9TH CBSE CT-6S   23-12-2017

(Bio)

Ans.7

(A) Class Algae :

✦ Characters :

- These are aquatic or terrestrial, fresh water or marine. Autotrophic, photosynthetic containing various pigments like chlorophyll, carotenoids, xanthophylls etc.
- Unicellular, colonial, filamentous.
- Cell wall of cellulose, e.g. blue green algae (Nostoc) , Green algae (Ulothrix, Spirogyra) Brown algae, red algae etc.

(B) Class Fungi :

Ans.11 Aves & mammals

Snake

➢ Class Aves

- These are warm-blooded animals and have a four-chambered heart.
- They lay eggs.
- There is an outside covering of feathers, and two forelimbs are modified for flight.
- Posterior limbs used to walk on land, sit on twig of tree, or modified for swimming in water
- They breathe through lungs. Air sacs are attached to the lung's wall.
- Urinary bladder is absent in this class.
- They are unisexual and lay egg
- All birds fall in this category e.g. Pigeon, Sparrow, Crow, Duck, Heron

Pigeon

➢ Class Mammalia

- These are warm blooded animals with four chambered heart
- They possess mammary glands for production of milk to nourish their young ones
- Skin has hair as well as sweat and oil glands
- External ear possess pinna
- They reproduce by internal fertilization exception is platypus and echidna which lay eggs. Kangaroo gives birth to very poorly developed young ones.
- E.g. Man, Rat, Bat, Cat

Bat

Ans.14 (a) mold fungi

(b) saprophytic

Ans.8 (a) Shape of wing & ability to move it through air, use strong breast muscle to flap their wings, bones are light & hollow, air sac is present which helps in flight.

(b) With the help of gills and lungs or they use their skin for respiration.

(c) Because they give birth to live young ones, they have lungs & breath air & provide milk young ones.

(Chemistry)

Ans.1 Na_{11}^{23} Cl_{17}^{35}

2,8,1 2,8,7

Ans.2 Al_2O_3

Molecular mass/formula mass of $Al_2O_3 = 2\times27+3\times16$

$= 102$ gm

Now 102 gm g aluminium oxide contains = 6.022×10^{23} Al_2O_3

$\therefore$ 0.051 gm g aluminium oxide contains = $\frac{6.022\times10^{23}}{102}\times0.051$

$= 0.0030\times10^{23}$ Al_2O_3

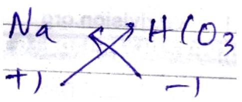
Now, 1 molecule of Al_2O_3 = 2 ions of Al^{3+}

$\therefore$ 0.0030×10^{23} 1 molecule of Al_2O_3 = $2\times0.0030v10^{23}$

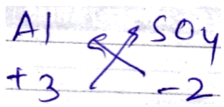
$=0.006 \times 10^{23}$

$= 6 \times 10^{20}$ ions

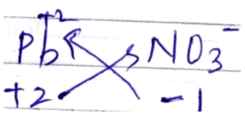
Ans.3 (i) $NaHCO_3$



(ii) $Al_2(So_4)_3$



(iii) $pb(No_3)_2$



Ans.4 (a) X-Alcohol

(b) Y-Iodine

(c) Sublimation

(d) Evaporation

(e) Sublimation

Ans.5 (a) Dissolve the imp ore sample of alum in water filter and evaporate the filtrate.

(b) It is use to clean or settle mud from muddy water.

(Physics)

CLASS IX (CBSE) CT-5S Dt: 23/12/17

PHYSICS SOLUTIONS

SECTION A

1. When the wire of a sitar is plucked, it produces
   (a) Transverse waves in the wire
   (b) Longitudinal waves in air

3. (a) Weight of an object on moon is the force with which it is attracted towards the centre of the moon.
   (b) The mass and radius of the moon is less than that of the earth. So from the formula,

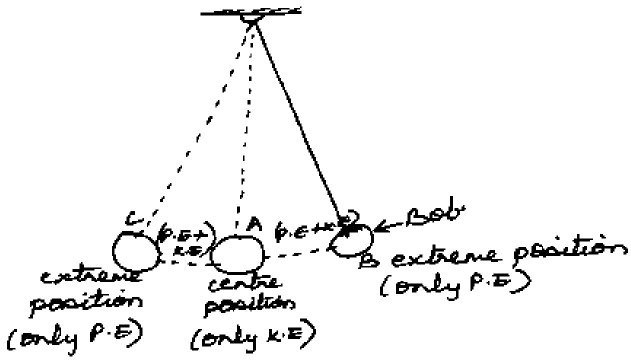
$$F = \frac{GMm}{R^2}$$

the moon exerts lesser force of attraction on the object than the earth. Hence the weight of an object on moon is less than that on Earth.

