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NAME 04/02/2020
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DELHI PUBLIC SCHOOL VINDHYANAGAR
PRE-BOARD 2 EXAMINATION (2019-20)

CLASS - X **Max. Marks: 80**
SUBJECT - SCIENCE (086) **Time: 3 Hrs**

General Instructions:

i. *the question paper comprises of three section- A, B, and C. Attempt all the sections.*
ii. *All questions are compulsory.*
6Internal choice is given in each sections.
iii. *All questions in Section A are **one** mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.*
iv. *All questions in Section B are **three** mark , short answer type questions .These are to be answered in about 50-60 words each.*
v. *All questions in Section B are **five** mark , long answer type questions .These are to be answered in about 80-90 words each.*
vi. *This question paper consists of a total of 30 questions.*

Q.1 The power of lens is -1D. What is focal length and nature of lens? 1
a) 50cm, convex lens b) 100cm, convex lens c) 50cm, concave lens d) 100cm, concave lens

Q.2 At the time of short circuit, the current in the circuit 1
a) reduces substantially b) does not change c) increases heavily d) vary continuously

Q.3Question number 3.1 – 3.4 are based on the two tables given below, study these table related to measurement of voltage and current. Answer the following question. 4x1

Ideal measurement (Table – A)

Table – B

S.N.	Voltmeter reading (mV)	Ammeter reading (mA)
1.	4	2
2.	6	3
3.	8	4
4.	10	5
5.	12	6

Student	S. No.	Voltmeter reading (mV)	Ammeter reading (mA)
Student – A	1.	2	1
	2.	4	2
	3.	6	3
Student – B	1.	4	4
	2.	6	3
	3	8	4

3.1 Which student measurement is wrong in the table B?
3.2 What is the mathematical relation between voltage and current?
3.3 In the following measurement of student B. Which measurement is wrong?
a) I = 4, V = 4 b) I = 3, V = 6 c) I = 4, V = 8 d) None of these
3.4 The value of resistance from the measurement of student A is
a) 2 b) 3 c) 4 d) 1

4. With respect to air, the refractive index of ice is 1.31 and that of rock salt is 1.54. Calculate the refractive index of rock salt with respect to ice. 1

5. With the help of the diagram show that the light falls obliquely on a side of a rectangular glass slab, the emergent ray is parallel to the incident ray. Show the lateral displacement of the ray on the diagram. 1

6 .Silver articles becomes black on prolonged exposed to air .This is due to the formation of 1

a) AgCN b) Ag2O c) Ag2S d) Ag2S and AgCN

7.Which of the following is not a mineral acid 1

a) Hydrochloric acid b)Citric aid c)Sulphuric acid d)Nitric acid.

8. A small amount of sodium hydrogen carbonate is added to propanoic acid taken in a test tube.

What is the correct observation? 1

a) A gas with pungent smell is evolved. b)The mixture becomes warm.

c) An odourless gas with brisk effervescence is observed. d)The colour of solution becomes yellow.

9. Fill in the blanks: Dehydration of ethanol to ethane is carried by heating with ----------. 1

10.The metallic character of an element ---------- along the period and---------along the group. 1

11. What is Emulsification of fat? Emulsification is carried out by-

(a) Lipase (b) Bile (c) Gastric juice (d) Intestinal juice.

OR

Name the main thinking part of brain. Spinal cord originates from-

(a) Fore-brain (b) Pons (c) Medulla (d) Cerebellum. **1**

12. In the binary fission method of multiplication: 1

a) only one parent involved b) no gametes are formed

c) fertilisation does not take place d)all of the above statements are true

13. What is placenta? Gestation period in humans is-

(a) 270 days (b) 290 days (d) 200 days (d) 245 days 1

14. Answer the following-

14.1 Name a digestive juice that has no enzymes. Write the role of that digestive juice. 1

14.2 What is ecological pyramid? Define trophic level 1

14.3 How coal and petroleum were formed? Name the green house gas generating in marshy land. 1

14.4 Define "evolution". Why are traits acquired during life time of an individual not inherited? 1

SECTION B

15. a)What is presbyopia? State the cause of presbyopia. How presbyopia of a person can be corrected?

b) The far point of a myopic is 150cm. What is nature and power of the lens required to correct the problem? 3

16. An object 50cm tall is placed on the principal axis of a convex lens. Its 20cm tall image is formed on the screen placed at a distance of 10cm from the lens. Calculate the focal length of lens. 3

17. Explain the following natural events with suitable diagram

i) Twinkling of stars

ii) Advance sunrise and delayed sunset 3

18 .Write an equation each for the decomposition reactions, where energy is supplied in the form of heat, light ,or electricity. 3

19.Three elements A,B and C have atomic numbers 7,8 and 9 respectively. 3

a)What would be their positions in the Modern periodic table(state group and period number of each) ?

b)Arrange A,B and C in the decreasing order of their atomic radius.

c)Which of the three element is most reactive and why ?

