NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI

CLASS 09 (CHEMISTRY) DPP (Academy) 01/07/2024

1. What are the two ways to change the physical state of a matter?
2. Why is heat energy required to melt a solid?
3. What is the name of heat energy required to change the physical state of a substance without changing the temperature of the system?
4. Give examples of a few common substances whose physical state can be easily changed by cooling or heating.
5. What is the name of the process in which a gas converts directly to solid or vice-versa ?
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. The kinetic energy of the particles in water and steam at 373K is same, why?
8. What is the SI unit of:
   (a) Volume
   (b) Temperature
   (c) metre^3
   (d) Density
   (e) Pressure
9. What is the relationship between celsius scale and kelvin scale of temperature?
10. How will you demonstrate that air contains water vapours ?
11. State the various factors which affect evaporation?
    i) Temperature ii) Surface area
12. Why does all the water of the earthen pot not get evaporated in summer?
13. Why a gas cylinder cannot be half filled?
14. CO_2 is a gas Justify the given statement by two reasons.
15. Give reasons for the following
    (a) Gases fill up completely the vessel in which they are kept.
    (b) Gases exert pressure on the walls of the containing vessel.
16. What is the effect of the following on the rate of diffusion?
    a. Temperature b. Density of liquid
17. What is the name of the phenomenon of changing a liquid into its vapours at a temperature below its boiling point temperature?
18. Liquids have generally lower density compared to solids, but ice floats over water Give reason?
19. Give reasons for the following
    a) A liquid generally flows easily.
    b) Doctors advise to put strips of wet cloth on the forehead of a person having high temperature.
20. Justify that melting of wax is a physical change.

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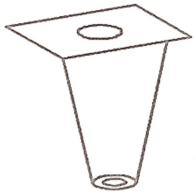
CLASS 09 (PHYSICS) DPP (Academy) 01/07/2024

1. Define the term balanced force.
2. State Newton's second law of motion.
3. Why does a back seater moves forward when a fast moving bike is stopped suddenly?
4. Explain why a glass pane of window is shattered when a flying pebble hits it.
5. Calculate the force required to impart to a car a velocity of 30 ms^{-1} in 10 s starting from rest. The mass of the car is 1500 kg
6. Define momentum and state its SI unit. State the principle of conservation of momentum.
7. State Newton's third law of motion. Give two examples.
8. When a missile is fired from a tank its gets a momentum of 2000kg ms^{-1}. If the velocity of the missile is 50ms^{-1}. What will be its mass?
9. A girl of mass 50 kg jumps out of a moving boat of mass 300 kg on to the bank with a horizontal velocity of 3ms^{-1}. With what velocity will the boat begin to move backwards?
10. Calculate the ratio of momentum, when:
    i. velocity of an object is doubled
    ii. mass of an object is halved
    iii. both mass and velocity are increased by three times
11. Two bodies of mass 4 kg and 5 kg are acted upon by the same force. If the acceleration of the lighter body is 3ms^{-2}, then find the acceleration produced in the heavier body. What will be the acceleration if same force is applied on both bodies tied together?
12. i. Define momentum. Write its SI unit.
    (ii) How much momentum will an object of mass 10 kg transfer to the floor if it falls from a height of 5 m?
    (g = 10ms^{-2})
    iii. Explain how a karate player can break a pile of tiles with a single blow of his hand.
13. Two cars each of mass 1000 kg are moving in a straight line but in opposite directions. The velocity of each car is 5ms^{-1} before the collision during which they stick together. What will be the velocity of the combined cars after collision?
14. (a) State Newton's second law of motion. Express it mathematically and find SI unit of force from it.
    (b) In the diagram given below, if the card is flicked away with a jerk, what will you observe? Explain the reason for this observation.



15. (a) (i) Define momentum. State its SI unit.
    (ii) An object of mass 50 kg is accelerated uniformly from a velocity of 4 ms^{-1} to 8 ms^{-1} in 8s. Find the magnitude of the force exerted on the object.
    (b) State Newton's first law of motion.
16. A force of 100 N acts on 50 kg for 2 seconds. The same force acts on 25 kg for 2 seconds. The ratio of the momentum produced and the accelerations caused in two bodies respectively are:
17. The driver of a three-wheeler moving with a speed of 36 km/h sees a child standing in the middle of the road and brings his vehicle to rest in 4.0 s just in time to save the child. The average retarding force on the vehicle? The mass of the three-wheeler is 335 kg and mass of the driver is 65 kg.
18. A shell of mass 0.020 kg is fired by a gun of mass 100 kg. If the muzzle speed of the shell is 80 m/s, the recoil speed of the gun:
19. If a body is in equilibrium under a set of non-collinear forces, the minimum number of force required to be in equilibrium:
20. A force of 50 dynes is acted on a body of mass 5g which is at rest for an interval of 3 sec. The impulse is:

