An ISO 9001:2015 Certified Organization

GLOBAL COMPETITION SOCIETY

Duration : 60 Min.
Total Ques. : 50
Paper Type : S 1

11 CLASS

SAMPLE Q.P : GLOBAL SCIENCE OLYMPIAD (GSO)

1. The Actual Question Paper Contains 50 Questions.
2. Each question carry an equal marks of 2 against 50 question
3. The Duration of the Test Paper is 60 Minutes

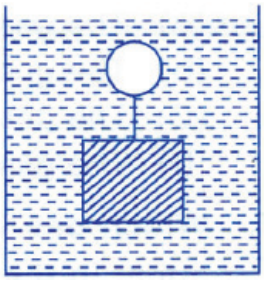
1. A pully has a light rope running over it, with a 10 N weight on one side and a 20 N weight on the other. Ropes always pull with equal force on each and; this is called tension. If the masses are allowed to fall, what is the tension, T in the rope?

(A) 0 N (B) 1N < T < 10 N
(C) 10 N (D) All of these
(E) None of these

2. A tuning fork P has frequency 3% more than that of a standard fork. A second fork Q has a frequency 2% less than that of the standard fork. When P and Q are sounded together the number of beats produced per second is 8. The frequency of the fork Q is

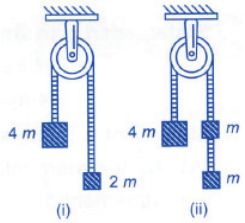
(A) 250 Hz (B) 154.5 Hz
(C) 157 Hz (D) 300 Hz
(E) None of these

3. A body floats in a liquid contained in a beaker. The whole system is shown falling under gravity. The upthrust on the body due to liquid is



(A) Zero
(B) Equal to the weight of liquid displaced
(C) Equal to the weight of body in air
(D) Equal to the weight of immersed part of the body
(E) None of these

4. In the arrangement shown in figure, pulley is smooth and massless and all the strings are light. Let F_1 be the force exerted on the pulley in case (i) and F_2 be the force in case (ii). Then



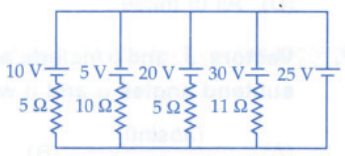
(A) $F_1 > F_2$ (B) $F_1 < F_2$
(C) $F_1 = F_2$ (D) $F_1 = 2F_2$
(E) None of these

5. A set of 56 tuning forks are so arranged in series that each fork gives 4 beats per second with the previous one. The frequency of the last fork is 3 times that of the first. The frequency of the first fork is

(A) 110 (B) 60
(C) 56 (D) 52
(E) None of these

6. In the circuit shown, current through 25 V cell is

(A) 7.2 A
(B) 10 A
(C) 12 A
(D) All of these
(E) None of these



7. Sound of frequency 1000 Hz from a stationary source is reflected from an object approaching

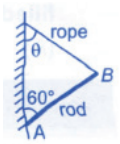
the source at 30 ms^{-1}, back to a stationary observer located at the source. The speed of sound in air is 330 ms^{-1}. The frequency of the sound heard by the observer is

(A) 1200 Hz (B) 1000 Hz

(C) 1090 Hz (D) 1100 Hz

(E) None of these

8. A uniform road AB of mass m is hinged to a wall at its lower end, while its upper and is held by a rope attached to the wall. For what value of θ, the tension in the rope is equal to mg/2?



(A) 30°

(B) 60°

(C) 45°

(D) All of these

(E) None of these

9. Masses m and 3m are attached to the two ends of a spring of spring constant k. The period of oscillation is _____.

(A) $2\pi\sqrt{k/m}$

(B) $4\pi\sqrt{m/k}$

(C) $\pi\sqrt{m/k}$

(D) $\pi\sqrt{3m/2k}$

(E) None of these

10. Two rings of the same radius and mass are placed such that their centres are at a common point and their planes are perpendicular to each other. The moment of inertia of the system about an axis passing through the centre and perpendicular to the plane of one of the rings is (mass of the ring = m, and radius = r)

(A) $\frac{1}{2}mr^2$ (B) mr^2

(C) $\frac{3}{2}mr^2$ (D) $2mr^2$

(E) None of these

11. A small hollow sphere, which has a small hole in it, is immersed in water to a depth of 0.5 m before any drop penetrates into it. If surface tension for water is 0.073 N/m, the radius of the hole is

(A) 0.06 mm (B) 0.03 mm

(C) 0.09 mm (D) 0.15 mm

(E) None of these

12. A neutron is moving with velocity u. It collides head on and elastically with an atom of mass number A. If the initial kinetic energy of the neutron is E, how much kinetic energy is retained by neutron after collision?

(A) $\left[\frac{A}{A+1}\right]^2 E$ (B) $\left[\frac{A}{(A+1)^2}\right] E$

(C) $\left[\frac{(A-1)}{(A+1)}\right]^2 E$ (D) $\left[\frac{(A-1)}{(A+1)^2}\right] E$

(E) None of these

13. A thin uniform rod of mass m moves translationally with acceleration a due to two antiparallel force of lever arm l. One force is of magnitude F and acts at one extreme end. The length of the rod is

(A) $\frac{2(F+ma)l}{ma}$ (B) $l\left(1+\frac{F}{ma}\right)$

(C) $\frac{(F+ma)l}{2ma}$ (D) $\frac{mal}{ma+F}$

(E) None of these

14. The potential energy of a particle of mass 1 kg in motion along the x-axis is given by U = 4(1 – cos2x) J. Here x is in meter. The period of small oscillaitons (in sec) is _____.

(A) $v_1 = v_2$

(B) $v_1 > v_2$

(C) $v_1 < v_2$

(D) All of these

(E) None of these

15. A disc of radius R=10 cm oscillates as a physicla pendulum about an axis perpendicular to the plane of the disc at a distance r from its centre. If $r = \frac{R}{4}$, the approximate period of oscillation is (Take g = 10ms $^{-2}$)

(A) 0.84 s (B) 0.94 s

(C) 1.26 s (D) 1.42 s

(E) None of these