20.a)What happens when a small piece of sodium is dropped in to ethanol ? 3

b)Under what condition an oxidation can be called as combustion reaction. Illustrate your answer with one example.

c)Write the chemical equation to show what happens when an ester reacts with a base ?

OR

Answer the following :

a) Write the structural formula for i] propanal ii]ethyl ethanoate.

b) Write chemical reactions showing the conversion of ethanol to ethanoic acid .

c) Draw two isomers of pentane.

21 Write three main steps involved in the process of photosynthesis. How do photosynthesis occur in desert plants? 3

OR

How are the lungs designed in human beings to maximize the area for exchange of gases? Explain the mechanism of transport of oxygen and carbon dioxide in human being.

22. (a) Name three different types of energy obtained from sea. List limitations of the energy that can be obtained from the oceans. **3**

(b) What is geothermal energy? List the advantages of nuclear energy.

23. (a) What are fossils? What do they tell us about the process of evolution? **3**

(b) List the basic tools used for tracing human evolutionary relationships. Name different types of vegetable crops and the way of their evolution from wild cabbage plant.

24. (a) Name the source gland of thyroxin hormone. Write different roles of thyroxin hormone. Why is the use of iodized salt advisable? **3**

(b) How does our body respond when adrenaline is secreted into the blood?

SECTION C

25. a) Define electric power. Express in it terms of potential difference V and resistance R. 5

b) An electrical fuse is rated at 2A. What is meant by this statement?

c) An electric iron of 1kW is operated at 220 V. Find which of the following fuses that respectively rated at 1 A, 3 A and 5 A can be used in it.

OR

a) Define resistivity of the material of a conductor. What is S.I. unit. On what factors resistivity of a wire depends?

b) Out of 60 W and 40 W lamps, which one has higher electrical resistance when in use?

c) What is the commercial unit of electric energy? Convert it into joules.

26. i) a) State the rule to find the direction of magnetic field associated with a current carrying straight conductor. 5

b) Write two major differences between an electric motor and a generator.

ii) How would the strength of magnetic field at the centre of a current carrying loop be affected if:-

a) radius of the loop is reduces to half its original value?

b) strength of current through the loop is doubled

27. Write balanced chemical equations for the reactions when : 5

i]Zinc carbonate is calcined.

ii]Zinc sulphide is roasted.

iii]Zinc oxide is reduced to zinc in presence of coke.

iv]Cinnabar is heared in the air.

v] Manganese dioxide is heated with aluminium powder.

(OR)

i]Why does distilled water not conduct electricity where as rain water does ?

ii]Why do acids not show acidic behaviour in the absence of water ?

iii]Name two metals which react violently with cold water ?

iv]How would you identify the gas released ,when a metal bicarbonate is added with dilute acid. Explain with the equation .

28. .An element X (at.no=17) reacts with an element Y (at.no=20) to form a divalent halide. 5

i]Where in the periodic table are elements X and Y placed ?

ii]Classify X and Y as metal, non-metal or metalloid.

iii]What will be the nature of the oxide of element Y ? Identify the nature of bonding in the compound formed.

iv]Draw the electron dot structure of the divalent halide .

(OR)

i]Define the term 'isomer'.

ii]Draw two possible isomers of the compound with molecular formula C_3H_6O and write their names.

iii]Give the electron dot structure of the above two compounds.

29. (a) Name different stakeholders of forest. Define monoculture activity in forest and write its disadvantages and advantages. **3**

(b) Why should we conserve forests and wildlife? **2**

OR

List and explain the practices used to save the environment. How did the forest officer, AK Banerjee , was able to recover the badly degraded the sal forest of Arabari within ten years? **5**

30. What is excretion? List main and accessory organs of human body. Draw neat and labelled diagram of a nephron. How did plants get rid of their excretory products? **5**