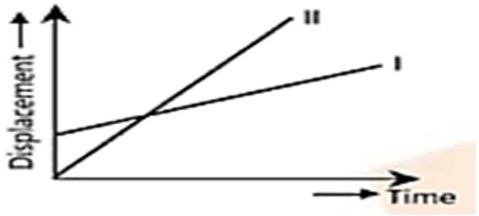
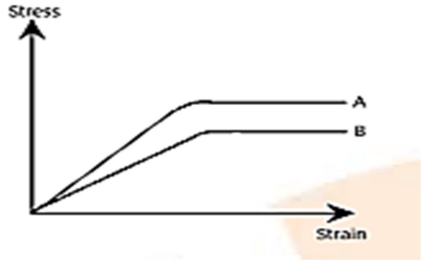
NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 11 (PHYSICS) DPP (Academy)25 /11 /2024

1. The stretching of a coil spring is determined by its shear modulus. Why?
2. The spherical ball contracts in volume by 0.1% when subjected to a uniform normal pressure of 100 atmosphere. Calculate the bulk modulus of material of the ball.
3. State Hooke's law.
4. What are ductile and brittle materials?
5. A steel cable with a radius of 1.5 cm supports a chairlift at a ski area. If the maximum stress is not to exceed N, what is the maximum load the cable can support?
6. Compute the fractional change in volume of a glass slab, when subjected to a hydraulic pressure of 10 atm.
7. Write the characteristics of displacement.
8. Draw displacement time graph for uniformly accelerated motion. What is its shape?
9. Sameer went on his bike from Delhi to Gurgaon at a speed of 60km/hr and came back at a speed of 40km/hr. What is his average speed for the entire journey?
10. What causes variation in velocity of a particle?
11. Figure. Shows displacement – time curves I and II. What conclusions do you draw from these graphs?



12. Displacement of a particle is given by the expression $x = 3t^2 + 7t - 9$, where x is in meters and t is in seconds. What is acceleration?
13. A particle is thrown upwards. It attains a height (h) after 5 seconds and again after 9s comes back. What is the speed of the particle at a height h?
14. Draw displacement time graph for a uniformly accelerated motion? What is its shape?
15. The displacement x of a particle moving in one dimension under the action of constant force is related to the time by the equation $t = \sqrt{x} - 3$ where x is in meters and t is in seconds. Find the velocity of the particle at (1) t = 3s (2) t = 6s.
16. A balloon is ascending at the rate of 4.9m/s. A pocket is dropped from the balloon when situated at a height of 245m. How long does it take the packet to reach the ground? What is its final velocity?
17. A car moving on a straight highway with speed of 126km/hr. is brought to a stop within a distance of 200m. What is the retardation of the car (assumed uniform) and how long does it take for the car to stop?
18. In the following stress – strain curve, which has:



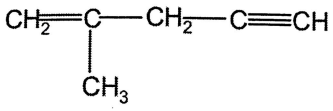
1) Greater young's Modulus 2) More Ductility 3) More Tensile strength.
Ans: From the graph given in the question:

19. A cube is subject to a pressure of 5×10^5 N / m^2 . Each side of the cube is shortened by 1%. Find: - 1) the volumetric strain 2) the bulk modulus of elasticity of the cube.
20. Calculate the work done when a wire of length l and area of cross – section A is made of material of young's Modulus Y is stretched by an amount x?

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 11 (CHEMISTRY) DPP (Academy)25 /11 /2024

1. The IUPAC name of the compound



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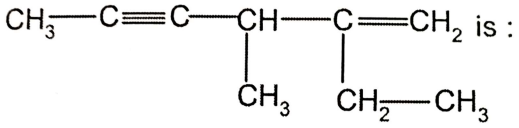

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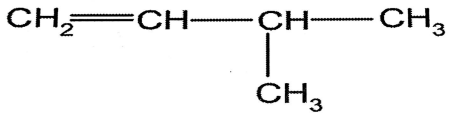

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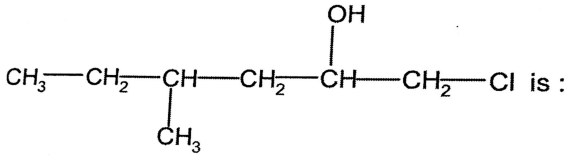

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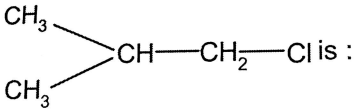

