NEW STANDARD ACADEMY

## SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 9 (CHEMISTRY) DPP (Academy) 15/07/2024

1. Which of the following are matter?
   Chair, air, love, smell, hate, almonds, thought, cold, cold drink, smell of perfume.
2. Give reasons for the following observation. The smell of hot sizzling food reaches you several metres away, but to get the smell from cold food you have to go close.
3. A diver is able to cut through water in a swimming pool. Which property of matter does this observation show?
4. What are the characteristics of particles of matter?
5. The mass per unit volume of a substance is called density (density = mass/volume). Arrange the following in order of increasing density-air, exhaust from chimney, honey, water, chalk, cotton, and iron.
6. (a) Tabulate the differences in the characteristics of states of matter.
   (b) Comment upon the following: rigidity, compressibility, fluidity, filling a gas container, shape, kinetic energy, and density.
7. Give reasons:
   (a) A gas-fills completely the vessel in which it is kept.
   (b) A gas exerts pressure on the walls of the container
   (c) A wooden table should be called a solid
   (d) We can easily move our hand in air, but to do the same through a solid block of wood, we need a karate expert.
8. Liquids generally have lower density as compared to solids. But you must have observed that ice floats on water. Find out why.
9. What is the physical state of water at: (a) 250℃   (b) 100℃
10. For any substance, why does the temperature remain constant during the change of state?
11. Why does a desert cooler cool better on a hot dry day?
12. How does water kept in an earthen pot (matka) become cool during summers?
13. Why does our palm feel cold when we put some acetone or petrol or perfume on it?
14. Why are we able to sip hot tea or milk faster from a saucer than a cup?
15. What type of clothes should we wear in summers?
16. Convert the following temperatures to Celsius scale.
    (a) 300 K   (b) 573 K
17. Convert the following temperatures to Kelvin scale.
    (a) 25℃   (b) 373℃
18. Give reason for the following observations.
    (a) Naphthalene halls disappear with time without leaving any solid.
    (b) We can get the smell of perfume sitting several metres away.
19. Give two reasons to justify :
    (a) Water at room temperature is a liquid.
    (b) An iron almirah is a solid at room temperature.
20. Why is ice at 273 K more effective in cooling than water at the same temperature?

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SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 09 (MATH'S) DPP (Academy) 15/07/2024
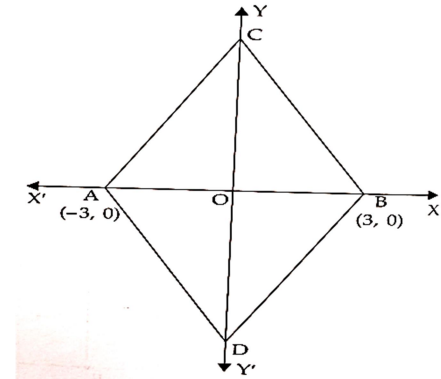
1. Insert one rational number between $\frac{5}{7}$ and $\frac{4}{9}$ and arrange in ascending order.
2. Show that the following terming terminating decimals are rational numbers: (a) 0.075   (b) 3.142678
3. Show that the following repeating decimals are rational numbers:
   (a) $0.12\overline{3}$ (b) $0.2\overline{35}$
4. Insert four irrational number between $3\sqrt{2}$ and $2\sqrt{3}$
5. If $x = 3\sqrt{2} - 4$, find the value of $x^2 + \frac{4}{x^2}$
6. Is $\frac{6\sqrt{x} + x^{\frac{3}{2}}}{\sqrt{x}}$ a polynomial , x ≠ 0? Justify your answer.
7. Find the value of $f(x) = 4x^3 - 3x^{2+} 5x + 7$ at $x = \frac{1}{2}$
8. Check whether 0 and 2 are zeroes of the polynomial $x^2 - 2x$
9. Simplify : $(2a + 3b)^3 - (2a - 3b)^3$.
10. If $a^2 + b^2 + c^2 = 280$ and $ab + bc + ca = \frac{9}{2}$, then find the value of $(a + b + c)^3$.
11. (i) What do you mean by abscissa of a point?
    (ii) Point P is on x-axis and is at a distance of 4 units from y-axis to its left. Write the coordinates of the point P.
    (iii) If the point P(5, a + 3) lies on the x-axis, then find the value of a.
    (iv) The point P(a, b) lies in the fourth quadrant. Which of a or b is greater?
12. In the adjoining figure, ΔABC and ΔADB are equilateral triangles. Find the coordinates of the points C and D.

13. 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)
14. In which quadrant does the point(-2,3) lie?
15. Find the reflection of the point(-3,-2) in the y- axis.
16. When 5 times the smaller of two numbers is divided by the larger, the quotient and remainders are 2 and 9 respectively. Form a linear equation in two variables. Write it in the standard from.
17. Let y vary directly as x. If y =12 when x=4, then write a linear equation. What is the value of y when x=5?
18. Write four different solutions of the equation : x+2y = 6.
19. 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.
20. If x = -1, y = 2 is a solution of the equation 2x + 5y = k, then find the value of k.00

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## SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 09 (PHYSICS) DPP (Academy) 15/07/2024

1. Abdul while driving to school computes the average speed for his trip 20km h $^{-1}$ .On his return trip along the same route, there is less traffic and the average speed is 30kmh $^{-1}$ What is the average speed for Abdul's trip?

