

Q8. 70-80% of volume of a mature plant cell is occupied by

- (a) Endoplasmic reticulum (b) Nucleus (c) Cytoplasm (d) Vacuole

Q9. The plant tissue which provides mechanical strength and consists of living cells is

- (a) Parenchyma (b) Aerenchyma (c) Collenchyma (d) Sclerenchyma

Q10. Fats are stored in human body as

- (a) Cuboidal epithelium (b) Adipose tissue (c) Bones (d) Cartilage

Q11. The system of culturing five or six species of fish with different food habits, in a fishpond is called

- (a) Mariculture (b) Composite fish culture
(c) Capture fishing (d) Pisciculture

Q12. Weeds affect the crop plants by

- (a) Killing of plants in field before they grow (b) Dominating the plants to grow
(c) Competing for various resources of crops (plants) causing low availability of nutrients.
(d) All of the above

Q13. The area under a velocity time graph gives-

- (a) Distance (b) Acceleration (c) Speed (d) Displacement

Q14. Equations of motion can be derived by using-

- (a) Distance Time graph (b) Velocity Time graph for non uniform acceleration
(c) Displacement time graph (d) Velocity Time graph for uniform acceleration

Q15. Which of the following object has greater inertia? (Consider that all these objects are of same size)

- (a) A plastic ball (b) A paper ball (c) A solid iron ball (d) A Cotton ball

Q16. The weight of the object at the centre of the earth of radius R is

- (a) Infinite (b) R times the weight at the surface of the earth
(c) $1/R^2$ times the weight at the surface of the earth (d) None of the above

Q.17 to 20 are Assertion-Reasoning based questions. These consist of two statements- Assertion(A) and Reason(R) .

Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true and R is not the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

Q17. **Assertion:** Helium has two valence electrons and its valency is 0

Reason: Helium is most abundant element in universe.

Q18. **Assertion:** A plant cell bursts if placed in water.

Reason: High turgor pressure causes bursting of plant cells

Q19. **Assertion:** Shorter the duration of crop from sowing to harvesting, more economical is the variety.

Reason: Short duration allows farmers to grow multiple rounds of crop in a year.

Q20. **Assertion-**A heavy ball and a light ball dropped from the same height simultaneously in a frictionless zone reach the surface of the earth at the same time

Reason- Acceleration due to gravity acts equally on heavy and light balls

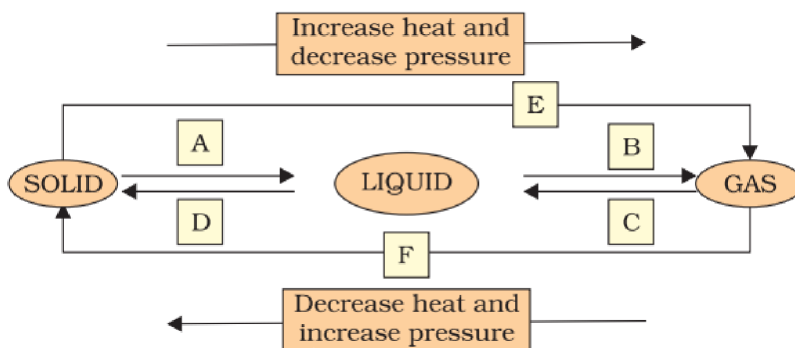
SECTION-B

Q21. Identify compounds, elements and mixtures from the following

Copper, Camphor, Wood, Soil, Soda water, Brass, Tin, Common salt

OR

From the diagram given below identify the process A, B, C, D, E and F and give one example for any two process



Q22. Write two statements to show that lysosomes are called the suicidal bags of the cell.

Q23. Draw the diagram of a plant cell and label any three parts which make it different from an animal cell.

Q24. Name the following:

(i) Tissue that forms the inner lining of our mouth.

(ii) Tissue that connects muscle to bone in humans.

(iii) Tissue that transports food in plants.

(iv) Connective tissue with a fluid matrix.

Q25. What are the desirable agronomic characteristics for crop improvement?

Q26. Calculate the force required to impart a car of 150kg with velocity of 30 m/s in 10s after it starts.

