Nayak's Tutorials

Way to Excellence

Year: 2024-25	**Practice Paper 2**	**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. An iron nail was kept immersed in an Aluminium Sulphate solution. After about an hour, It was observed that:
   a) the colourless solution changes to light green
   b) the solution becomes warm
   c) the solution remains colourless and no deposition is observed on iron nail
   d) grey-metal is deposited on the iron nail

2. Which of the given statement is correct:

Statement A: All metals form basic oxides.

Statement B: Few non-metals form neutral oxides.

   a) Both the statements A and B are false.
   b) Statement B is true. Statement A is false.
   c) Statement A is true. Statement B is false.
   d) Both the statements A and B are true.

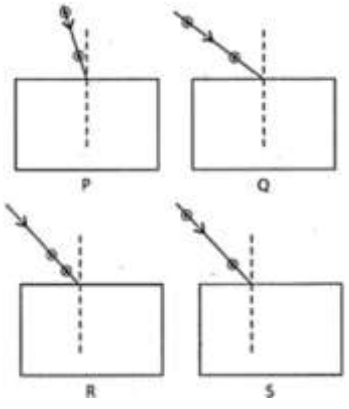
3. Which is the longest part of the neuron?
   a) Dendrites b) Myelin sheath c) Cell body d) Axon

4.The property of metal by which it can be drawn into wires is called:
   a) Malleability b) Ductility c) Conductivity d) Sonorous

5.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

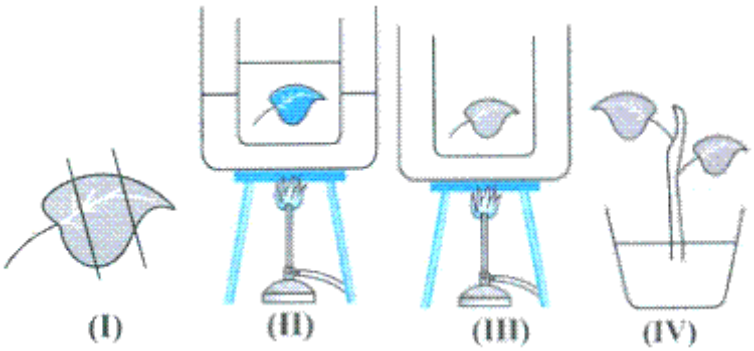
6.. In human males, the testes lie in the scrotum, because it helps in the
   a) all of these b) process of mating c) formation of sperm d) easy transfer of gametes

7. Select from the following the best experimental set-up for tracing the path of a ray of light passing through a rectangular glass slab:



   a) P b) S c) R d) Q

8. The figure which does not illustrate any of the steps of the experiment to show that light is necessary for photosynthesis
is



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

9. The movement of root away from light is:
a) Negative phototropism b) Positive phototropism
c) Positive geotropism d) Negative hydrotropism

10. In vegetative reproduction, the new individuals are genetically:
a) Better than the original b) Dissimilar c) Similar d) Abnormal

11. 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

12. What happen when calcium is treated with water?
a. It does not react with water.
b. It reacts violently with water.
c. It reacts less violently with water.
d. Bubbles of hydrogen gas formed during the reaction stick to the surface of calcium.
a) All of these b) B and C c) A, B and D d) C and D

13. In human beings, fertilization of ovum takes place in:
a) Fallopian tubes b) Ovary c) Uterus d) Vagina

14. The soap molecule has a
a) hydrophobic head and a hydrophilic tail b) hydrophilic head and a hydrophobic tail
c) hydrophilic head and a hydrophilic tail d) hydrophobic head and a hydrophobic tail

15. 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.

16. Which of the following decolourizes a blue solution of copper sulphate?
A. Al B. Zn C. Fe
a) (A), (B) and (C) b) (B) only c) (A) only d) (C) only

17. **Assertion (A):** If the pH inside the mouth decreases below 5.5, the decay of tooth enamel begins.
Reason(R): The bacteria present in mouth degrades the sugar and leftover food particles and produce acids that remains
in the mouth after eating.
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 area of the conductor is halved then the resistance of the material gets doubled when length is kept
constant.

