

NEW STANDARD ACADEMY

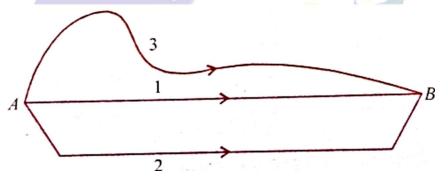
Date : 15-07-24

CLASS : 09TH

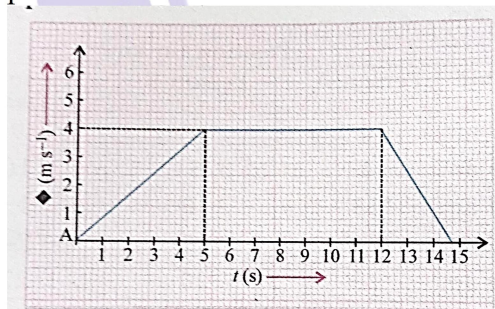
Marks: 80
Time: 3 HRS

PHYSICS

1. What is the numerical ratio of average velocity to average speed of an object when it is moving along a straight path ?
2. An object starts with initial velocity u and attains final velocity v . The velocity is changing at a uniform rate. What is the formula for calculating average speed in this situation?
3. A person standing at A goes B by following any of the paths 1,2, or 3. Which path can we measure to find the average velocity?



4. The velocity-time graph of a truck is plotted below:



- (a) Calculate the magnitude of displacement of the truck in 15 seconds.
 - (b) During which part of the journey was the truck decelerating?
 - (c) Calculate the magnitude of average velocity of the truck.
5. What can you say about the motion of an object if its speed-time graph is a straight line parallel to the time axis?
 6. What is the quantity which is measured by the area occupied below the velocity-time graph?

7. When a motor car makes a sharp turn at high speed, we tend to get thrown to the one side of the car, why
8. A motorcyclist drives from A to Stickform speed of 20 km h^{-1} and returns back with speed of 30 km h^{-1} . Find his average speed.
9. An object is dropped from rest at a height of 160 m and simultaneously another object is dropped from rest at a height 100 m. What is the difference in their heights after 2 s if both the objects drop with same accelerations? How does the difference in heights vary with time?
10. An electron moving with a velocity of 10^5 m s^{-1} enters into a uniform electric field and acquires a uniform acceleration of 10^4 m s^{-2} in the direction of its initial motion. (i) Calculate the time in which the electron would acquire a velocity double of its initial velocity. (ii) How much distance the electron would cover in this time ?

CHEMISTRY

1. What are the characteristics of the particles of matter?
2. What are the two ways to classify matter? How is matter classified on physical properties?
3. Discuss the factors affecting diffusion.
4. Convert the following temperatures on Celsius scale.
 - a) 300K
 - b) 137K
5. Define latent heat of vaporization of water. What is its value?
6. Give two reasons to justify:
 - (a) Water at room temperature is a liquid
 - (b) An iron almirah is a solid at room temperature.
7. What is the effect of the following on the rate of diffusion ?
 - a) Temperature
 - b) Density of liquid.

8. Match the following

Column I		Column II	
A	Pressure	P	m^3
B	Density	Q	pascal
C	Temperature	R	kg/m^3
D	Volume	S	K

9. Ice has cooling effect whereas steam causes severe burns. Explain.
10. Why is kinetic energy of liquids more than solids?

BIOLOGY

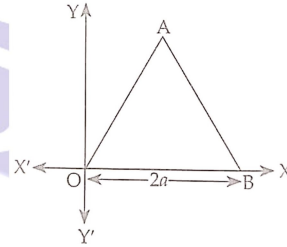
1. What factors may be responsible for loss of grains during storage?
2. What management practices are common in dairy and poultry farmings?
3. Cultivation practices and crop yield are related to environmental condition. Explain.
4. What do you understand by composite fish culture?
5. Name four varieties of honeybee. Why is the Italian bee variety used for commercial honey production?
6. Describe the nutritional values of animal products.
7. Compare the use of manure and fertilizers in maintaining soil fertility.
8. What is genetic manipulation? How is it useful in agricultural practices?
9. What are GM crops? Name any one such crop which is grown in India.
10. Discuss why pesticides are used in very accurate concentration and in very appropriate manner?

MATHS

1. If a and b are rational numbers and $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a - b\sqrt{3}$, find the values of a and b .
2. If $2^x = 3^y = 12^z$, prove that $x = \frac{2yz}{y-z}$
3. If $(3x-2)$ is a factor of $3x^3 + x^2 - 20x + 12$, find the other factors
4. Factorise the cubic polynomials $x^3 + x^2 - 4x - 4$
5. When a polynomial $p(x)$ is divided by

$(x - 1)$, the remainder is 5, and when it is divided by $(x - 2)$ the remainder is 7. Find the remainder when $f(x)$ is divided by $(x - 1)(x - 2)$.

6. The adjoining figure shows an equilateral triangle OAB with each side = $2a$ units. Find the coordinates of the vertices.



7. If the coordinates of a point M are $(-2, 9)$ which can also be expressed as $(1+x, y^2)$ and $y > 0$, then find in which the quadrant do the following points lie: $P(y, x)$, $Q(2, x)$, $R(x^2, y-1)$, $S(2x, -3y)$.
8. A part of monthly expenses of a family on milk is fixed which is 2600 and the remaining varies with the quantity of milk taken extra at the rate of ₹ 52 per litre. Taking the quantity of milk required extra as x litres and the total expenditure on milk as y , write a linear equation in standard form representing the above information.
9. If $x=1$ and $y=6$ is a solution of the linear equation $8x - ky + k^2 = 0$ find the values of k .
10. If $x^2 + \frac{1}{x^2} = 14$, then find the value of $x^3 - \frac{1}{x^3}$.