2. A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3ms ^{2} for 8.0s. How far does the boat travel during this time?

3. A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of 10 ms^{-2}, with what velocity will it strike the ground? After what time will it strike the ground?

4. A train starting from a railway station and moving with uniform acceleration attains a speed 40 kmh^{-1} in 10 minutes. Find its acceleration.

5. A body covers a distance of 20 m in the 7th second and 24 m in the 9th second. How much distance shall it cover in 15th sec?

6. What type of motion is represented by the following graphs ?

(i)   (ii)   (iii)   (iv)
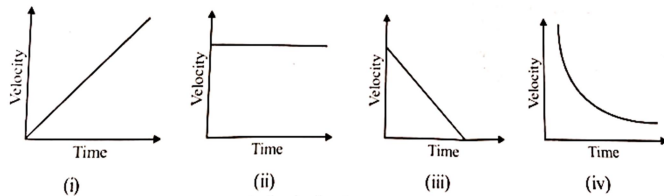
7. Draw velocity-time graphs for the following situations :
   (i) When body is moving with uniform velocity.
   (ii) When body is moving with variable velocity, but uniform acceleration.
   (iii) When body is moving with variable velocity, but uniform retardation.
   (iv) When body is moving with a variable velocity and variable acceleration.

8. A body runs for 10 min at a uniform speed of 9 km/h. At what speed should he run for the next 20 min so that the average speed comes to 12 km/h?

9. A particle is pushed along a horizontal surface in such a way that it starts with a velocity of 12 m/s. Its velocity decreases at a rate of 0.5 m/s². (a) Find the time it will take to come to rest. (b) Find the distance covered by it before coming to rest.

10. Figure shows the speed-time graph of a particle. Find the distance travelled in the time interval 0 to 40 s
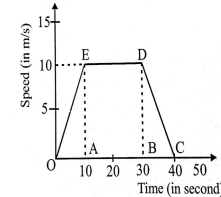

11. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20 s. Find its acceleration. Find the force acting on it if its mass is 7 metric tonnes.

12. A stone of 1 kg is thrown with a velocity of 20ms^{-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?

13. 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.

14. A hockey ball of mass 200 g travelling at 10ms^{-1} is struck by a hockey stick so as to return it along its original path with a velocity at 5m s^{-1} Calculate the change of momentum occurred in the motion of the hockey hall by the force applied by the hockey stick.

15. A bullet of mass 10g travelling horizontally with a velocity of 150ms^{-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.

16. An object of mass 100 kg is accelerated from a velocity of 5ms^{-1} to 8ms^{-2} in 6 s. Calculate the initial and final momentum of the object. Also, find the magnitude force exerted on the object.

17. 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 $10 ms^{-2}$.
18. If action is always equal to the reaction, explain how a horse can pull a cart?
19. 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.

20. Hit on a wall and a piece of sponge with nearly the same force. Did you succeed in doing so?

21. A force of 10N produces an acceleration of $2 ms^{-2}$ in a body of mass m_1 and $5 ms^{-2}$ in a body of mass m_2. What will be the acceleration produced by the same force when both the bodies are tied together?
22. A machine gun has a mass of 20 kg. It fires 35 g bullets at the rate of 4 bullets per second with a speed of $400 ms^{-1}$. What force must be applied to the gun to keep it in position?
23. The velocity time graph of a ball moving on. the surface of a floor is shown in figure. Find the force acting on the ball if the mass of the ball is 50g.
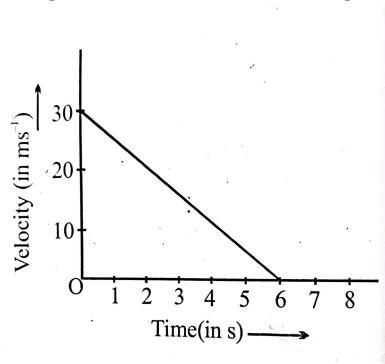
1. What is the time of sowing rabi crops ?
2. Who is father of green revolution in India?
3. What are macronutrients of the plants?
4. What are advantages of manure ?
5. Give name of a solid fumigant.
6. How many varieties of Aseel are popular among Indians?
7. Give names of six fishes used in composite fish culture in India.
8. Name three patterns of cropping.
9. Give names of some fodder crops.
10. Which one is the best system of irrigation?
11. Why are leguminous plants often used in crop rotation?
12. What is the name of cow breed having milch females?
13. Give example of cow breed which provides draught animals.
14. Name two viral diseases of chickens.
15. What is nosema disease?
16. What are the desirable agronomic characteristics for crop improvement?
17. What are the macronutrients and why are they called macronutrients?
18. How do plants get nutrients?
19. What do we get from cereals, pulses, fruits and vegetables?
20. How do biotic and abiotic factors affect crop production?