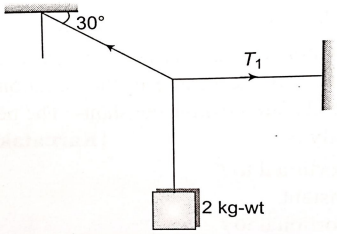
NEW STANDARD ACADEMY

Marks: 90

Date : 20-08-24 **CLASS : 11TH NEET** **Time: 3 HRS**

PHYSICS

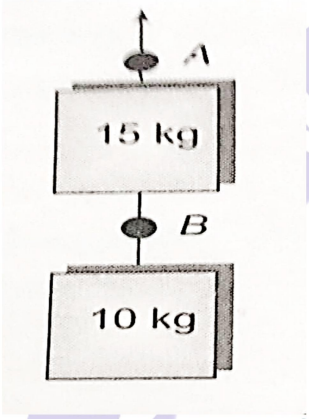
1. A ball of mass 0.5 kg moving with a velocity of 2 m/sec strikes a wall normally and bounces back with the same speed. If the time of contact between the ball and the wall is one millisecond, the average force exerted by the wall on the ball is
   (a) 2000 N
   (b) 1000 N
   (c) 5000 N
   (d) 125 N
2. A ball of mass 0.2 kg moves with a velocity of 20 m/sec and it stops in 0.1 sec; then the force on the ball is
   (a) 40 N
   (b) 20 N
   (c) 4 N
   (d) 2 N
3. A person sitting in an open car moving at constant velocity throws a ball vertically up into air. The ball falls
   (a) out side the car
   (b) in the car ahead of the person
   (c) in the car to the side of the person
   (d) exactly in the hand which threw it up
4. If rope of lift breaks suddenly, the tension exerted by the surface of lift
   (a = acceleration of lift)
   (a) mg
   (b) m(g + a)
   (c) m(g - a)
   (d) 0
5. n small balls each of mass m impinge elastically each second on a surface with velocity u. The force experienced by the surface will be
   (a) mnu
   (b) 2 mnu
   (c) 4 mnu
   (d) 1/2 mnu
6. A body of weight 2 kg is suspended as shown in the figure The tension T_1 in the horizontal string (in kg wt) is



   (a) $2 / \sqrt{3}$
   (b) $\sqrt{3} / 2$
   (c) $2\sqrt{3}$
   (d) 2
7. A body of mass 4 kg weighs 4.8 kg when suspended in a moving lift. The acceleration of the lift is
   (a) 9.80 m/s^2 downwards
   (b) 9.80 m/s^2 upwards
   (c) 1.96 m/s downwards
   (d) 1.96 m/s^2 upwards
8. An elevator weighing 6000 kg is pulled upward by a cable 8 with an acceleration of $5ms^{-2}$ Taking g to be $10ms^{-2}$. then the tension in the cable is
   (a) 6000 N
   (b) 9000 N
   (c) 60000 N
   (d) 90000 N
9. A force acts on a body which is initially at rest. At the end of 20 sec the velocity of the body is then the mass of the body is
   (a) 8 kg (b) 10 kg
   (c) 5 kg (d) 4.5 kg
10. A cork is submerged in water by a spring attached to the bottom of a bucket. When the bucket is kept in an elevator moving with an acceleration downwards, the spring length
    (a) increases (b) decreases
    (c) remains unchanged (d) data insufficient
11. A bullet moving with a velocity of 100 m/s can just penetrate two planks of equal thickness. The number 1 of such planks penetrated by the same bullet, when the velocity is doubled, will be
    (a) 4

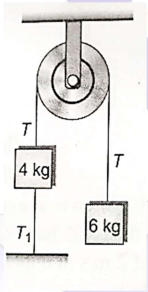
(b) 6
(c) 8
(d) 10

12. A body of mass 10 kg is hanging from another body of mass 15 kg. The combination is pulled up by a string with an acceleration of $1.2ms^{-2}$ Find the tensions (in N) at A and B as shown in the figure. Take g = 9.8m / s^2



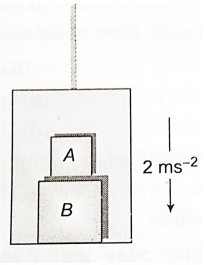
(a) 110,275
(b) 250, 100
(c) 275,110
(d) 100, 250

13. Two bodies of mass 4 kg and 6 kg are attached to the ends 12 of a string passing over a pulley. The 4 kg mass is attached to the table top by another string. The tension in this string , is equal to (Take g = 10 m/s^2)



