General Instructions:

A. All questions are compulsory.

B. The **Question Paper** comprises of **Two** Sections, **A and B**. You are to attempt both the sections.

C. All questions of **Section-A** and **Section-B** are to be attempted separately.

D. There is an internal choice in **three questions** of **three marks** each and **two question** of **five marks**.

E. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.

F. Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.

G. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.

H. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.

I. Question numbers **22 to 27** in **Section-B** are questions based on **practical** skills and are **two marks** questions.

Section A

1

What is the role of dendrites?

[1]

2

List two functions performed by the testis in human beings.

[1]

3

Name one element that could be discovered on the basis of Mendeleev's prediction.

[2]

4

To find the image-distance for varying object-distances in case of a convex lens, a student obtains on a screen a sharp image of a bright object placed very far from the lens. After that he gradually moves the object towards the lens and each time focuses its image of the screen.

(a) In which direction - towards or away from the lens - does he move the screen to focus the object?

(b) What happens to the size of image – does it increase or decrease?

(c) What happen when he moves the object very close to the lens?

[2]

5

What is meant by the transformation of energy? Explain giving an example.

[2]

6

How would you justify that a chemical reaction has taken place in the following cases:

(i) Burning of magnesium ribbon in air.

(ii) Addition of lead nitrate solution to potassium iodide solution.

(iii) Addition of dilute hydrochloric acid to zinc granules.

[3]

7

What are non-metallic oxides? Substantiate your answer.

[3]

OR

Name the gas evolved when a metal carbonate or metal hydrogen carbonate reacts with acids.

Explain the chemical reaction.

[3]

8

Why would an individual waste energy on a process it does not need to stay alive?

[3]

9

State the part played by each of the following in photosynthesis:

(a) Water (b)Chlorophyll (c) Stomata.

[3]

OR

Draw a labelled diagram of cross-section of a leaf lamina to show chloroplasts.

[3]

10

What are the main features of Mendeleev's Periodic table?

[3]

11

A cross was made between pure breeding pea plants one with round and green seeds and the other with wrinkled and yellow seeds.

(a) Write the phenotype of F1 progeny. Give reason for your answer.

(b) Write the different types of F2 progeny obtained along with their ration when F1 progeny was selfed.

[3]

12

State the laws of refraction of light. If the speed of light in vacuum is 3×10^8 ms^{-1}, find the speed of light in a medium of absolute refractive index 1.5.

[3]

13

A wire of resistance 10 Ω is drawn out so that its length is thrice its original length. Calculate its new resistance (resistivity and density of the wire remain unchanged).

[3]

14

State Mendel's (a) Law of segregation (b) Law of independent assortment.

[3]

15

Draw and discuss the pattern of the magnetic lines of force of a current carrying circular loop.

[3]

OR

How does the strength of the magnetic field at the centre of a circular coil of wire depend on

(i) the radius of the coil,

(ii) the number of turns of wire in the coil, and

(iii) the strength of current flowing in the coil?

[3]

16

Two metals, M_1 and M_2 are found to show the following properties:

(i) M_1 liberates H_2 when it reacts with dil. sulphuric acid whereas M_2 does not do so.

(ii) Both M_1 and M_2 react with chlorine to form $(M_1)Cl_2$ and $(M_2)Cl_2$ respectively. Indicate the reaction (if any) in the following:

(i) $(M_1)Cl_2 + M_2 \rightarrow$

(ii) $(M_2)Cl_2 + M_1 \rightarrow$

(ii) $(M_1)SO_4 + M_2 \rightarrow$

(iv) $(M_2)SO_4 + M_1 \rightarrow$

[5]

17

What are micelles? How does the formation of a micelle help to clean the clothes?

[5]

OR

State the reason why carbon can neither form C^{4+} cations nor anions but forms a covalent compound. Also, state the reason to explain why covalent compounds:

i) are bad conductors of electricity.

ii) have low melting and boiling point.