SECTION-C

Q27. a. How would you distinguish between a molecule of an element and a molecule of a compound?

b. Write chemical formula of any one of the following molecule and calculate its molecular mass.

i. Ammonium Hydroxide

ii. Magnesium Nitride

iii. Calcium Sulphate

Q28. a. Define polyatomic ions.

b. What is ratio of magnesium and oxygen in compound magnesium oxide.

Q29. Name three different types of blood cells and give their functions.

Q30. What are the advantages of composite fish culture?

Q31. State universal law of gravitation and write its importance.

OR

(i) Two particles placed at some distance if the mass of each of the two particles is doubled keeping the distance and changed what will be the value of gravitational force

(ii) If the radius of the particle is halved what will be the value of the gravitational force

Q32. Define work .State two factors on which the magnitude of work depends.

Q33. What is reflection of sound? State the law of reflection of sound.

SECTION-D

- Q34. a. Write any two postulates of Bohr's Model of atom.
b. Draw a sketch of Bohr's Model of atom with shells.
c. Write two points of difference between subatomic particles
- Q35. (i) Write three differences between cell wall and plasma membrane.
(ii) How is diffusion different from osmosis?

OR

- (i) Name the three different types of muscles found in human body and mention one function of each.
(ii) Explain the structure of a neuron with a diagram.
- Q36. i) Define kinetic energy.
ii) Derive its expression
iii) An athlete weighing 50 kg has 10 joule of kinetic energy. Calculate his speed.

SECTION – E

Q37. Matter is a substance which has mass and occupies space. Matter exists as solid, liquid and gaseous state. Solids have maximum intermolecular forces of attraction but least interparticle space, fixed volume and fixed shape. Liquids have less intermolecular force of attraction and more intermolecular space than solids. Liquids have fixed volume but not fixed shape. Gases have intermolecular space. And least intermolecular force. That is why they can be easily compressed and do not have fixed volume and shape. Salt and sugar dissolve in water to form aqueous solution.

- a) Which of the states of matter is rigid and why? (2)
b) Which of the states of matter has highest melting point and why? (2)

Q38. Different crops require different climatic conditions, temperature and photoperiods for their growth and completion of their life cycle. Photoperiods are related to the duration of sunlight. Growth of plants and flowering are dependent on sunlight. As we all know, plants manufacture their food in sunlight by the process of photosynthesis. There are some crops, which are grown in rainy season, called the kharif season from the month of June to October, and some of the crops are grown in the winter season, called the Rabi season from November to April. Paddy, soyabean, pigeon pea, maize, cotton, green gram and black gram are kharif crops, whereas wheat, gram, peas, mustard, linseed are Rabi crops.

In India there has been a four times increase in the production of food grains from 1952 to 2010 with only 25% increase in the cultivable land area. This increase in production been achieved through the practices involved in farming, we can divide it into three stages. The first is the choice of seeds for planting. The second is the nurturing of the crop plants. The third is the protection of the growing and harvested crops from loss. Thus, the major groups of activities for improving crop yields can be classified as: • Crop variety improvement • Crop production improvement • Crop protection management.

Answer the following questions:

- (1) What are macronutrients and why are they called macronutrients? (2 marks)
(2) How do plants get nutrients? (1 mark)
(3) Explain any one method of crop production. (1 mark)

Q39. Sound is produced by vibrating objects. The matter or substance through which sound is transmitted is called a medium. It can be solid, liquid or gas. Sound moves through a medium from the point of generation to the listener. When an object vibrates, it sets the particles of the medium around it vibrating. The particles do not travel all the way from the vibrating object to the ear. Sound waves are characterized by the motion of particles in the medium and are called mechanical waves. When a vibrating object moves forward, it pushes and compresses the air in front of it creating a region of high pressure; this region is called a compression(C).When the vibrating object moves backwards, it creates a region of low pressure called rarefaction (R) Hence sound is longitudinal wave.

- i) What kind of waves are the sound? 1
- ii) What is sound and how it is produced? 2
- iii) Why sound waves are called as longitudinal waves? 1