

International Olympiad of Science



CLASS 11th SAMPLE QUESTIONS

The Actual Question Paper Contains 40 Questions. The Duration of the Test Paper is 50 Minutes.

- A body is thrown vertically up with a velocity u . It passes a point at a height h above the ground at time t_1 while going up and at time t_2 while falling down. Then the relation between u , t_1 and t_2 is
 (A) $t_1 + t_2 = \frac{2u}{g}$ (B) $t_2 - t_1 = \frac{2u}{g}$
 (C) $t_1 + t_2 = \frac{u}{g}$ (D) $t_2 - t_1 = \frac{u}{g}$
- The distance x moved by a body of mass 0.5 kg by a force varies with time t as:
 $x = 3t^2 + 4t + 5$
 Where x is expressed in metre and t in second. What is the work done by the force in the first 2 seconds?
 (A) 25 J (B) 50 J
 (C) 75 J (D) 100 J
- The escape velocity of a body on the earth's surface is v_e . A body is thrown with a speed $3v_e$. Assuming that the sun and planets do not influence the motion of the body, its speed at infinity would be
 (A) zero (B) v_e
 (C) $\sqrt{2} v_e$ (D) $2\sqrt{2} v_e$
- Which of the following statements regarding Bohr theory of hydrogen atom is not correct?
 (A) The ionization energy of atom is equal to the energy equivalent to Rydberg constant
 (B) Speed of electron in the $n = 2$ orbit is larger than that in the $n = 1$ orbit
 (C) Radius of orbit is directly proportional to square of quantum number n
 (D) The distance between successive orbits increases with increase in the value of quantum number n .
- The bond angle in PH_3 is expected to be
 (A) 90° (B) 105° (C) 109° (D) 120°
- Photoelectric effect supports quantum nature of light because
 (A) there is a minimum frequency of light below which no photoelectron is emitted.
 (B) the maximum kinetic energy of photoelectrons depends on the intensity of the light.
 (C) even when the metal surface is faintly illuminated, the photoelectrons are emitted
 (D) Both A and C
- From 6 different novels and 3 different dictionaries, 4 novels and 1 dictionary are to be selected and arranged in a row on a shelf so that the dictionary is always in the middle. The number of such arrangement is
 (A) at least 1000
 (B) less than 500
 (C) at least 500 but less than 750
 (D) at least 750 but less than 1000
- If sum of all the solutions of the equation $8 \cos x \left(\cos\left(\frac{\pi}{6} + x\right) \cos\left(\frac{\pi}{6} - x\right) - \frac{1}{2} \right) = 1$ in $[0, \pi]$ is $k\pi$, then k is equal to:
 (A) $\frac{2}{3}$ (B) $\frac{13}{9}$
 (C) $\frac{8}{9}$ (D) $\frac{20}{9}$
- The related families are placed together in the same
 (A) phylum (B) order
 (C) genera (D) class
- The phloem formed from vascular cambium is known as
 (A) primary phloem (B) protophloem
 (C) secondary phloem (D) metaphloem

ANSWERS

1. (A) 2. (C) 3. (D) 4. (B) 5. (C) 6. (D) 7. (A) 8. (B) 9. (B) 10. (C)