No. of Printed Pages/Questions:3/12

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PERIODIC TEST –I (Round-2) **(2025-26)**

CLASS-XI **MAX.MARKS-20**

SUBJECT-PHYSICS **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 6 are MCQs , 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 vectors from origin to the points A and B are A = $3i - 6j + 2k$ and B = $2i + j - 2k$ respectively. The area of the triangle OAB be

(a) $\frac{5\sqrt{17}}{2}$ (b) $\frac{2\sqrt{17}}{5}$

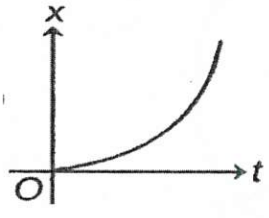
(c) $\frac{3\sqrt{17}}{5}$ (d) $\frac{5\sqrt{17}}{3}$

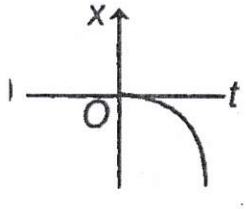
Q2. The position of a particle as a function of time t sec, is given by $x(t) = at + bt^2 - ct^3$ where a, b and c are constants. When the particle attains zero acceleration, then its velocity will be

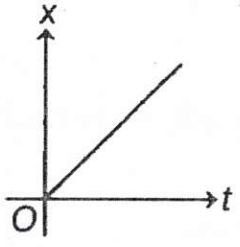
(a) $a+\frac{b^2}{4c}$ (b) $a+\frac{b^2}{c}$

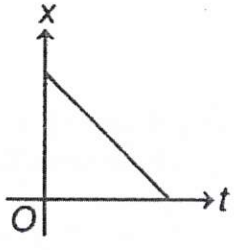
(c) $a+\frac{b^2}{2c}$ (d) $a+\frac{b^2}{3c}$

Q3. Which of the following graph represents motion with uniformly decelerated?

(a)


(b)


(c)


(d)


Q4. If A = 2i +4j+4k and B =4i +2j−4k are two vectors. Then what is the angle between them

(a) 0 (b) $\frac{\pi}{2}$

(c) $\frac{\pi}{4}$ (d) $\frac{\pi}{3}$

Q5. A large number of bullets are fired in all the directions with same speed U m/s. What is the maximum area on the ground on which these bullets will spread?

(a) $\frac{\pi U^2}{g}$ (b) $\frac{\pi U^4}{g^2}$

(c) $\frac{\pi U^4}{g^2}$ (d) $\frac{\pi U^2}{g^2}$

Q6. A body is projected with a velocity of 30 m/s at an angle of 30^0 with the vertical. The maximum height of projectile will be(Take g = 10ms^{-2})

(a) 33.75 m (b) 79.53 m

(c) 11.25 m (d)82.54 m

SECTION B

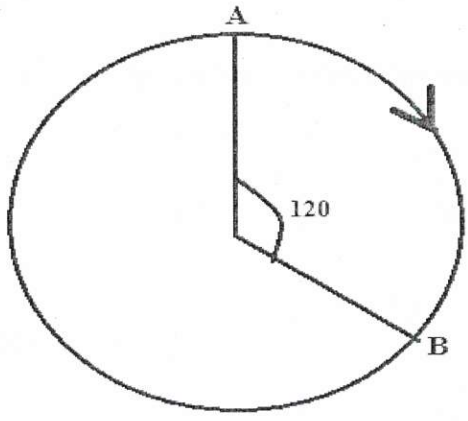
Q7. A tennis ball is dropped on the floor from a height of 9.8m. It rebounds to a height of 5.0 m. Ball comes in contact with the floor for 0.2 second. Find the average acceleration during contact .(Take g= 9.8ms^{-2})

OR

Prove the following equation of motion through the method of calculus.

$$S = ut + \frac{1}{2}at^2$$

Q8. (i) As shown in the figure, a particle is moving with constant speed π ms^{-1}.Considering its motion from A to B , find the magnitude of average velocity?



(ii) Find the ratio of the distances travelled by a freely falling body in the 1st, 2nd, 3rd and 4th second?

Q9. Find the vector projection of 5i−4j+k along the vector 3i−2j+4k.

Q10. A projectile has the same range R when the maximum height attained by it is either H_1 or H_2. Find the relationship between R, H_1 and H_2.

OR

From the top of a building 19.6 m high, a ball is projected horizontally. After how long does it strike the ground? If the line joining the point of projection to the point where it hits the ground makes an angle of 45^0 with the horizontal, what is the initial velocity of the ball? (Take g= $9.8ms^{-2}$)

SECTION C

Q11. (i)State the triangle law of vector addition. Also draw its vector addition.
(ii) If A = i + j + k and B = − i −j − k, then what is the angle made by (A - B) with A?

OR

(i)Find the angle made by Vector P = 6i+ $4\sqrt{2}$j +$4\sqrt{2}$ k with X –axis and Z –axis?
(ii)The (x,y,z) coordinates of two points A and B are (0,4,-2) and (-2,8,-4) respectively. Find the displacement vector from A to B?

Q12. From a point on the ground at a distance of 15 m from the foot of a vertical wall, a ball is thrown at an angle of 45° which just clears the top of the wall and afterward strikes the ground at a distance 5 m on the other side. Find the height of the wall?
(Take g = $9.8ms^{-2}$).

OR

The equation of trajectory of a projectile is given by $y = x - \frac{x^2}{16}$ then find:

(i)angle of projection
(ii)horizontal range

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