NEW STANDARD ACADEMY

Exam : MOCK- 07 | **NEET - JEE** | **Marks: 60**
Date : 29-05-23 | **CLASS : 11TH** | **Time: 3 HRS**

PHYSICS

1. A force of 72 dyne is inclined to the horizontal at an angle of 60^0. Find the acceleration it produces in a mass of 9 g which moves in a horizontal direction.
2. A roller of mass 500 kg is attached by a light horizontal chain to a tractor of mass 1000 kg. The backward force of friction exerted by the ground is 1000 N. If the system has a forward acceleration of 2 m/s^2, calculate: (a) the forward force of the ground on the tractor (b) the tension in the chain.
3. A constant force acts for 3 s on a mass 16 kg and then ceases to act. During the next 3 s, the body covers 81 m. Find the magnitude of the force. Take g = 9.8 m/s^2.
4. A force produces an acceleration of 16 m/s^2 in a body of mass 0.5 kg and a acceleration of 4.0 m/s^2 in another body. If both the bodies are fastened together, how much acceleration will this force produce in the combination?
5. A scooterist moving with a speed of 36 km/h sees a child standing in the middle of the road. He applies brakes and brings the scooter to rest in 5 sec. just in time to save the child calculate average retarding force on the vehicle if mass of vehicle and the driver is 300 kg.
6. A cricket ball of mass 150 gram moving with a speed of 12ms^{-1} is hit by a bat so that the ball is turned back with a velocity of 20ms^{-1} calculate the impulse received by the ball.
7. A stream of water flowing horizontally with a speed of 15 m/s gushes out of a tube of cross sectional area 10^{-2} m^2 and hits a vertical wall nearby. What is the force exerted on the wall by the impact of water, assuming it does not rebound?
8. A bullet of mass 0.04 kg moving with a speed of 30/ms enters a heavy wooden block and is stopped after a distance of 60 cm. What is the average resistive force exerted by the block on the bullet?
9. 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 ms^{-1} what is the recoil speed of the gun?
10. Explain Newton's first law of motion. Why we call as the law of inertia?

CHEMISTRY

1. What is the IUPAC name, official name and symbol of the element with atomic number 110 ?
2. Out of Na and Mg, which has higher second ionisation energy ?
3. Arrange the following elements in order of decreasing electron gain enthalpy : B, C, N, O.
4. Arrange the following elements in the increasing order of non-metallic character.
   B, C, Si, N, F
5. The electronic configuration of an element is $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$. Locate the element in the periodic table.
6. Out of Li^+, Be^{2+} and B^{3+} ions, which has the smallest ionic radius and why ?
7. Arrange the following elements in the increasing order of metallic character: B, Al, Mg, K.
8. Calculate the radius of Bohr's 3rd orbit in Li^{2+} ion.
9. Find the number of protons, electrons and neutrons in (a) $^{27}_{13}Al^{3+}$ (b) $^{15}_{8}O^{2-}$.
10. Calculate (a) wave number and (b) frequency of yellow radiations having wavelength of 5800 Å.

BIOLOGY

1. What is the other name of fructose? Give its source.
2. How are prosthetic group different from cofactors?
3. What is commonly known as animal starch what it is stored in mammalian body?
4. What is chargaff rule , explain it.
5. What is km value and turn over number of enzyme?
6. What is a phragmoplast?
7. What is the oxysome give its function?
8. Describe the following-
   a-bivalent
   b-synapsis
9. Define the term-

a-Diploten
b-Pachyetene

10. What is a compaction of DNA?

MATHS

1. Which of the following relations is correct

(a) $\sin 1 < \sin 1°$ (b) $\sin 1 > \sin 1°$

2. If $\sin\theta + \text{cosec}\,\theta = 2,$ the value of $\sin^{10}\theta + \text{cosec}^{10}\theta$ is

3. If $\sin\theta + \cos\theta = m$ and $\sec\theta + \text{cosec}\theta = n,$ the $n(m+1)(m-1) =$

4. If $\sin(\alpha - \beta) = \frac{1}{2}$ and $\cos(\alpha + \beta) = \frac{1}{2},$ where α and β are positive acute angles, then find α and β

5. $(m+2)\sin\theta + (2m-1)\cos\theta = 2m+1,$ I the prove that $\tan\theta = \frac{2m}{m^2+1}$

6. If A lies in the second quadrant and $3\tan A + 4 = 0,$ the value of $2\cot A - 5\cos A + \sin A$ is

7. If $\sin x + \sin y = 3(\cos y - \cos x),$ then the value of $\frac{\sin 3x}{\sin 3y} =$

8. If θ lies in the second quadrant, then the value of $\sqrt{\left(\frac{1-\sin\theta}{1+\sin\theta}\right)} + \sqrt{\left(\frac{1+\sin\theta}{1-\sin\theta}\right)} =$

9. If $\tan\theta + \sec\theta = e^x,$ then $\cos\theta$ equals.

10. If $\sin^2\theta = \frac{x^2+y^2+1}{2x},$ then x must be.