[5]

18

Which hormones regulate the following functions in the human body?

(i) The rate of metabolism (ii) sugar metabolism (iii) conversion of proteins into sugars

(iv)the amount of water reabsorption by the kidney (v) development of breast in females.

[5]

19

Define the following terms and give their values for a normal eye:

(i) Range of normal vision.

(ii) Least distance of distinct vision.

(iii) Near point of the eye.

(iv) Far point of the eye.

(v) Power of accommodation.

[5]

20

With the help of a labelled diagram, explain the principle, construction and working of an electric motor. What is the function of a split ring in an electric motor?

[5]

211

Give examples of herbivores, carnivores, omnivores and parasites.

[2]

212

The activities of man had adverse effects on all forms of living organisms in the biosphere. Unlimited exploitation of nature by man disturbed the delicate ecological balance between the living and non-living components of the biosphere. The unfavourable conditions created by man himself threatened the survival not only of himself but also of the entire living organisms on the mother earth. One of your classmates is and active member of 'Eco club' of your school which is creating environmental awareness amongst the school students, spreading the same in the society and also working hard for preventing environment degradation of the surroundings.

(a) Why is it necessary to conserve our enviroment?

(b) State the importance of green and blue dust-bins in the safe disposal of the household waste.

(c) List two values exhibited by your classmates who is an active member of Eco-club of your school.

[3]

Section B

22

Take 5 ml hydrochloric acid in a boiling tube or a conical flask. Add a few pieces of zinc granules to it.

(a) What do you observe on the surface of zinc granules?

(b) Name the gas evolved.

(c) What happens when the above gas is passed through soap solution?

(d) What happens when a burning candle is brought near the gas filled tube?

[2]

23

In order to study saponification reaction, we first prepare 20% solution of sodium hydroxide. If we record the temperature of this solution just after adding sodium hydroxide flakes to water and also test its nature using litmus, it may be concluded that the process of making this solution is

A. Exothermic and the solution is alkaline
B. Endothermic and the solution is alkaline
C. Endothermic and the solution is acidic
D. Endothermic and the solution is acidic

[2]

24

While performing this experiment to determine the percentage of water absorbed by raisins, a student made following measurements:

Mass of water in the beaker = 40 g

Mass of raisins before soaking = 5 g

Mass of raisins after soaking for 2 hours = 8 g

Mass of water left in the beaker after the experiment = 35 g

The percentage of water absorbed by raisins is:

A. $\frac{40g - 35g}{35g} \times 100$

B. $\frac{40g - 35g}{40g} \times 100$

C. $\frac{8g - 5g}{8g} \times 100$

D. $\frac{8g - 5g}{8g} \times 100$

[2]

25

Pollen grains are produced by

A. ovary

B. petal

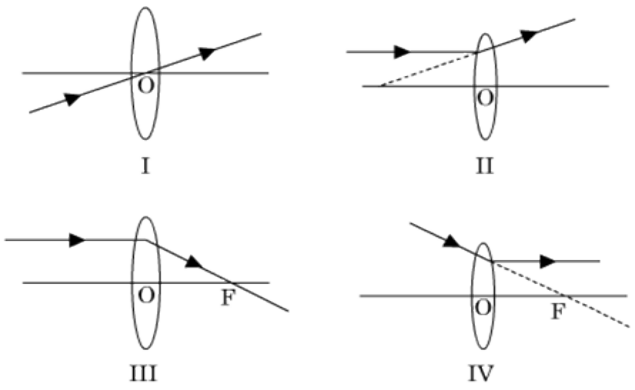
C. seed

D. anther

[2]

26

A student has obtained a magnified image of a flame on a screen using a convex lens. To draw the corresponding ray diagram to show the image formation, which of the following two rays whose paths after refraction are shown, should he select?



A. I and II

B. II and III

C. III and IV

D. III and IV

[2]

27

No current flows between two charged bodies when connected, if they have same

A. capacity

B. Potential

C. charge

D. none of the above

[2]