CBSE Class 9 Science Sample Paper

Set 1

Time- 2.30 hours   Total marks-80

SECTION – A

1. Mention the various methods of inter-crop hybridization.   [1 Marks]

2. Which type of farming system yields healthier grains?   [1 Marks]

SECTION – B

3. Why does air pollution increase during winter?   [2 Marks]

OR

Explain how air moves over sea and land during day and night.

4. Mention the elements and the ratio by mass of elements present in:

[2 Marks]

a. Ammonia

b. Carbon dioxide

5. Identify the energy involved in the following activities.

[2 Marks]

a. Winding a key in a toy

b. A running fast bowler

c. A falling apple

d. A stretched bow

SECTION – C

6. Differentiate between the following: [3 Marks]

a. Acceleration due to gravity and gravitational force

b. Buoyancy and up thrust

7. Explain any two methods of biological manuring.   [3 Marks]

OR

   Explain cross-breeding of cattle with an example.

8. Mention the rules to be followed according to Bohr and Bury's atomic
    model for writing the number of electrons in each orbital shell.
 [3 Marks]

9. Give reasons: [3 Marks]

a. Tides rising above the surface level of the sea

b. Satellites can circle in a circular orbit

c. A concert hall's ceiling is mostly curved.

10. Explain how the second law of motion influences a cricket fielder

while catching a ball.   [3 Marks]

11. Calculate the potential energy of an object at rest weighing 5 kg when placed at a height of 5 m above the level of the ground. Given gravitational constant g $= 9.8ms^{-2}$.
[3 Marks]

OR

A 40 W tube light is used for 8 hr/day. Find how much units of energy is consumed by the tube light in one day?
[3 Marks]

12. Calculate the mass of 0.125 mol NaOH. [3 Marks]

OR

Write the chemical formula of the substances formed:
a. Ammonium dichromate
b. Aluminium sulphate
c. Calcium phosphate
d. Iron (III) oxide

13.   [3 Marks]
a. Define cellular diffusion
b. Name any two elements that are transported through cellular diffusion
c. Mention any two benefits of cellular diffusion

14. Explain the action of the antibiotic penicillin in disease prevention. [3 Marks]

15. Although there is huge increase in carbon dioxide production by various human activities, the atmospheric carbon dioxide level is amounted in small quantities like around 409 parts per million. Explain the situation and its consequences. [3 Marks]

SECTION – D

16. [5 Marks]

a. Define the term with an example:

i. Symbiosis

ii. Parasitism

iii. Autotrophs

b. Identify the plant group with:

i. Stems and leaves but with hidden reproductive organs

ii. Stems and leaves but with no vascular system for conduction

17. [5 Marks]

a. Calculate the acceleration required to push a box weighing 3.5 kg with 2 N of force.

b. A crate weighing 45 kg was pushed on the floor to about 15 m with a force of 20 N. Calculate the work done.

OR

a. There is a change in velocity observed from 10 m/s to 15 m/s when a force of 300 N is applied on a body. Calculate the mass of the body?

b. What would be the force required to accelerate the speed of a vehicle weighing 1500 kg and moving at a speed of 10 ms^{-2}?

18. Explain saturation and solubility of a solution. [5 Marks]

OR

a. How do isotopes differ from isobars?

b. Mention two medicinal uses of isotopes

c. Represent the atomic number and mass number of isotopes of chlorine and carbon.

19.   [5 Marks]
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a. What should be the distance from the cliff if a person needs to hear the echo of his voice after 5 s, provided speed of the sound is 345 ms^{-1}.

b. What would be the velocity of a wave with frequency of 20 Hz and wavelength of 20 m? Mention if the frequency of the sound will be audible here?

20.   [5 Marks]

a) Mention the function of the following cell organelles:

i. Golgi apparatus

ii Mitochondria

b) i. Identify the cell organelles named A and B in the following animal
    cell diagram.
ii.   Differentiate between A and B
iii. Mention one function of each A and B
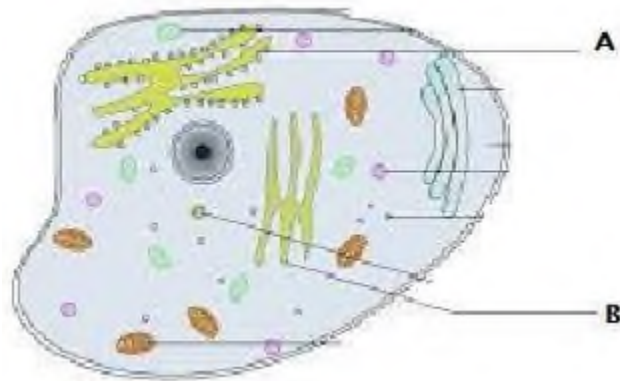
Or

a) i. Draw a neat labeled diagram of a prokaryotic cell

ii. Explain how prokaryotes differ from eukaryotes with respect to cell
    division

b) i. Draw a neat labeled diagram of a phloem cell.

ii. Name the phloem cell that is tubular in structure

SECTION – E
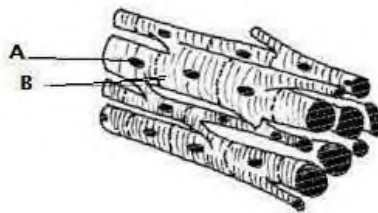
21. The canopy of a forest and milk, both exhibit Tyndall effect, but
    sugar solution does not. Explain why.   [2 Marks]

22.   [2 Marks]

a. Identify the following diagram and label the parts A and B.
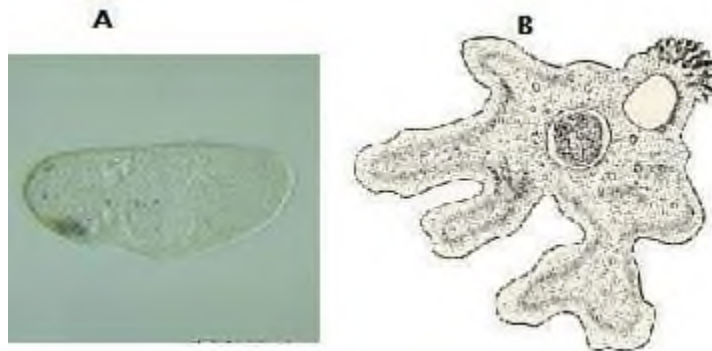
b. What type of muscle cell is this?

23.   [2 Marks]

i. Identify the two organisms as seen under a microscope

ii. Name the phylum to which they belong and mention one of its
    features.

A   B

24.   [2 Marks]

When 4.5 g of sodium carbonate reacts with 5 g of acetic acid, the products formed are 6.5 g of sodium acetate, 0.6 g of water, and 2.4 g of carbon dioxide. Mention the law which this reaction abides and explain how?

OR

Identify the pure substances and mixtures:
a) Tin
b) Ice
c) Carbon dioxide
d) Milk

25. Provide a balanced equation for the reaction between lead nitrate and sodium chloride.   [2 Marks]

26. Two bodies A and B weighs 2 kg each. When the body A was dropped into a container containing water, it displaced equal amount of weight of water.

Similarly, when body B was dropped into the container, it displaced more than its weight of water. Which of the two bodies will sink and which will float and explain why?   [2 Marks]

27. When a true solution of sugar was formed what would be its transparency and stability properties?   [2 Marks]

OR

While separating two immiscible liquid with oil and water, what would be observations?