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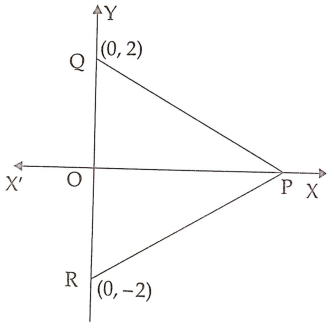
CLASS 09 (MATHS) DPP (Academy) 01/07/2024

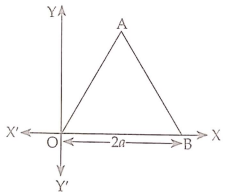
1. **The perpendicular distance of a point from the x-axis is 4 units and the perpendicular distance from the y-axis is 5 units. Write the coordinates of such a point if it lies in the**
   (i) Ist quadrant
   (ii) IIIrd quadrant
   (iii) IInd quadrant
   (iv) IV quadrant.
2. **If the coordinates of a point Mare (-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).

3. **The adjoining figure shows an isosceles triangle OAB with sides OA= AB= 13 units and OB = 10 units. Find the coordinataes of the vertices.**
4. **The perpendicular distance of the point (4,3) from the x-axis is 4.**
5. **Which of the following points lie on (i) x-axis? (ii) y-axis?**
6. In the adjoining figure, ΔPQR is equilateral. If the coordinates of the points Q and R are (0, 2) and (0, -2) respectively, find the coordinates of the point P.



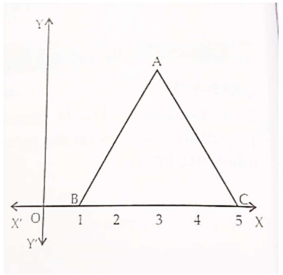
7. The adjoining figure shows an equilateral triangle OAB with each side = 2a units. Find the coordinates of the vertices.



8. If (a,b) = (0,-2), then find the values of a and b.
9. Write the coordinates of the point which lies on x- axis and is at a distance of 4 units in the negative direction of x-axis.
10. Write the ordinates of the following points:

(3,4),(4,0), (0,4) ,(5,-3)

11. Find the reflection of the point(-3 ,-2) in the y- axis.
12. Which of the points P(0,3),Q(1,0),R(0,-1),S(-5,0), T (1,2) do not lie on x- axis?
13. If the coordinates of the points are P(-2,3) and Q(-3,5), then (abscissa of P)-(abscissa of Q) is
14. Points (1,-1), (2,-2) (4,-5) ,(-3,-4)
15. In the adjoining figure, ABC is an equilateral triangle with coordinates of B and C as (1, 0) and (5, 0) respectively. Find the coordinates of the vertex A



16. The perpendicular distance of a point from the x-axis is 2 units and the perpendicular distance from the y-axis is 3 units. Write the coordinates of the point if it lies in

(i) I quadrant
(ii) II quadrant
(iii) III quadrant
(iv) IV quadrant

17. What is the quadrilateral that is formed by joining the points(1,1) ,(2,4), (8,4) and (10,1)?
18. Consider the point A(a, b + c), B (b, c + a) and C (c, a + b). The area of ΔABC is:
19. In the xy-plane let A be the point (5,0) and L be the line y = $\frac{x}{3}$. The number of poins P on the line L such that triangle OAP is isosceles is (O being the origin)
20. If the point (0, 2) is equidistant from the points (3, k) and (k, 5), then the value of k is:

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CLASS 09 (BIOLOGY) DPP (Academy) 01/07/2024

1. Who discovered cell and how?
2. Why is the plasma membrane called a selectively permeable membrane?
3. Make a comparison and write down ways in which plant cells are different from animal cells.
4. How is a prokaryotic cell different from a eukaryotic cell?
5. What is cell?
6. Who discovered the First cell?
7. What is "Micrographia"?
8. Who did discover (a) Nucleolus
   (b) Nucleus?
9. Name the plant in which Robert Brown discovered the nucleus.
10. Who did coin the term protoplasm?
11. Define cell theory.
12. Who are the proposers of cell theory?
13. Name the smallest cell.
14. Name the longest human cell.
15. Name the largest cell or largest egg.
16. What is cell differentiation?
17. What is a prokaryotic cell?
18. Define a eukaryotic cell.
19. What is protoplast? Define protoplasm?
20. Who proposed the modern cell theory?