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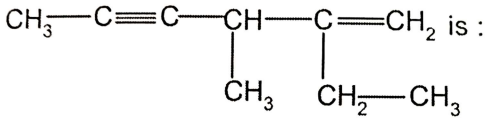

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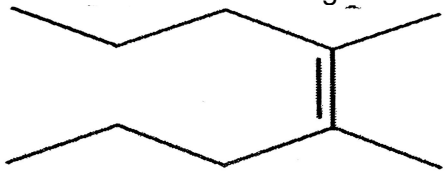
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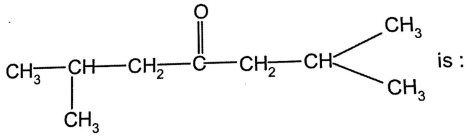

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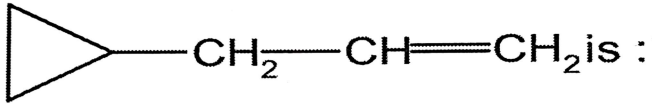

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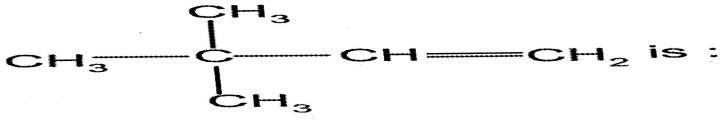

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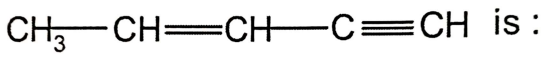

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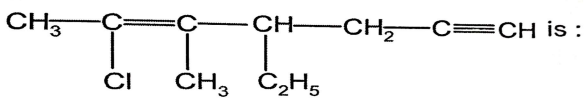

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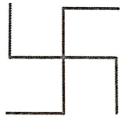
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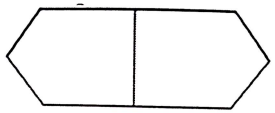
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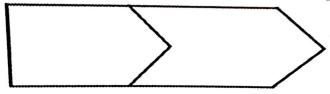
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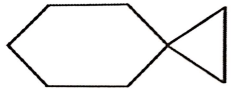
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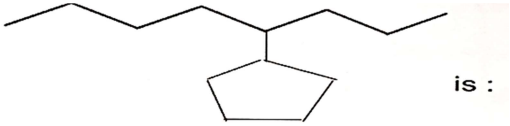

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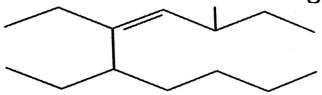

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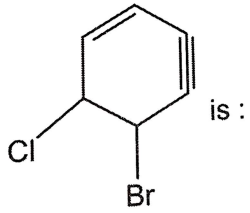

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NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 11 (Maths) DPP (Academy) 25/11/2024

