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DELHI PUBLIC SCHOOL VINDHYANAGAR
PRE-BOARD (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.*

SECTION A

1. The strength of magnetic field inside a long current carrying straight solenoid is 1
   (a) More at the ends
   (b) More at the middle
   (c) Same at all points
   (d) Fond increasing from one end to the other
2. Magnification produced by a convex mirror is: 1
   (a) Always positive and greater than one.
   (b) Always negative and greater than one.
   (c) Always zero
   (d) Always positive and less than one.
3. Two wires of equal length made of materials of resistivity ratio 1:2 and area of cross section 3:2 have the potential drop across them in the ratio of X:Y when connected in series. The ratio X:Y is 1
   (a) 3:1
   (b) 2:5
   (c) 5:2
   (d) 1:3
4. Which of the following controls the amount of light entering the eye? 1
   (a) Cornea
   (b) Iris
   (c) Lens
   (d) Ciliary muscles
5. Assertion: Rainbow is an example of the dispersion of sunlight by the water droplets.
   Reason: Light of shorter wavelength is scattered much more than light of larger wavelength. 1
   (a) Both A and R Correct and the reason is correct explanation of the assertion.
   (b) A and R both correct but the reason is not correct explanation of the assertion.
   (c) Assertion is true but reason is false
   (d) Assertion is false but reason is true.

6. Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride which of the following correctly represents the type of reaction involved ; 1

i) displacement reaction ii) precipitation reaction iii) combination reaction iv) double displacement reaction

a) i & ii only b)iii only c)iv only d)ii & iv only

7. Which one of the following properties is not generally exhibited by ionic compounds ? 1

a) solubility in water. B) electrical conductivity in solid state

c) electrical conductivity in molten state. D) high melting and boiling points

8. Which of the following elements will form an acidic oxide ? 1

a) an element with atomic number 7

b) an element with atomic number 3

c) an element with atomic number 12

d) an element with atomic number 19.

9. If a few drops of concentrated acid accidentally spills over the hand of a student what should be done ? 1

a. Wash the hand with saline solution

b. Wash the hand immediately with plenty of water and apply a paste of sodium hydrogen carbonate

c. Neutralize the acid with strong alkali

d. After washing with plenty of water apply solution of sodium hydroxide on the hand.

10. According to the evolutionary theory, formation of a new species is generally due to –

(a) Sudden creation by nature

(b) Accumulation of variations over several generations.

(c) Clones formed during asexual reproduction.

(d) Movement of individuals from one habitat to another. 1

OR

In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of –

(a) Heat energy (b) Light energy (c) Chemical energy (d) Mechanical energy.

11. When a person is suffering from severe cold, he or she can not- 1

(a) Differentiate the taste of an apple from that of an ice cream.

(b) Differentiate the smell of perfume from that of an agarbatti.

(c) Differentiate red light from green light.

(d) Differentiate a hot object from a cold object.

12. What is double circulation? Which of the following vertebrate group exhibit single circulation? 1

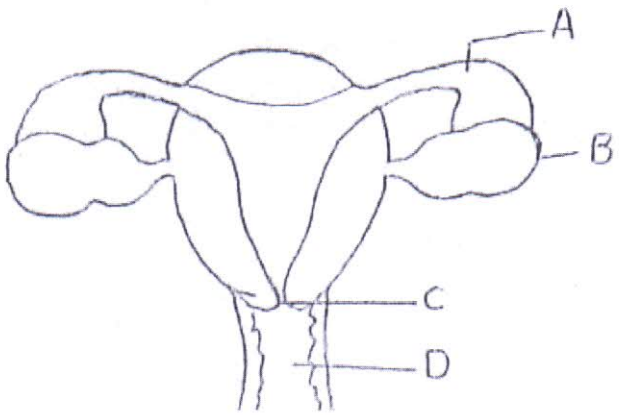
(a) Pices and amphibians.

(b) Amphibians and Reptiles.

(c) Amphibians only.

(d) Pices only.

13.



