Nayak's Tutorials

Way to Excellence

Year: 2024-25 | **Practice Paper 1** | **Marks : 80**

Std: X CBSE | **Science** | **Duration: 3 Hrs**

General Instructions:

1. All questions would be compulsory. However, an internal choice of approximately 33% would be provided. 50% marks are to be allotted to competency-based questions.

2. Section A would have 16 simple/complex MCQs and 04 Assertion-Reasoning type questions carrying 1 mark each.

3. Section B would have 6 Short Answer (SA) type questions carrying 02 marks each.

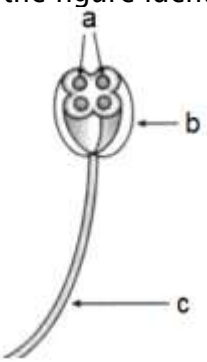
4. Section C would have 7 Short Answer (SA) type questions carrying 03 marks each.

5. Section D would have 3 Long Answer (LA) type questions carrying 05 marks each.

6. Section E would have 3 source based/case based/passage based/integrated units of assessment (04 marks each) with sub-parts of the values of 1/2/3 marks.

Section A

1. From the figure identify parts labeled a, b and c



a) Filament, anther, pollen grains b) Filament, pollen grains, anther

c) Anther, pollen grains, filament d) Pollen grains, anther, filament

2.The property of metal by which it can be drawn into wires is called:

a) Malleability b) Ductility c) Conductivity d) Sonorous

3. Plant growth regulators are produced at the

A. Companion cells of the phloem

B. Tip of growing root

C. Tip of a growing shoot

D. Parenchymatous cells

a) A and B b) All of these c) B and c d) C and D

4.In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F_2 is

a) 3 : 1 b) 1 : 1 c) 1 : 3 d) 2 : 1

5. A concave mirror gives virtual, refract and enlarged image of the object but image of smaller size than the size of the object is

a) Between P and F b) Between F and C c) At infinity d) At E

6. The anther contains

a) Pollen grains b) Ovules c) Sepals d) Carpel

7. Characteristics of images formed by the convex lens are:

A. Object at infinity; the image is formed at the focus F_2 ; real and inverted.

B. Object at $2F_1$; the image is formed at $2F_2$; enlarged, virtual and erect.

C. An object beyond $2F_1$; the image is formed between F_2 and $2F_2$; real and inverted.
D. Object at focus F_1 ; the image is formed at infinity; virtual and erect.

a) A and B b) C and D c) A, B and C d) A and C

8. When students observed a stained epidermal peel of a leaf under the microscope, it appeared pinkish red. The stain used was

a) iodine b) colchicine c) safranin d) acetocarmine

9. Which of the following statements are true about the brain?

i. The main thinking part of brain is hind brain.
ii. Centers of hearing, smell, memory, sight, etc are located in fore brain.
iii. Salivation, vomiting, blood pressure are controlled by the medulla in the hind brain.
iv. Cerebellum does not controls posture and balance of the body.

a) (i) and (ii) b) (i), (ii) and (iii) c) (ii) and (iv) d) (ii) and (iii)

10. Which among the following diseases is not sexually transmitted?

a) Syphilis b) HIV – AIDS c) Hepatitis d) Gonorrhoea

11. Match the following with correct response.

Column A	Column B
(i) Junction between neuron	(a) Thermoreceptors
(ii) The largest cell in the human body	(b) Neuron
(iii) Sense organs for smell	(c) Synapse
(iv) Sense organs for touch	(d) Olfactory receptors

a) (i) – (c), (ii) – (b), (iii) – (d), (iv) – (a) b) (i) – (b), (ii) – (d), (iii) – (a), (iv) – (c)
c) (i) – (d), (ii) – (a), (iii) – (c), (iv) – (b) d) (i) – (a), (ii) – (c), (iii) – (b), (iv) – (d)

12.Generally metals react with acids to give salt and hydrogen gas. Which of the following acids does not give hydrogen gas on reacting with metals (except Mn and Mg)?

a) HNO_3 b) H_2SO_4 c) HCl d) All of these

13. Out of four slides I, II, III, IV whose details are shown below, which one should be focused under the microscope for showing budding in Yeast?

a) IV b) III c) I d) II

14. Which of the given statement is correct or wrong:

Statement A: Ethane decolorizes bromine water whereas ethyne does not.
Statement B: Mixture of water and alcohol is used in radiators of vehicles in cold countries.

a) Statement B is true; Statement A is false.
b) Both – Statement A and Statement B – are true.
c) Statement A is true; Statement B is false.
d) Both – Statement A and Statement B – are false.