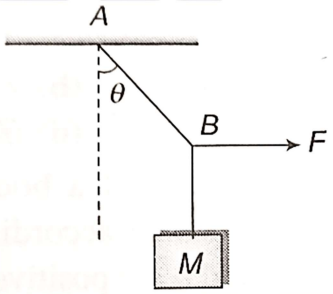
(a) 20 N
(b) 25 N
(c) 10.6.N
(d) 10 N

14. The elevator shown in figure is descending with an acceleration of $2ms^{-2}$ The mass of the block A = 0.5kg The force exerted by the block A on the block B is (Take g = 10m /s^2)



a) 2 N
(b) 4 N
(c) 6 N
(d) 8 N

15. A mass M is suspended by a rope from a rigid support at A as shown in the figure.



Another rope is tied at the end B and it is pulled horizontally with a force F. If the rope AB make an angle θ with the vertical, then the tension in the string AB is
(a) F sin θ

(b) F / sin θ

(c) F cos θ

(d) F/cos θ

CHEMISTRY

1. Which of the following conditions regarding the chemical process ensures its spontaneity at all temperatures?
a) $\Delta H < 0; \Delta S < 0$
b) $\Delta H > 0; \Delta S < 0$
c) $\Delta H < 0; \Delta S > 0$
d) $\Delta H > 0; \Delta S > 0$

2. Given the following standard heats of reaction:
i) heat of formation of water = -68.3 kcal
ii) heat of combustion of C_2H_2= -310.6 kcal and
iii) heat of combustion of ethylene = -337.2 kcal.
The heat of reaction for the hydrogenation of acetylene at constant volume and at 25°C *is*

a) -41.104kcal b) 41.104 kcal
c) 43.306 kcal d) -43.306 kcal

3. The free energy and entropy change in kJ per mole when liquid water boils at 1 atmosphere are respectively (latent heat of water = 2.0723kJ $g^{-1)}$
a) 0,0 b) 0.1,0.1 c) 0.1,0 d) 0, 0.1
4. Which of the following statement is false?
a) $\Delta E = 0$ for adiabatic process
b) dq = 0 for adiabatic process
c) dT = 0 for isothermal process
d) dp = 0 for isobaric process
5. A tightly closed dessicator in action is an example of
a) open system b) isolated system
c) closed system d) none of these
6. The molar heat capacity of water at constant pressure, C is 75 JK^{-1} mol^{-1}.When 1.0 kJ of heat is supplied to 100 g of water which is free to expand the increase in temperature of water is
a) 1.2 K b) 2.4K c)| 4.8 K d)6.6K
7. If the bond energies of H-H, Br-Br, and H-Br are 433, 192 and 364 kJ mol^{-1} respectively ,the ΔH° for the reaction $H_{2(g)}+Br_{2(|g)}\rightarrow 2HBr_{(g)}$ is
a) -261kJ b) +103 kJ
c) +261 kJ d) -103kJ
8. A reaction occurs spontaneously if
a) TΔS < ΔH and both ΔH and ΔS are +ve
b) TΔS > ΔH and ΔH is +ve and ΔS is-ve
c) TΔS > ΔH and both ΔH and ΔS are +ve
d) TΔS = ΔH and both ΔH and ΔS are +ve
9. Given that bond energies of H - H and Cl-Cl are 430 kJ mol^{-1} and 240 kJ mol^{-1} respectively and ΔH_f for HCl is -90 kJ mol^{-1}, bond enthalpy of HCl is
a) 380kJmol^{-1}
b) 425kJmol^{-1}
c) 245kJmol^{-1}
d) 290kJmol^{-1}
10. For the gas phase reaction,
$PCI_{5(g)} \rightleftharpoons PCl_{3(g)} + Cl_{2(g)}$
which of the following conditions are correct?
a) ΔH < 0 and ΔS < 0
b) ΔH > 0 and ΔS < 0
c) ΔH = 0 and ΔS < 0
d) ΔH > 0 and ΔS > 0
11. Three moles of an ideal gas expanded spontaneously into vacuum. The work done will be
a) Infinite b) 3 Joules
c) 9 Joules d) Zero
12. Enthalpy change for the reaction,
$4H_{(g)}\rightarrow 2H_{2(g)}$ is-869.6 kJ.
The dissociation energy of H - H bond is
a)-434.8 kJ b) -869.6 kJ
c) + 434.8 kJ d) + 217.4kJ
13. The Gibb's energy for the decomposition of Al_2O_3 at 500℃ is as follows
$\frac{2}{3}Al_2O_3 \rightarrow \frac{4}{3}Al + O_2$
$\Delta_rG = +960kJmol^{-1}$
The potential difference needed for the electrolytic reduction of aluminium oxide (Al_2O_3) at 500 ℃ is at least
a) 4.5 V
b) 3.0 V
c) 2.5 V
d) 5.0 V
14. A reaction having equal energies of activation for forward and reverse reactions has
a) ΔG = 0
b) ΔH = 0
c) ΔH = ΔG = ΔS = 0
d) ΔS = 0
15. The heat of combustion of carbon to CO_2 is-393 5 kJ/mol The heat released upon the formation of 35 2 g of CO_2 from carbon and oxygen gas is
a)-630 kJ b) -3.15 kJ
c) 3.15 kJ d) 630 kJ

