No. of Printed Pages/Questions:2/12

O.P.JINDAL SCHOOL, SAVITRI NAGAR
PERIODIC TEST –I (Round-1) **(2026-27)**

CLASS-XI
SUBJECT-PHYSICS

MAX.MARKS-20
MAX.TIME-1 Hour

General Instruction:-

(i)All questions are compulsory .There are 12 questions in this question paper with internal choice.

(ii) SECTION –A: Question numbers 1 to 5 are MCQs, and question number 6 is assertion and reason carrying 1 mark each.

(iii) SECTION –B: Question numbers 7 to 10 are short answer questions carrying 2 marks each.

(iv) SECTION –C: Question numbers 11 and 12 are long questions carrying 3marks each.

(v)There will be internal choices in some of the question of section B and section C.

SECTION A

Q1. The velocity 'v' (in cm/s) of a particle is given in terms of time 't' (in s) by the equation $v = pt + \frac{q}{t+r}$. The dimensions of p, q and r are

	p	q	r
(a)	L^2	T	LT^2
(b)	LT^2	LT	L
(c)	LT^{-2}	L	T
(d)	L	LT	T^2

Q2. The number of significant figures in 0.005060 is:

(a) 3 (b) 4
(c) 5 (d) 6.

Q3. The dimensions of $\frac{a}{b}$ in the equation $P = \frac{a-t^2}{bx}$ (where P is pressure, x is distance, and t is time) are:

(a) $[M^1 L^0 T^{-2}]$ (b) $[M^1 L^1 T^{-2}]$
(c) $[M^0 L^2 T^{-1}]$ (d) $[M^1 L^{-2} T^{-2}]$

Q4. The number of significant figures in 0.0006032 and 6.032×10^4 are respectively:

(a) 4 and 4 (b) 7 and 4
(c) 4 and 5 (d) 8 and 4

Q5. The dimensional formula for Refractive Index (n) is:

(a) $[M^1 L^1 T^{-1}]$ (b) $[M^0 L^0 T^{-1}]$
(c) $[M^0 L^0 T^0]$ (d) $[M^1 L^{-3} T^0]$

Q6. Assertion (A) and Reason (R) type questions. Given below are the two statements labelled as Assertion (A) and Reason (R). Select the most appropriate answer from the options given below.

Assertion (A):A dimensionally correct equation may not be a physically correct equation.

Reason (R): The numerical constants in a formula are dimensionless and cannot be determined by dimensional analysis.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is NOT the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

SECTION B

Q7. Attempt either (A) or (B):

(A):

Find The dimensional formula of:

$$\frac{\text{Energy}}{\text{Power} \times \text{Time}}$$

OR

(B):

If E ,m ,L and G denote energy, mass, angular momentum and gravitational constant respectively, then find the dimension of a quantity $\frac{EL^2}{m^5G^2}$?

Q8. Find the numerical value of 30N in terms of new system where mass is 5kg , length is 6m and time is 8 seconds.

Q9. A student measures the distance 'd' as 10.25 m and time 't' as 2.5 s. Find the velocity up to correct significant figures.

Q10. Attempt either (A) or (B):

(A):

If the velocity of a wave depends on tension (T) and mass per unit length (μ), use dimensional analysis to find the relation.

OR

(B):

If pressure P, velocity v and time T are taken as the fundamental (base) quantities, find the dimensional formula of force.

SECTION C

Q11. The frequency (f) of a vibrating string depends on its length (L), the tension (T) in the string, and its mass per unit length (μ) .Using the method of dimensions, derive an expression for frequency.

Q12. Attempt either (A) or (B):

(A):

(i) Explain the limitations of dimensional analysis with at least three points.

(ii)Round off 12.3456 to 3 significant figures .

OR

(B):

If c is the velocity of light , h is planck's constant and G is the gravitational constant are taken as fundamental quantities ,then find the dimensional formula of mass.

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