15. Functional group –COOH is present in which of the following?

a) Carboxylic acid b) Alcohol c) Ketone d) Aldehyde

16. Pick out a decomposition reaction:

a) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$ b) $C_2H_4 + H_2\ C_2H_6$
c) $Cu + AgNO_3\ Cu(NO_3)_2 + 2Ag$ d) $NH_4Cl\ NH_3 + HCl$

17. **Assertion (A):** The acidity of $Mg(OH)_2$ is two.
Reason (R): The acidity of a base is equal to the number of hydroxyl ions.

a) Both A and R are true and R is the correct explanation of A.

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

18. **Assertion (A):** When the length of a wire is doubled, then its resistance also gets doubled.
Reason (R): The resistance of a wire is directly proportional to its length.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

19. **Assertion (A):** Plants have low energy needs.
Reason (R): Plant bodies have large proportion of dead cells.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

20. **Assertion (A):** Zinc oxide is amphoteric in nature.
Reason (R): Zinc oxide reacts with both acids and bases.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

Section B

21. How will you use two identical prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Draw the diagram.

OR

Why the eye lens is not perfectly solid?

22. How do decomposers obtain food?
23. Why do we prefer a convex mirror as a rear view mirror in vehicles?
24. Why is cigarette smoking injurious to health?
25. Why do acids not show acidic behaviour in the absence of water?
26. Why do noble gases exist as mono atomic molecules?

Section C

27. i. Which types of metals can be obtained in their pure form by just heating their oxides in air? Give one example.
ii. Consider the reaction given below used to obtain Manganese metal in pure form:

$$3MnO_2\,(s) + 4Al(s) \longrightarrow 3Mn(l) + 2Al_2O_3\,(s) + \text{Heat}$$

a. What type of reaction is it?
b. What is the role of aluminium in this reaction?

28. Vegetarian food habits can sustain a larger number of people'. Justify the statement in terms of food chain.
29. How are the power and focal length of a lens related? You are provided with two lenses of focal length 20 cm and 40 cm respectively. Which lens will you use to obtain more convergent light?

OR

What should be the position of an object with respect to focus of a convex lens of focal length 20cm, so that its real and magnified image is obtained?

30. Food does not pass through the digestive system by 'gravity'. This is clear from the fact that we can digest the food even if we are lying down. Explain the logic behind the passage of food through our digestive system.

31. A camera in many ways is similar to the human eye, still, there are some basic differences in image formation between the two. Explain.

32. Fertilization is possible if copulation has taken place during middle of menstrual cycle. Give reason.

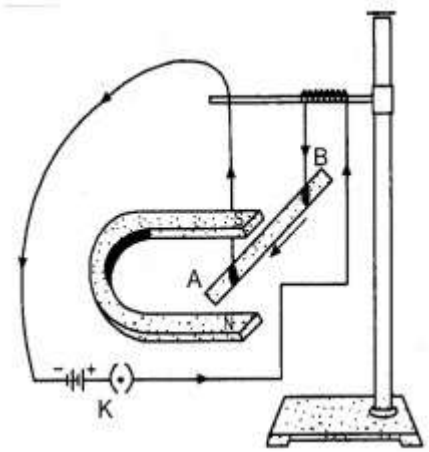
OR

Answer the following:

i. With the help of a diagram demonstrate the process of regeneration as seen in Planaria?

ii. Which type of cells are used by such multicellular organisms to regenerate?

33. In activity shown, how do you think the displacement of rod AB will be affected



i. if the current in rod AB is increased

ii. a stronger horse shoe magnet is used

Section D

34. Solution A turns the universal indicator blue to purple whereas solution B turns the universal indicator orange to red.

i. What will be the action of solution A on litmus?

ii. What will be the action of solution B on litmus?

iii. Name any two substances which can give solutions like A.

iv. Name any two substances which can give solutions like B.

v. What sort of reaction takes place when solution A reacts with solution B?

OR

In one of the industrial processes used for manufacture of sodium hydroxide, a gas X is formed as by-product. The gas X reacts with lime water to give a compound Y which is used as a bleaching agent in chemical industry. Identify X and Y giving the chemical equations of the reactions involved.

35. i. What are animal hormones? List their two characteristics.

