NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 9(BIOLOGY) DPP (Academy) 08/07/2024

1. Who gave the fluid mosaic of plasma membrane?
2. What is the composition of plasma membrane?
3. Can you Name the two organelles we have studied that contain their own genetic material.
4. Where are proteins synthesized inside the cell?
5. Why are lysosomes known as suicidal bags?
6. Which all organelle is known as the power house of the cell?
7. Name the cell organell which are covered by a single membrane?
8. Which cell organelles known as kitchen of the cell.
9. Which type of protein involve in plasma membrane
10. Which type of litoid involve in plasma membrane
11. Which cell organelle is double membrane bound
12. Name the largest unicellular plant cells.
13. Name the Eukaryotic cells which laek nuelues.
14. Who discovered first plant cell.
15. What is diffusion?
16. What is Osmosis?
17. What is Passive transport
18. What is active transport
19. What is the function of plasma membrane?
20. What is the full form of ATP.

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CLASS 09 (CHEMISTRY) DPP (Academy) 08/07/2024

1. The temperature on Kelvin scale is 270 K. What is the temperature on Celsius scale?
2. Boiling point of methanol is 64°C. What is the boiling point on Kelvin scale?
3. Convert the following temperatures on Kelvin scale.(a) 27°C (b)-27 °C .
4. Convert the following temperatures on Celsius scale. (a) 250 K (b) 273 K
5. Why does steam cause more severe burns than boiling water? or Why steam at 100°C is better for heating purposes than boiling water at 100°C?
6. Why do naphthalene balls kept in stored clothes disappear after some time and no residue is left?
7. Why does the temperature not change during the melting of a solid (such as ice) or boiling of a liquid (such as water) even though heat energy is supplied continuously?
8. What are the two types of latent heat?
9. Define latent heat of fusion of ice. What is its value?
10. Define latent heat of vaporisation of water. What is its value ?
11. Why and which contains more heat, 1 kg ice at 0°C or 1 kg water at 0°C?
12. Why and which contains more heat, 1 kg water at 100°C or 1 kg steam at 100°C?
13. Define the term condensation.
14. Define the term freezing.
15. Why does a desert cooler cool better on a hot dry day?
16. How does the water kept in an earthen pot (matka) become cool during summer?
17. Why does our palm feel cold when we put some acetone or petrol or perfume on it?
18. Why are we able to sip hot tea or milk faster from a saucer rather than a cup?
19. What type of clothes should we wear in summer?
20. Ice has cooling effect whereas steam causes severe burns. Explain.

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CLASS 9(PHYSICS) DPP (Academy) 08/07/2024

1. Why is it advised to tie any luggage kept on the roof of a bus with a rope?
2. A batsman hits a cricket ball which then rolls on a level ground. After covering a short distance, the ball comes to rest. The ball slows to stop because:
   (a) The batsman did not hit the ball hard enough
   (b) Velocity is proportional to the force exerted on the ball
   (c) There is a force on the ball opposing the motion
   (d) There is no unbalanced force on the ball, so the ball would want to come to rest.
3. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20 s. Find its acceleration. Find the force acting on it if its mass is 7 metric tonnes.
4. A stone of 1 kg is thrown with a velocity of 20 ms^{-1} across the frozen surface of a lake and comes to rest after travelling a distance of 50 m. What is the force of friction between the stone and the ice?
5. A 8000 kg engine pulls a train of 5 wagons, each of 2000 kg along a horizontal track. If the engine exerts a force of 40,000 N and the track offers a friction force of 5000N, then calculate:
   (a) the net accelerating force
   (b) the acceleration of the train and
   (c) the force of wagon 1 on wagon 2.
6. An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle and the road if the vehicle is to be stopped with a negative acceleration of 1.7 ms^{1}?
7. What is the momentum of an object of mass m, moving with velocity v?
8. A hockey ball of mass 200 g travelling at 10 ms^{1} is struck by a hockey stick so as to return it along its original path with a velocity at 5 ms^{1}. Calculate the change of momentum occurred in the motion of the hockey ball by the force applied by the hockey stick.
9. A bullet of mass 10g travelling horizontally with a velocity of 150 ms^{-1} strikes a stationary wooden block and comes to rest in 0.03s. Calculate the distance of penetration of the bullet into the block. Also calculate the magnitude of the force exerted by the wooden block on the bullet.
10. An object of mass 1 kg travelling in a straight line with a velocity of 10 ms^{-1} collides with and sticks to a stationary wooden block of mass 5 kg. Then they both move off together in the same straight line. Calculate the total momentum just before the impact and just after the impact. Also, calculate the velocity of the combined object.
11. An object of mass 100 kg is accelerated uniformly from a velocity of 5 ms^{-1} to 8 ms^{-1} in 6 s. Calculate the initial and final momentum of the object. Also, find the magnitude of the force exerted on the object
12. How much momentum will a dumb-bell of mass 10 kg transfer to the floor if it falls from a height of 80 cm? Take its downward acceleration to be 10 ms^{-2}.
13. A hammer of mass 500g moving at 50 ms^{1} strikes a nail. The nail stops the hammer in a very short time of 0.01s. What is the force of the nail on the hammer?
14. A motorcar of mass 1200 kg is moving along a straight line with a uniform velocity of 90 km/h Its velocity is slowed down to 18 kmh^{1} in 4s by an unbalanced external force. Calculate the acceleration and change in momentum. Also calculate the magnitude of the force required.
15. Why do you fall in the forward direction when a moving bus brakes to a stop and fall backwards when it accelerates from rest?
16. If action is always equal to the reaction, explain how a horse can pull a cart?
17. Explain, why is it difficult for a fireman to hold a hose, which ejects large amount of water at a high velocity?
18. A javelin throw is marked foul if an athlete crosses over the line marked for throw. Explain why the athletes often fail to stop themselves before the line.
19. Two similar vehicles are moving with same velocity on the road, such that one of them is loaded and the other one is empty. Which of the two vehicles will require larger force to stop it in the same distance?
20. Hit on a wall and a piece of sponge with nearly the same force. Did you succeed in doing so

