BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

POST MID-TERM EXAM (2024-25)

SCIENCE (086)

Class: IX **MARKING SCHEME** **Duration: 1 Hr**
Date: 09.01.25 **Max. Marks: 25**

Section–A

1. (c) *Bos indica* 1

2. (b) The sum of the number of protons and neutrons 1

3. (a) Both A and R are true and R is the correct explanation of the assertion. 1

Section–B

4. a) Milch animals- milk-producing females. Draught animals-animals for farm labour. 1

   b) Layers- fowl that produces eggs and Broilers- fowl producing meat. 1

5. (a) One joule (J) of work is the amount of work done when a force of one newton displaces an object one meter in the direction of the force. 1

   (b)Work done, W=F· S=140×15=2100 J. 1

6.

Here,

$u = 30km/h = \left(30 \times \frac{5}{18}\right)m/s = \frac{25}{3}m/s\left(1km/h = \frac{5}{18}m/s\right)$

$v = 60km/h = \left(60 \times \frac{5}{18}\right)m/s = \frac{50}{3}m/s$

m = 1500kg

According to work-energy theorem,

$W = \frac{1}{2}mv^2 - \frac{1}{2}\mu^2 = \frac{1}{2}m(v^2 - u^2)$

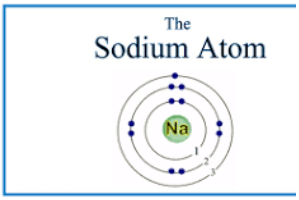
$\text{or } W = \frac{1}{2} \times 1500kg\left[\left(\frac{50}{3}m/s\right)^2 - \left(\frac{25}{3}m/s\right)^2\right]$

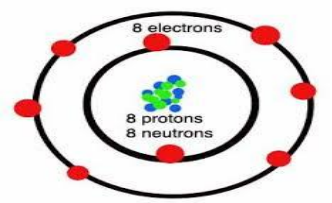
$= 750kg\left[\left(\frac{2500}{9} - \frac{625}{9}\right)(m/s)^2\right]$

$= 750kg \times 208 \times 208.33(m/s)^2 = 156250J$

1 + 1

7.





2

8. 10 (b) 2 (c) 7 (d) 10^{-} ½ + ½ + ½ + ½ =2

Section - C

9. *Apis mellifera*

i) More honey collection capacity.

ii) Sting less.

iii) Breed very well. 1+2

OR

Pasturage are the bees for nectar and pollen collection.

The value/quality and taste of honey depends on the quantity of pasturage and the kind of flowers.

Bee-keeping needs low investments, provides honey and wax for medicinal preparations. 1+2

10. a) Composite fish culture: a combination of five or six fish species is used in a single fishpond.

b) Capture fishing: Obtaining fish from the natural resources.

c) Marine fishery : a practice for culturing marine fish. 1+1+1

11. Kinetic energy is energy possessed by an object in motion.

$S = \frac{v^2-u^2}{2a}$

Since the body was at rest initially, the initial velocity of the body will be zero, that is, $u = 0$. Therefore,

$S = \frac{v^2-0^2}{2a}$

$S = \frac{v^2}{2a}$

Now, we know that force is given as,

$F = ma$

where m is mass and a is acceleration

Substituting the equation of force and distance in the equation for work done, we get.

$W = FS$

$W = \left(ma\right)\left(\frac{v^2}{2a}\right)$

$W = \frac{1}{2}mv^2$

According to the work-energy theorem, work done by a body equals the change in its kinetic energy.

3

12. Isotopes are atoms of the same element that have the same number of protons and electrons , but different numbers of neutrons. They have similar chemical properties but different physical properties.

Examples $_1^1H$, $_1^2H$, $_1^3H$

- **Carbon-14**: Used in carbon dating to determine the age of fossils
- **Uranium-235**: Used as a fuel in nuclear reactors
- **Cobalt-60**: Used in the treatment of cancer
- **Iodine-131**: Used in the treatment of goiter 3

**********Best of luck********