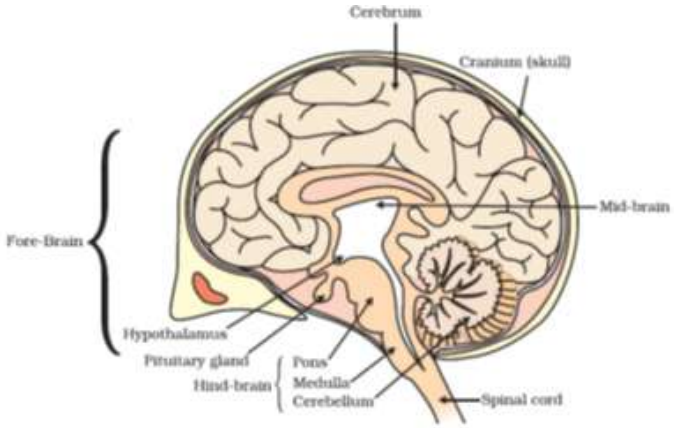
ii. Name the hormone.

a. Which brings change in male humans during the beginning of adolescence.

b. Which coordinates the level of sugar in blood?

OR

Given below is a labelled diagram of the human brain.



Using the given diagram, answer the following questions:

i. Which part of the brain controls reflex movements of the head, neck, and trunk?

ii. Name the part of the human brain which contains a vital centre for controlling blood pressure.

iii. Which part of the hindbrain regulates respiration?

iv. How is the brain protected from injuries and shock?

v. Which part of the human brain is the main thinking region?

36. a. Name and state the rule to find the direction of force experienced by a current-carrying straight conductor placed in a
magnetic field which is perpendicular to it.

b. Draw a well labelled diagram of an electric motor.

Section E

37. Read the text carefully and answer the questions:

Pea plants can have smooth seeds or wrinkled seeds. One of the phenotypes is completely dominant over the other. A farmer decides to pollinate one flower of a plant with smooth seeds using pollen from a plant with wrinkled seeds. The resulting pea pod has all smooth seeds.

i. Which crosses will give smooth and wrinkled seeds in the same proportion?

ii. Which cross can be used to determine the genotype of a plant with a dominant phenotype?

OR

On the crossing of two heterozygous smooth seeded plants (Rr), a total of 1000 plants were obtained in F_1 generation. What will be the respective number of smooth and wrinkled seeds obtained in F_1 generation?

38. Read the text carefully and answer the questions:

We know that a battery or a cell is a source of electrical energy. The chemical reaction within the cell generates the potential difference between its two terminals that sets the electrons in motion to flow the current through a resistor or a system of resistors connected to the battery. To maintain the current, the source has to keep expanding its energy. Where does this energy go? A part of the source energy in maintaining the current may be consumed for useful work (like in rotating the blades of an electric fan). The rest of the source energy may be expended in heat to raise the temperature of the gadget. We often observe this in our everyday life. For example, an electric fan becomes warm if used continuously for a long time, etc. On the other hand, if the electric circuit is purely resistive, that is, a configuration of resistors only connected to a battery; the source energy continually gets dissipated entirely in the form of heat. This is known as the heating effect of electric current. This effect is utilized in devices such as an electric heater, electric iron, etc.

i. Explain Joule's heating law.
ii. In practical situations, when an electric appliance is connected to a known voltage source, then how does the heating effect of electric current can be calculated?
iii. Write the relation between heat energy produced in a conductor when a potential difference V is applied across its terminals and a current I flows through for t.

OR

Two identical wires one of nichrome and the other of copper are connected in series and a current (I) is passed through them. State the change observed in the temperatures of the two wires.

39. Read the text carefully and answer the questions:

In a balanced chemical reaction, equal number of atoms are present on both sides of reaction. A balanced chemical reaction is based on law of conservation of mass which means that total mass of reactants and products participating in areaction must be equal. For example, a balanced chemical equation of burning of magnesium in oxygen to form magnesium oxide is written as:

$2Mg + O_2 \longrightarrow 2MgO$

The mass of reactants (2 x 24) + 32 = 80 is equal to the mass of products (2 x 24) + 16 = 80.

i. In a reaction, 35 g of reactant, PQ breaks down into 20 g of product, P and an unknown amount of product, Q. Find
the amount of product Q.
ii. The solid mercury (II) oxide is heated, and liquid mercury and oxygen gas are produced. Mention balanced chemical reaction.
iii. Which laws are satisfied by a balanced chemical equation?

OR

In the given chemical reaction,

$2C_6H_{6(l)} + 15O_{2(g)} \longrightarrow mCO_{2(g)} + nH_2O_{(l)}$

Find the values of m and n respectively.

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