

NEW STANDARD ACADEMY

Date : 13-10-25

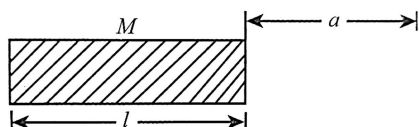
CLASS : 11TH

Marks: 60

Time: 3 hours

PHYSICS

1. If the distance between sun and earth is made 3 times of the present value, then gravitational force between them will become?
2. Two point masses, each equal to 1 kg, attract one another with a force of 10^{-9} kg-wt. The distance between the two point masses is approximately ($G = 6.6 \times 10^{-11}$ MKS units)
3. A mass m is at a distance a from one end of a uniform rod of length l and M . The gravitational force on the mass due to the rod is?



4. Four particles of masses m , $2m$, $3m$ and $4m$ are kept in sequence at the corners of a square of side a . The magnitude of gravitational force acting on a particle of mass m placed at the centre of the square will be?
5. If R is the radius of earth and g the acceleration due to gravity, then mass of earth will be ?
6. The diameters of two planets are in ratio 4: 1. Their mean densities have ratio 1: 2. The ratio of g on the planets will be
7. If the radius of earth were to shrink by one percent, its mass remaining the same, the acceleration due to gravity on the earth's surface would become
8. The rotation of the earth having radius R about its axis speeds up to a value such that a man at latitude angle 60° feels weightlessness. The duration of the day in such a case is
9. The acceleration due to gravity of that planet whose mass and radius are half those of earth will be (g is acceleration due to gravity at earth's surface)

10. Two stars of masses m and $2m$ are co-rotating about their centre of mass. Their centres are at a distance r apart. If r is much larger than the sizes of the stars, the kinetic energies of stars of masses m and $2m$ are in the ratio

CHIMESTRY

1. For the reversible gaseous reaction, $2\text{HI}(\text{g}) \rightleftharpoons \text{H}_2(\text{g}) + \text{I}_2(\text{g})$, 7.8g H_2 , 203.2 g I_2 and 1638.4g of HI were found at equilibrium. Calculate the value of K_c for the reaction.
2. For the reversible equilibrium reaction, $\text{A} + 2\text{B} \rightleftharpoons 3\text{C} + 4\text{D}$, the rate constant for the forward and backward reaction are 2.38×10^{-4} and 8.15×10^{-5} respectively. Calculate K_c
3. $\text{FeO}(\text{s}) + \text{CO}(\text{g}) \rightleftharpoons \text{Fe}(\text{s}) + \text{CO}_2(\text{g})$, Molar concentration of CO at constant temperature and at equilibrium is 2.5×10^{-2} mol/litre. Given that $K_c = 5.0$ calculate the equilibrium concentration of $\text{CO}_2(\text{g})$
4. The value of K_p for the reaction, $\text{CO}_2(\text{g}) + \text{C}(\text{s}) \rightleftharpoons 2\text{CO}(\text{g})$ is 3.0 at 1000 K. If initially $P_{\text{CO}_2} = 0.48$ bar and $p_{\text{CO}} = 0$ bar and pure graphite is present, calculate the equilibrium partial pressures of CO and CO_2
5. Define reversible and irreversible reactions .Give one example of each.
6. Write any five characteristics of chemical equilibrium
7. Define the following terms
(i) Melting point
(ii) Boiling point
8. Write a short note on vapour pressure or solubility
9. Define henry's law write its limitations
10. Find the relation between k_p and k_c

BIOLOGY

1. What is the krebs cycle give the role of this cycle in respiration
2. How many NADH^+ and ATP are for per turn of krebs cycle
3. What is the link reactor in aerobic respiration
4. Give the site of glycolysis, Skrebs cycle and electron transport system take place in cell
5. From one glucose molecule how many end ,carbon compound molecule are formed also give the name.
6. How many NADH and ATP are formed in glycolysis
7. Why krebs cycle is called TCA cycle
8. Give the four difference between aerobic and anaerobic respiration
9. Why respiration is called amhibolic pathway
10. What is a substrate label phosphorelation

MATHS

1. If two vertices of an equilateral triangle are $(0, 0)$ and $(0, 2\sqrt{3})$, find the third vertex.
2. For what value of x are the points $(1, 5)$, $(x, 1)$ and $(4, 11)$ collinear?
3. The area of a triangle is 5 sq. units. If two vertices of the triangle are $(2, 1)$, $(3, -2)$ and the third vertex is (x, y) where $y = x + 3$, then find the coordinates of the third vertex.
4. If the coordinates of two points A,B are $(1,2)$, $(3,8)$ respectively ,find a point P such such that $|\text{PA}|=|\text{PB}|$ and area of $\Delta PAB = 10$.
5. Find the ratio in which the point $P(k, 6)$ divides the line segment joining the points $A(-4, 3)$ and $B(2, 8)$. Also find the value of k .
6. If a vertex of a triangle is $(1, 1)$ and the mid-points of the two sides through this vertex are $(-1, 2)$ and $(3, 2)$, then find the coordinates of the centroid of the triangle.
7. The coordinates of points P, Q, R nd S are $(-3, 5)$, $(4, -2)$, $(p, 3p)$ and $(6, 3)$ respectively. If the areas of ΔPQR and ΔQRS are in the ratio 2: 3, find p .
8. Find the slope of the line passing through the points :
 - (i) $(2,-3)$ and $(-5, 9)$
 - (ii) $(-3, 5)$ and $(-3,-4)$

9. Find the equations of the lines for which $\tan \theta = \frac{1}{2}$ where θ is the inclination of the line and y-intercept is $-3/2$.
10. Find the equation of the line passing through $(1, 2)$ and making angle of 30° with y-axis.