Reason (R): Because resistance is inversely proportional to the area of a cross-section of the material.

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):** In plants, there is no need for specialised respiratory organs.

Reason (R): Plants do not have great demands for gaseous exchange.

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

b) Both A and R are true but R is not the correct explanation of the assertion

c) A is true but R is false.

d) A is false but R is true.

20. **Assertion (A):** In alumino thermite process, the metals like iron melts due to the heat evolved in the reaction.

Reason (R): The reaction is

$Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe$

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. What is astigmatism? What causes astigmatism? How is astigmatism corrected?

OR

What is the role of the ciliary muscles?

22. What are the harmful effects of acid rain?

23. What will happen to a ray of light when it falls normally on a surface? Show it diagrammatically.

24. What are the differences between autotrophic and heterotrophic nutrition?

25. Identify the number of replaceable hydrogen ions (H^+) in the following acids:

i. HCl ii. CH_3COOH iii. H_2SO_4 iv. H_3PO_4

26. i. Name the property of ethanol which makes it useful in medicines.

ii. Name the organic compound which is used in pickles. Mention its composition.

iii. Mention any two uses of alcohol in medicines.

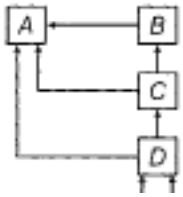
Section C

27. You are given a hammer, a battery, a bulb, wires and switch.

(a) How would you use them to distinguish between samples of metals and non metals?

(b) Assess the usefulness of these tests to distinguish between metals and non-metals.

28. We already know that a food chain contains different organisms at different trophic levels in a typical ecosystem. In the diagram (of ecosystem energy flow in an ecosystem) given below identify the secondary consumers and explain your choice.



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29. How can you distinguish between plane mirror, convex mirror and concave mirror by merely looking at the image formed in each case?

OR

(a)An object is kept at a distance of 18 cm, 20 cm and 30 cm, from a lens of power+5D. (i) In which case or cases would you get a magnified image? (ii) Which of the magnified image can we get on a screen?

(b) List two widely used applications of a convex lens.

30. In each of the following situations what happens to the rate of photosynthesis?

i. Cloudy days ii. No rainfall in the area

iii. Good manuring in the area iv. Stomata get blocked due to dust

31. i. State two main causes of a person developing near-sightedness. With the help of a ray diagram, suggest how he can be helped to overcome his disability?

ii. The far point of myopic person is 100 cm in front of the eye. Calculate the focal length and power of a lens required to enable him to see distant objects clearly.

32. Ravi took three bread slices and kept them in the following conditions

i. Slice 1 in a dry and dark place

ii. Slice 2 in moist and dark place

iii. Slice 3 in moist and in refrigerator

What would he observe in each of the above conditions? Give reasons for your answer.

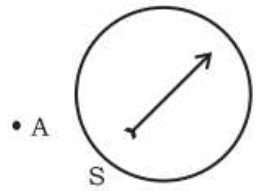
OR

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. A magnetic compass needle is placed in the plane of paper near point A as shown in the figure.



i. In which plane should a straight current-carrying conductor be placed so that it passes through A and there is no change in the deflection of the compass?

ii. Under what condition is the deflection maximum and why?

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

i. Why does an aqueous solution of acid conduct electricity?

ii. How does the concentration of hydrogen ions $[H_3O]^+$ changes when the solution of an acid is diluted with water?

iii. Which has higher pH. A concentrated or dilute solution of HCL?

iv. What would you observe on adding dil HCL acid to

a. Sodium bicarbonate placed in a test tube

b. Zinc metal in a test tube.

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

ii. Name the hormone.