The weight of an object on moon is $1/6^{th}$ its weight on earth.

4. (a) Law of conservation of energy - Energy can neither be created nor destroyed. It can only be changed from one form to another. Appearing amount of energy in one form is always equal to disappearing amount of energy in some other form. The total energy thus remains constant

(b)



Initially, the simple pendulum is at rest with its bob in the mean position A. When the pendulum bob is pulled to one side to position B and then released, it starts swinging between positions B and C.

(i) When the pendulum bob is at position B, it has only potential energy because of higher position of B w.r.t. position A. It has no kinetic energy.

(ii) As the bob moves down from position B to position A, its potential energy goes on decreasing but its kinetic energy goes on increasing.

(iii) When the bob reaches the centre position A, it has only kinetic energy (but no potential energy)

(iv) As the bob goes from position A towards position C, its kinetic energy goes on decreasing but its potential energy goes on increasing. And at position C, the bob has only potential energy (no kinetic energy).

Thus we can conclude that at the extreme positions B and C of a swinging pendulum, all the energy of pendulum bob is potential and at the centre position A, all the energy of the bob is kinetic. At all other intermediate positions, the energy of bob is partly potential and partly kinetic.

But the total energy of the swinging pendulum at any instant of time remains the same i.e. it is conserved.

(c) $m = 40\text{kg}$, $g = 10\text{m/s}^2$, $h = 5\text{m}$

$$P.E. = mgh = 40 \times 10 \times 5$$
$$= \underline{\underline{2000J}}$$

when object is halfway down, $h = 2.5\text{m}$

$$\therefore v^2 - u^2 = 2gh$$
$$\Rightarrow v^2 - 0 = 2 \times 10 \times 2.5$$
$$\Rightarrow v^2 = 50$$

$$\therefore K.E. = \frac{1}{2}mv^2$$
$$= \frac{1}{2} \times 40 \times 50$$
$$= \underline{\underline{1000 J}}$$

9. (a) Newton's second law of motion – The rate of change of momentum of a body is directly proportional to the applied unbalanced force and takes place in the direction in which the force acts.

(b) Suppose initial velocity of an object with mass 'm' is 'u' and under the influence of some force 'F' after time 't', its velocity becomes 'v' then,

Initial momentum $p_i = mu$

Final momentum $p_f = mv$

$\therefore$ Change in momentum $\Delta p = p_f - p_i$

$= mv - mu$

$= m(v-u)$

$\therefore$ Rate of change in momentum $\frac{\Delta p}{t} = \frac{m(v-u)}{t}$

As per Newton's second law,

$$F \propto \frac{\Delta p}{t}$$

or $F \propto \frac{m(v-u)}{t}$

or $F = \frac{km(v-u)}{t}$ —— (i) where k is constant of proportionality

Now, acceleration $a = \frac{v-u}{t}$ —— (ii)

From (i) and (ii) we get

$F = kma$ —— (iii)

The unit of force is so chosen that the value of constant 'k' becomes 1.

$\therefore$ Eq. (iii) reduces to,

$$\boxed{F = ma}$$

(c) $F = 12N$ $\quad a_A = 4 m/s^2$ $\quad a_B = 6 m/s^2$

$F = m_A a_A$	$F = m_B a_B$
$12 = m_A \times 4$	$12 = m_B \times 6$
$\therefore m_A = 3 kg$	$\therefore m_B = 2 kg$

$m = m_A + m_B$

$m = 3 + 2 = 5 kg$ $\quad\quad F = 10 N$

Now, $F = ma$

$\Rightarrow a = \frac{F}{m} = \frac{10}{5} = \underline{\underline{2 m/s^2}}$

SECTION B

12. Option (b) — B and D