- If a stretched string is 2m , and it has 2 loops of stationary waves then wavelength is:
(A) 4 m (B) 3 m (C) 2 m (D) 1 m

15- Which one of the following processes is irreversible?
(A) slow compression of an elastic spring (B) slow evaporation of a substance in an isolated vessel
(C) slow compression of a gas (D) a chemical explosion

16- The dimensions of centripetal force are:
(A) $[MLT^{-1}]$ (B) $[ML^2T^{-2}]$ (C) $[MLT^{-2}]$ (D) $[ML^{-2}T^{-2}]$

17- Work has the same dimensional formula as:
(A) torque (B) momentum (C) force (D) angular acceleration

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Physics (New Scheme) **(INTER PART I)-318** **PAPER: I**
Time: 2:40 Hours **SUBJECTIVE** **Marks: 68**

Note: Section I is compulsory. Attempt any Three (3) questions from Section II.

SECTION I

2. Write short answers to any Eight questions: **(2 x 8 = 16)**

i- Define metre and kilogram.
ii- What is meant by scientific notation? Explain.
iii- How do you assess the total uncertainity in the final result for multiplication and division? Explain with example.
iv- Write down the two uses of dimensional analysis.
v- To get the sum of two vectors equal to null vector, what are conditions?
vi- What is the orientation of vector $\overline{R}$ when R_x and R_y have opposite signs?
vii- If $\vec{A} = 4\hat{i} + 3\hat{j}$ then find $\hat{A}$.
viii- How the acceleration and distance covered by a body can be measured from velocity-time graph?
ix- State Newton's third law of motion and give its two examples.
x- What are the circumstances for which the velocity and acceleration of a car are i) parallel , ii) perpendicular to each other?
xi- Explain, how the swing is produced in a fast moving tennis ball?
xii- What is meant when we say fluid is non-viscous and incompressible?

3. Write short answers to any Eight questions: **(2 x 8 = 16)**

i- Calculate the velocity of a body with which it should be projected upward so that it does not come back to earth.
ii- An object has 1 J of potential energy. Explain what does it mean?
iii- How can you calculate work done by a force acting on an object from force-displacement graph?
iv- Derive the relation between radian, degree and revolution.
v- Give an example to illustrate law of conservation of angular momentum.
vi- What is meant by moment of inertia? Explain its significance?
vii- Describe some common phenomena in which resonance plays an important role.
viii- Does frequency depend on amplitude for harmonic oscillators?
ix- What happens to the period of simple pendulum if length is doubled?
x- Why does sound travel faster in solids than in gases?
xi- Is it possible for two identical waves travelling in the same direction along a string to give rise to a stationary wave?
xii- What do you mean by "Sonar Technique"?

4. Write short answers to any SIX questions: **(2 x 6 = 12)**

i- How would you distinguish between the unpolarized light and polarized light?
ii- An oil film spreading over a wet footpath shows colours. Explain how does it happen?
iii- Define diffraction of light.
iv- Specific heat of a gas at constant pressure is greater than specific heat at constant volume. Why?
v- Is it possible to construct a heat engine that will not expel heat into the atmosphere? Explain.
vi- What is a Diesel engine? Explain.
vii- Give any four postulates of kinetic theory of gases.
viii- Draw the schematic diagram of refrigerator.
ix- How the power is lost in optical fibre through dispersion?

(Turn Over)

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