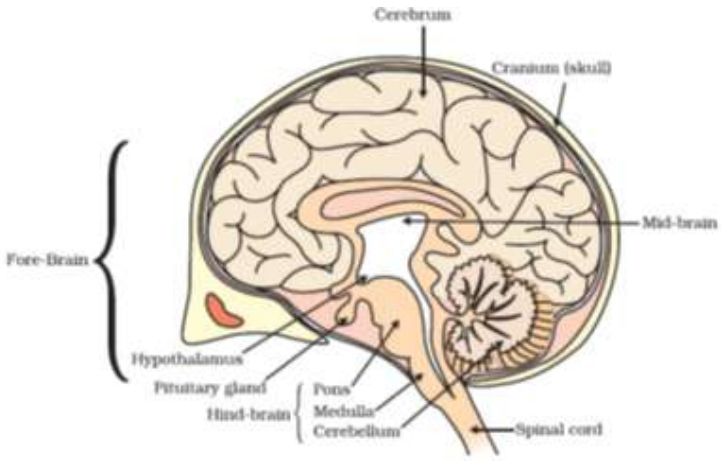
a. Which brings change in male humans during the beginning of adolescence.

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. Describe the activity that shows that a current-carrying conductor experiences a force perpendicular to its length and the external magnetic field. How does Fleming's left-hand rule help us to find the direction of the force acting on the current-carrying conductor?

Section E

37. **Read the text carefully and answer the questions:**

The heating effect of current is obtained by transformation of electrical energy into heat energy. Just as mechanical energy used to overcome friction is covered into heat, in the same way, electrical energy is converted into heat energy when an electric current flows through a resistance wire. The heat produced in a conductor, when a current flows through it is found to depend directly on (a) strength of current (b) resistance of the conductor (c) time for which the current flows.

The mathematical expression is given by $H = I^2Rt$. The electrical fuse, electrical heater, electric iron, electric geyser etc. all are based on the heating effect of current.

i. What are the properties of heating element?

ii. What are the properties of electric fuse?

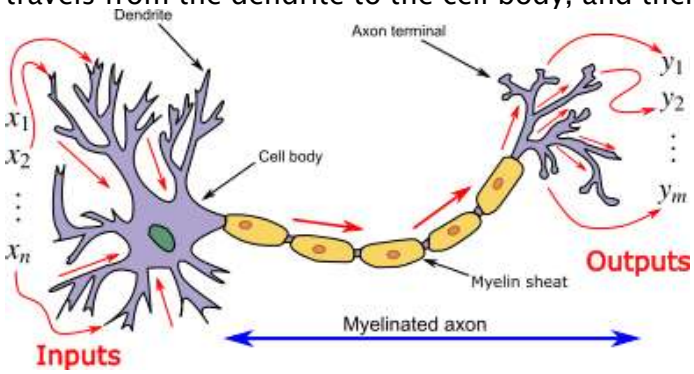
OR

When the current is doubled in a heating device and time is halved, what will be the heat energy produced?

38. **Read the text carefully and answer the questions:**

In animals, control and coordination are provided by nervous and muscular tissues. Touching a hot object is an urgent and dangerous situation for us. We need to detect it and respond to it. How do we detect that we are touching a hot object? All information from our environment is detected by the specialised tips of some nerve cells. These receptors are usually located in our sense organs, such as

the inner ear, the nose, the tongue, and so on. So gustatory receptors will detect taste while olfactory receptors will detect the smell. This information, acquired at the end of the dendritic tip of a nerve cell, see figure, sets off a chemical reaction that creates an electrical impulse. This impulse travels from the dendrite to the cell body, and then along the axon to its end.



i. Name the largest cell present in the body.
ii. What is an axon ?
iii. Name one gustatory receptor and one olfactory receptor present in a human beings.

OR

Name the following parts of a neuron:
a. Where information is acquired.
b. Through which information travels as an electrical impulse.

39. **Read the text carefully and answer the questions:**

Salt of a strong acid and strong base is neutral with a pH value of 7. NaCl common salt is formed by a combination of hydrochloride and sodium hydroxide solution. This is the salt that is used in food. Some salt is called rock salt, bed of rock salt was formed when seas of bygone ages dried up. The common salt thus obtained is an important raw material for various materials of daily use, such as sodium hydroxide, baking soda, washing soda, and bleaching powder.

i. If given acids are phosphoric acid, carbonic acid, hydrochloric acid and sulphuric acid, then which acid does not form an acidic salt?
ii. What is the formula of baking soda?
iii. Name the substance which on treatment with chlorine to obtain bleaching powder.

OR

Which salt is used for removing the permanent hardness of water?

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