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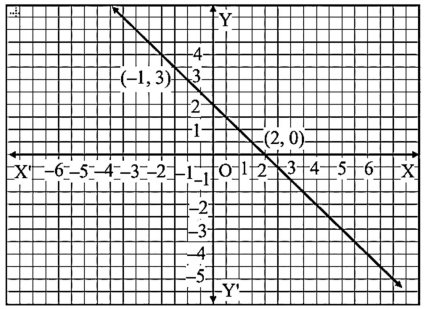
CLASS 9(MATH'S) DPP (Academy) 08/07/2024

1. Write the three solutions for each of the following (i) $x = 9y$ (ii) $x + 3y = 6$ (iii) $2x + \pi y = 3.4$
2. Find the solutions of the form $x = a$, $y = 0$ and $x = 0$, $y = b$ for the following equations : $2x + 5y = 10$ and $2x + 3y = 6$. Is there any common solution?
3. Check which of the following are solutions of the equation $2x – y = 6$ and which are not : (i) (3, 0) (ii) (0, 6) (iii) (2, –2)
4. If $x = –1$, $y = 2$ is a solution of the equation $3x + 4y = k$, find the value of k.
5. Find the value of λ, if $x = -\lambda$ and $y = \frac{5}{2}$ is a solution of the equation $x + 4y – 7 = 0$
6. If $x = 2\alpha + 1$ and $y = \alpha – 1$ is a solution of the equation $2x – 3y + 5 = 0$, find the value of α.
7. Find the value of a & b if (–1, 2) is solution of $ax + y + 1 = 0$ and $2x + by + 8 = 0$.
8. Draw the graph of (i) $2y – x = 9$ (ii) $2x – 3y = 15$
9. Represent geometrically $3x + 15 = 0$ on (i) the number line (ii) on Cartesian plane
10. Draw the graph of line $2y – 7 = 0$ in (i) form of 1 variable (ii) in form of two variables
11. Find the value of x for which $y = 20$ is a solution of the equation $5x + 20y = 200$.
12. Find the condition such that ordered pair (m, n) satisfies the equation $ax + by + c = 0$.
13. Express x in terms of y given that $3x + 2y = 5$. Check whether (3, 2) is a solution of the given equation.
14. The cost of petrol in a city is –j 50 per litre. Set up a linear equation with x representing the number of litres any y representing the total cost in –j .
15. Draw the graph of the following linear equations (i) $x + y = 4$ (ii) $x – y = 2$ (iii) $y = 3x$ (iv) $3 = 2x + y$ (v) $x = y$ (vi) $x + y = 0$ (vii) $y = –x + 2$
16. Find the value of p if (3, 2) is a solution of $px – 5y + p2 = 0$.
17. Draw the graphs of the equations $x – y = 1$ and $2x + y = 8$. Shade the area bounded by these two lines and y-axis. Also, determine this area.
18. From the choices given below, choose the equation whose graph is given in figure (i) $y = x + 2$ (ii) $y = x – 2$



19. Draw the graph of the equation $2x + y = 6$. Shade the region bounded by the graph and the coordinate axes. Also, find the area of the shaded region.
20. In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Fahrenheit to Celsius :

    $F=\left(\frac{9}{5}\right)C + 32$

    (i)Draw the graph of the linear equation given above, using Celsius for x-axis and Fahrenheit for y-axis

    (ii) If the temperature is 30°C, what is the temperature in Fahrenheit ?

    (iii) If the temperature is 95°F, what is the temperature in Celsius?