1. Let AD and BC be two vertical poles at A and B respectively on a horizontal ground. If AD = 8 m, BC = 11 m and AB = 10 m; then the distance (in meters) of a point Mon AB from the point A such that $MD^2 + MC^2$ is minimum is_____
2. The locus of a point, which moves such that the sum of squares of its distances from the points (0, 0), (1, 0), (0, 1) and (1, 1) is 18 units, is a circle of diameter d. Then d^2 is equal to_____
3. Let the points of intersections of the lines x - y + 1 = 0 x - 2y + 3 = 0 and 2x - 5y + 11 = 0 are the mid points of the sides of a triangle ABC. Then the area of the triangle ABC is_____
4. A man starts walking from the point P(- 3,4) , touches the x-axis at R, and then turns to reach at the point Q(0, 2) The man is walking at a constant speed. If the man reaches the point Q in the minimum time, then
   $50((PR)^2 + (RQ)^2)$ is equal to_____
5. Let $A\left(\frac{3}{\sqrt{a}}, \sqrt{a}\right)$ a > 0 be a fixed point in the xy-plane. The image of A in y-axis be B and the image of B in x-axis be C. If D(3cos θ, a sin θ) is a point in the fourth quadrant such that the maximum area of ΔACD is 12 square units, then a is equal to_____
6. A ray of light passing through the point P(2,3) reflects on the x-axis at point A and the reflected ray passes through the point Q(5, 4) Let R be the point that divides the line segment AQ internally into the ratio 2: 1. Let the co- ordinates of the foot of the perpendicular M from R on the bisector of the angle PAQ be (alpha, beta) Then, the value of 7alpha + 3beta is equal to_____
7. A triangle is formed by X-axis, y-axis and the line 3x + 4y = 60 Then the number of points P(a,b) which lie strictly inside the triangle, where a is an integer and b is a multiple of a, is_____
8. Consider the triangles with vertices A(2, 1) B(0, 0) and C(t,4) t ∈ [0, 4] It the maximum and the minimum perimeters of such triangles are obtained at t = α and t = β respectively, then 6 α + 21β is equal to_____
9. Consider a triangle ABC having the vertices A(1, 2) B(α, β) and C(γ, δ) and angles angle ABC = π/6 and angle BAC = (2π/3 .If the points B and C lie on the line y = x + 4 then $\alpha^2 + \gamma^2$ is equal to_____
10. A point P moves so that the sum of squares of its distances from the points (1, 2) and (-2, 1) is 14. Let f(x, y) = 0 be the locus of P, which intersects the x-axis at the points A, B and the y-axis at the points C, D. Then the area of the quadrilateral ACBD is equal to
11. Let (5, $\frac{a}{4}$) be the circumcenter of a triangle with vertices A(a, - 2) B(a, 6) and C($\frac{a}{4}$,- 2) Let α denote the circumradius, β denote the area and γ denote the perimeter of the triangle. Then $\alpha + \beta + \gamma$ is _____
12. The maximum area of a triangle whose one vertex is at (0, 0) and the other two vertices lie on the curve $y = -2x^2 + 54$ at points (x, y) and (- x, y) where y > 0 is_____
13. Let A(- 1, 1) and B(2, 3) be two points and P be a variable point above the line AB such that the area of ΔPAB is 10. If the locus of P is ax + by = 15 then 5a + 2b is
14. If the straight line 2x - 3y + 17 = 0 is perpendicular to the line passing through the points (7, 17) and (15, β), then β equals
15. Slope of a line passing through P(2,3) and intersecting the line x + y = 7 at a distance of 4 units form P is
16. If the two lines x + (a - 1) y = 1 and $2x + a^2y = 1$ (a ∈ R- {0, 1}) are perpendicular, then the distance of their point of intersection from the origin is
17. The locus of the midpoints of the perpendiculars drawn from points on the line, x = 2y to the line x = y is
18. If a ΔABC has vertices A(- 1, 7) B(- 7, 1) and C(5,- 5) then its orthocentre has coordinates
19. A triangle ABC lying in the first quadrant has two vertices as A(1, 2) and B(3, 1) If angle BAC = 90^0 and ar (ΔABC) $5\sqrt{5}$sq. units then the abscissa of vertex C is
20. For t ∈ (0, 2∈) if ABC is an equilateral triangle with vertices A(sin t, - cos t) B(cos t, sin t) and C(a,b) such that its orthocenter lies on a circle with center (1, $\frac{1}{3}$)then $(a^2 - b^2)$ is equal to.

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 11 (BIOLOGY) DPP (Academy)25 /11/2024

1. Which Blood vessel carries least percentage of urea ?
2. With respect to the mode of excretion, Which type of organism bony fishes are?
3. Give the value of the GFR of an healthy abult.
4. What is the excretory product from kidneys of reptiles ?
5. What is the composition of sweat produced by sweat glands ?
6. Define homeostasis. Who introduced this term ?
7. What is the functional unit of the kidney ? Name its parts.
8. What is the net filtration pressure ?
9. Name the three general processes involved in the urine formation.
10. What factors cause an increase in renin production ?
11. Define the terms selective reabsorption and tubular secretion ?
12. Where is aldosterone produced ? What factors stimulate its secretion ?
13. Where is ADH produced ? What factors stimulate an increase in AdH secretion ?
14. What is the role played Renin-Angiotensin in the regulation of kidney function ?
15. How have the terrestrial organisms adapted themselves for conservation of water?
16. Describe the role of the loops of Henle and vasa recta in the concentration of urine
17. Describe the response of the renin angiotensin –aldosterone mechanism to a decrease in blood pressure.
18. Explain how the proximal convoluted tubule reabsorbs salts and water ?
19. Match the following

Column I	Column II
A Hypotonic	1 Water
B Hypertonic	2 Sucrose
C Solute	3 Lower tonicity
D Solvent	4 Higher tonicity

20. Match the excretory functions of column I with part of the excretory system in column II. Choose the correct combination from among the answer given :

Column I (Functions)	Column II (Parts of excretory systems)
A Ultrafiltration	1 Henle's loop
B Concentration of urine	2 Ureter
C Transport of urine	3 Urinary bladder
D Storage of urine	4 Malpighian corpuscle
	5 Proximal convoluted tubule