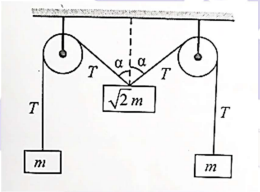
NEW STANDARD ACADEMY

Marks: 90

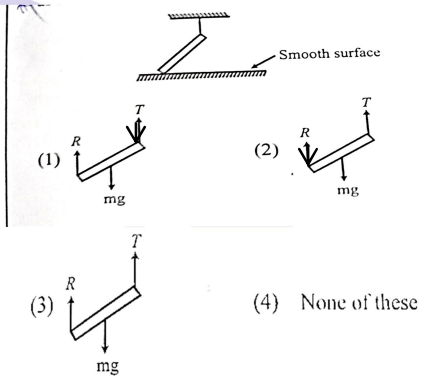
Date : 05-08-24 **CLASS : 11TH NEET** **Time: 3 HRS**

PHYSICS

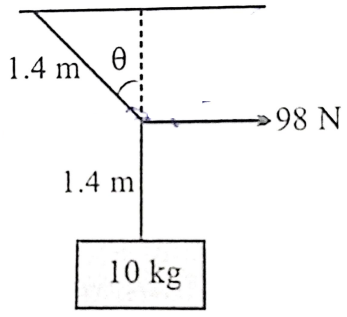
1. A player takes 0.1 s in catching a ball of mass 150 g moving with velocity of 20 m/s. The force imparted by the ball on the hands of the player is
   (1) 0.3 N (2) 3 N
   (3) 30 N (4) 300 N
2. An open railroad car of mass M is moving with initial velocity v_0 on a straight horizontal frictionless track It suddenly starts raining at time t = 0 The raindrops fall vertically with velocity v and add a mass of u kg/s of water. Determine the velocity v of car after t seconds
   (1) $Mv_0/M - \mu t$
   (2) $\mu t v_0/M + \mu t$
   (3) $Mv_0/M + \mu t$
   (4) None of these
3. A stream of a liquid of density p flowing horizontally with a speed v gushes out of a tube of radius and hits at a vertically wall nearly normally. Assuming that the liquid does not rebound from the wall, the force exerted on the wall by the impact of liquid is given by
   (1) $\pi\varepsilon\rho v$ (2) $\pi r\rho v^2$
   (3) $\pi r^2\rho v$ (4) $\pi r^2\rho v^2$
4. The pulleys and strings shown in the figure are smooth and of negligible mass. For the system to remain in equilibrium, the angle



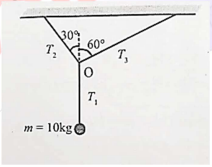
   a should be
   (1) 0° (2) 30°
   (3) 45° (4) 60°
5. A thick uniform rope of mass 6 kg and length 3 m is hanging vertically from a rigid support. The tension in the rope at a point 1 m from the support will be (Take g = 10 ms^{-2})
   (1) 20 N (2) 30 N
   (3) 40 N (4) 60 N
6. Which figure represents the correct FB.D. of rod of mass m as shown in figure.



7. A mass of 10 kg is suspended by a rope of length 2.8 m from a ceiling A force of 98 N is applied at the midpoint of the rope as shown in figure. The angle which the rope makes with the vertical in equilibrium is:



   (1) 30° (2) 60°
   (3) 45° (4) 80°
8. A ball of mass m = 10kg is suspended with the help of three strings as shown in the fig. Find the tensions T_1 T_2 and T_3



9. A lift moves downwards with an acceleration a. A passenger in the lift

drops a book. The acceleration of the book with respect to the floor of lift is (assume acceleration due to gravity = g)

(1) g (2) a

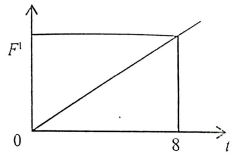
(3) g-a (4) g+a

10. The mass of a lift is 600 kg and it is moving upwards with a uniform acceleration of 2 m/s². Then the tension in the cable of the lift is

(1) 7080 N (2) 5880 N

(3) 4680 N (4) zero N

11. A force-time graph for the motion of a body is shown in figure Where F=1N. Change in linear momentum between 0 and 8 s is



(1) Zero (2) 4 N-s

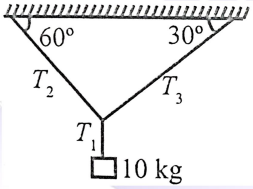
(3) 8 Ns (4) None

12. 2. A bullet is fired from a gun. The force on the bullet is given by F = [600 - 2×10^5t] where F is in newton and / is in secondbullet becomes zero as soon as it leaves the barrel. What is the average impulse imparted to the bullet?