BIOLOGY

1. Photosynthesis is
a) A physical process
b) A chemiocal Process
c) A physio- Chemical Process
d) An Energy wasting process
2. Photosynthesis is important because –
(a) It is an important source of all foods on earth
(b) It is responsible for the release of O_2
(b) A chemical process
(d) An energy wasting process
3. Moll's half leaf experiment proves that-
(a) Light is essential for photosynthesis
(b) CO_2 is essential for photosynthesis
(c) O_2 releases during photosynthesis

(d) Chlorophyll is essential for photosynthesis

4. Who proved that vegetation purifies the air impured by burning of candle-
(a)Von Mayr
(b) De Saussure
(c) Sachs
(d) Joseph Priestley
5. Who discovered the role of light and green parts of the plants in purifying the noxious air-
Von Mayr
(b) De Saussure
(c) Sachs
Jan Ingenhousz
6. Who found that in green parts of plant glucose is made and glucose is a store in the form of starch.
(a) Sach
(b) Amon
(c) Arnold
(d) Englemann
7. Who used prism, white light, green alga, Cladophora and aerobic bacteria and plotted the action spectra for photosynthesis
(a)Sach
(b) Amon
(c) Arnold
(d) Englemann
8. Who proved that O_2 comes from water, not from CO_2, in photosynthesis? It was based on the experiment of photosyn thesis in purple and green bacteri
(a) Van Neil
(b) Englemann
(c) Arnold
(d) Amon
9. Which one is the correct summary equation of photosynthesis-
(a) $C_6H_{12}0_6+60 \rightarrow 6CO_2+ 6H_2O+$ energy
(b) $C_8H_{12}0_6+6O_2+6H_2O \rightarrow 6CO_2+12H_2O+$ energy
(c) $6CO_2 + 6H_2O \xrightarrow{light} 60_2+ C_6H_{12}0_6$
(d) $6CO_2+12H_2O \xrightarrow{light} 60_2+ C_6H_{12}0_6+ 6H_20$
10. 14. Which one is correct?
I. Light reaction occurs in stroma
II. Light reaction occurs in grana and ATP + $NADPH_2$ are formed
III. In stroma dark reaction occurs
IV.Dark reaction is not directly light driven but is dependent on the products (ATP + NADPH2) formed in light reaction
(a) All are correct
(b)All are incorrect
(c) II, III and IV are correct
(d) I, II and IV are correct
11. Which one is not an accessory photosynthetic pigment?
(a) Chl b
(b) Xanthophyll
(c) Carotene
(d) Chl a
12. What is/are the function(s) of accessory pigments?
(a)They enable a wider range of wavelength of incoming light to be utilized for photosynthesis
(b) They absorb light and transfer the energy to reaction centre
(c) They protect reaction centre from photooxidation
(d) All
13. The rate of photosynthesis of a freshwater plant is measured using five spectral colours. Which sequence of colours would give an increasing photosynthetic response?

Smallest → Largest response				
(a) Blue	Green	Yellow	Orange	Red
(b) Green	Yellow	Orange	Red	Blue
(c) Red	Orange	Yellow	Green	Blue
(d) Yellow	Green	Orange	Blue	Red

14. Photosynthesis and respiration have which of the following in common?
(a) In eukaryotes, both processes occur in specialised organelles
(b) ATP synthesis in both processes relies on chemiosmotic mechanism
(c) Both use electron transport
(d)All of the above
15. Light reaction/photochemical phase includes –
(a) Absorption of light, water splitting, O2 release
(b)ATP and $NADPH_2$ formation
(c) CO_2 fixation and glucose formation
(d) a and b