

# NEW STANDARD ACADEMY

Exam : MOCK- 06

NEET - JEE

Marks: 60

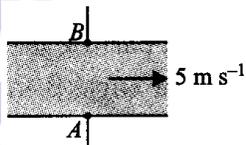
Date : 22-03-23

CLASS : 11<sup>TH</sup>

Time: 3 HRS

## PHYSICS

1. A bullet is fired at an angle  $30^\circ$  with the horizontal with a velocity of 196 m/s. How high will it rise? Also find the total time of its flight and the horizontal range.
2. Find the angle of projection at which horizontal range and maximum height are equal.
3. A man can swim with a speed of 4 km/h in still water. How long does he take to cross a river 1 km wide, if the river flows steadily 3 km/h and he makes his strokes normal to the river current. How far down the river does he go when he reaches the other bank?
4. A projectile is fired horizontally with a velocity of  $98 \text{ ms}^{-1}$  from the hill 490 m high. Find  
(i) time taken to reach the ground
5. A river is flowing from west to east with a speed  $5 \text{ m s}^{-1}$ . A swimmer can swim in still water at a speed of  $10 \text{ m s}^{-1}$ . If he wants to start from point A on south bank and reach opposite point B on north bank, in what direction should he swim?



6. A football is kicked 20 m/s at a projection angle of  $45^\circ$ . A receiver on the goal line 25 m away in the direction of the kick runs the same instant to meet the ball. What must be his speed if he is to catch the ball before it hits the ground?
7. A stone is thrown from the ground towards a well 6 m high at a distance of 4 m such that it just clears the top of the wall at its highest point. Find the speed and angle of projection of the stone.
8. A ball is thrown from the ground into air. At a height of 9.0 m, the velocity is observed to be  $\vec{v}_0 = (7.0\hat{i} + 6.0\hat{j}) \text{ m/s}$ . Find the maximum height to which the ball will rise. ( $g = 10 \text{ m/s}^2$ )
9. A cricketer can throw a ball to a maximum horizontal distance of 100 m. how much high above the ground can the cricketer throw the same ball?

10. A body is projected with a velocity of  $40 \text{ ms}^{-1}$ . After two seconds it crosses a vertical pole of 2.04 m find the angle of projection and the horizontal range.

## CHEMISTRY

1. What is the electronic configuration of  $\text{O}^{2-}$  ion?
2. What will be the energy of one photon of radiation whose frequency is  $5 \times 10^{14} \text{ Hz}$ ?
3. Compare the energies of two radiations  $E_1$  with wavelength 800 nm and  $E_2$  with wavelength 400 nm.
4. According to Bohr's theory the angular momentum of an electron in 5<sup>th</sup> orbit is.
5. Bohr's model can explain  
(a) The spectrum of hydrogen atom only  
(b) Spectrum of atoms or ions containing one electron only  
(c) Spectrum of all the atoms  
(d) Spectrum of ground state atoms only.
6. An element X has atomic number 19. What will be the formula of j its oxide ?
7. As we move from left to right, the electronegativity increases. An atom which is highly electronegative has
8. Why is the electron gain enthalpy of O or F less than that of S or Cl?
9. What is common between given cations and anions,  
 $\text{O}^{2-}, \text{F}^-, \text{Na}^+, \text{Mg}^{2+}, \text{Al}^{3+}$  ?
10. What is the mass per cent of oxygen in ethanol?

## BIOLOGY

1. What is polysome, give its function?
2. Explain the role of Golgi bodies in the formation of plant cell wall?
3. Why mitochondrial DNA is a important?
4. Write brief notes on the following-  
a-Snaptonemal complex  
b-Metaphase plate
5. Draw the structure of amino acid alanine.
6. What is gametic meiosis explain with example.

7. Give the difference between peptide and glycosidic bond with example.
8. Write the various stages of meiosis prophase first?
9. Give the example of two acidic and two basic amino acid.
10. What is disjunction explain it.

**MATHS**

1. Prove that  $\frac{\cos^3 A + \sin^3 A}{\cos A + \sin A} + \frac{\cos^3 A - \sin^3 A}{\cos A - \sin A} = 2$
2. Express in circular measure and also in degrees the angles of :
  - (i) Regular octagon
  - (ii) Regular polygon of 40 sides.
3. Find the distance from the eye at which a coin of diameter 2 cm should be held so as just to conceal the full moon its angular diameter is 31 minutes.
4. Draw the graph of  $y = 3 + \sin x$ .
5. If  $\sec \theta = \sqrt{2}$  and  $\frac{3\pi}{2} < \theta < 2\pi$  find the value of  $\frac{1 + \tan \theta + \operatorname{cosec} \theta}{1 + \cot \theta - \operatorname{cosec} \theta}$
6. Find the angle in radians between the hands of a clock at 7:20 p.m .
7. Prove that  $\sin 510^\circ \cos 330^\circ + \sin 390^\circ \cos 120^\circ = -1$ .
8. Evaluate  $\sin(\pi + x) \sin(\pi - x) \operatorname{cosec}^2 x$
9. What is the maximum value of  $3 - 7 \cos 5x$  ?
10. Write the maximum value of  $\cos(\cos x)$  .