(1) 9N – s (2) Zero

(3) 0.9N – s (4) 1.8N – s

13. A block of mass 10 kg is suspended by three strings as shown in the figure. The tension T_2 is



(1) 100N (2) $\frac{100}{\sqrt{3}}N$

(3) $\sqrt{3}$ (4) $50\sqrt{3}N$

14. A rope of length L and mass M is hanging from a rigid support. The tension in the rope at a distance x from the rigidsupport is

(1) Mg (2) $\left(\frac{L-x}{L}\right)Mg$

(3) $\left(\frac{L}{L-x}\right)Mg$ (4) $\frac{x}{L}Mg$

15. Consider the following statement: When jumping from some height, you should bend your knees as you come to rest, instead of keeping your legs stiff. Which of the following relations can be useful in explaining the statement

(1) $\Delta\overline{P_1} = \Delta\overline{P_2}$

(2) $\Delta E = -\Delta(PE + KE) = 0$

(3) $\vec{F}\Delta t = m\Delta\vec{v}$

(4) $\Delta\vec{x} \propto \Delta\vec{F}$

CHEMISTRY

1. Free energy change for reversible process at equilibrium is:

(a) More than zero

(b) Less than zero

(c) Equal to Zero

(d) None of the above

2. In adiabatic condition a process which favours:

(a) q = 0 (b) $\Delta P = 0$

(c) W = 0 (d) $\Delta T = 0$

3. Heat of reaction depends on:

(a) Temperature

(b) Physical state of matter

(c) Both

(d) None

4. In isothermal expansion of an ideal gas:

(a) q = 0 (b) $\Delta U = 0$

(c) W= 0 (d) dV = 0

5. Match the columns

'I'	'II'
1. U + PV	(A) ΔG
2. $C_P - C_V$	(B) q
3. ΔU + W	(C) H
4. q_{rev}/T	(D) R
5. ΔH – TΔS	(E) ΔS

(a) 1-D,2-B,3-D,4-C,5-B

(b) 1-C,2-D,3-B,4-E,5-A

(c) 1-A,2-B,3-C,4-D,5-E

(d) 1-A, 2-E,3-D,4-C, 5-B

6. A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5 atm from an initial volume of 2.5 L to a final volume of 4.5 L. The change in internal energy ΔU of the gas in joules will be :

(a) -505 J (b) 1136.25J

(c) -500 J (d) 505 J

7. In the cyclic process:

(a) q = 0 (b) ΔE=0

(c) w = 0 (d) $\Delta E \neq 0$

8. Hess' law is an application of:

a) Ist law of thermodynamics

b) IInd law of thermodynamics

c)Entropy change
d) Free energy change

9. Heat exchange at constant temperature and constant pressure in a chemical process is called
   a) Internal energy b) Enthalpy
   c) Entropy d) Free energy
10. The reaction with $\Delta H = \Delta U$ is:
    a) $C_{(s)}+2H_2O_{(g)} \rightarrow 2H_{2(g)}+ CO_{2(g)}$
    b) $PCl_{5(g)} \rightarrow PCl_{3(g)}+Cl_{2(g)}$
    c) $2CO_{(g)}+ O_{2(g)} \rightarrow 2CO_{2(g)}$
    d) $H_{2(g)}+Br_{2(g)} \rightarrow 2HBr_{(g)}$
11. Which among the following is not a state function?
    a) Free Energy b) Entropy
    c) work d) Enthalpy
12. ΔU equal to
    a) Isobaric work b) Adiabatic work
    c) Isothemal work d) Isochoric work
13. The value of ΔH for an exothermic reaction is:
    a) Positive b) Negative
    c) Zero d) Positive & Negative
14. Which one of the following equations does not correctly represent the first law of thermodynamics for the given processes involving an ideal gas?(Assume non-expansion work is Zero)
    a) Cyclic process: q = -*w*
    b) Isothermal process: q = -*w*
    c) Adiabatic process:$\Delta U = -w$
    d) Isochoric process: $\Delta U = q$
15. Which among the following unit exhibits maximum energy?
    a) Calorie b) Joule
    c) Erg d) Electron volt

BIOLOGY

1. Kala-azar is transmitted by
   a) Tsetse fly b) sand fly
   c) Housefly d) Metaphore
2. Bubonic plague is spread by
   a) Rat flea b) Mosquito
   c) Aedes d) Anopheles
3. Silk is obtained from
   a) Bombyx mori b) Apis mellifera
   c) Laccifer lacca d)None of these
4. Beetle larvae are called
   a) Naiads b) Grubs
   c) Nymphs d) Maggots
5. Chemoreceptor in pila is
   a) Osphradium b) Radula
   b) Spiracle d) Ctenidium
6. Most primitive among following molluscs is
   a) Nautilius b) Neopilina
   b) Chiton d) patella
7. The generic name of tusk shell is
   a) Neopilina b) Chiton
   c) Pila d) Dentalium
8. A wood boring mollusc is
   a) Chiton b) Limax
   b) Patella c) Teredo
9. A phylum exclusively marine is
   a) Coelenterate b) Porifera
   c) Protozoa d) Echinodermata
10. Organs of locomotion in Echinodermata are
    a) Parapodia b) Pseudopodia
    c) Feet d) Tube feet
11. The adults are radially symmetrical but larvae exhibit bilateral symmetry in
    a) Mollusca b) Hemichordate
    c) Echinodermata d) Cephalochardata
12. Deuterostome and enterocolomate invertebrate is
    a) Pila b) Ascaris
    c) Aphrodite b) Asterias
13. Select an incorrect match.
    a) Epipetalous – brinjal
    b) Epiphyllous – lily
    c) Monoadelphous – China rose
    d) Diadelphous - citrus
14. In hypogynous flower, the ovary is ____ as in____
    a) Superior,cucumber
    b) Superior, Cahina rose
    c) Inferior, ray florets of sunflower
    d) Half inferior, peach
15. Stalk of a flower is called
    a) Petiole b) Peduncle.
    c) Pedicel d) Pulvinule