Identify the diagram and answer the following-

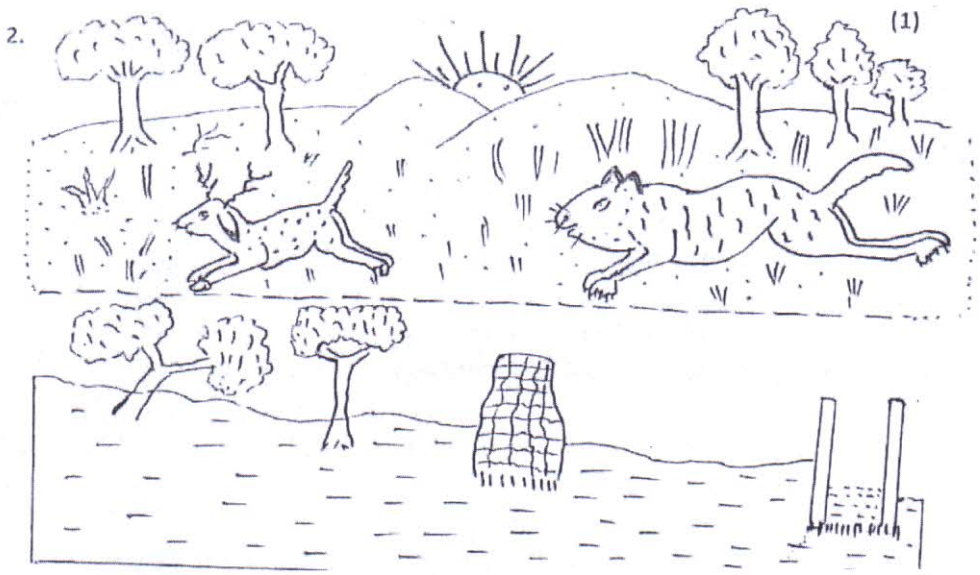
13.1. Name the parts labelled A, B, C and D. 1

13.2. Where do the fertilization occur. 1

13.3. What happens to the Lining of uterus before the release of fertilized egg. 1

13.4. What happens to the lining of uterus, if no fertilization occur. 1

14.



Observe the diagrams mentioned above and answer the following-

14.1. Identify and name the diagram -(i) and (ii). 1

14.2. Name any two abiotic components and any two biotic components in picture (i) 1

14.3. What is the reason that a food chain consists of only 3-5 steps? 1

14.4. What is Kattas?

OR

What is production plantation? 1

SECTION-B

15. State two positions in which a concave mirror produced a magnified image of a given object. List two differences between the two images. 3

16. Two resistors each of 3Ω and an unknown resistor R are connected in series across a 12 V battery. If the potential difference across the unknown resistor is 6 V, find 3
    (a) Potential difference across 3 Ω resistance
    (b) The current through unknown resistor R
    (c) Equivalent resistance of the circuit.

17 . Give reasons for the following; 3
    a) Carbon can reduce zinc oxide to zinc but not calcium oxide to calcium.
    b) An iron grill should be painted frequently.
    c) Metals do not release hydrogen when reacts with nitric acid.

    OR

Q. a) why alloys are prepared?
    b) define roasting and calcination .
    c) what are amphoteric oxides give example.

18. What happens when give chemical reactions for the following ; 3
    a) acids react with sodium bicarbonate.
    b) Dry slaked lime is treated with chlorine.
    c) Sodium chloride is hydrolysed by passing electric current.

19. Explain how the following trends vary down the group and across the period; 3
    a) electropositive character
    b) Atomic size.

20. Define with example; 3
    a) thermal decomposition reaction
    b) Oxidation reduction reaction
    c) Double displacement reaction

21 Explain the processes of aerobic respiration in mitochondria of cell and anaerobic respiration in yeast and muscle with the help of word equation. 3

OR

What is role of saliva in the digestion of food? How is small intestine designed to absorb digested food?

22. How do auxins promote the growth of a tendril around a support? How is movement of leaves of sensitive plant different movement of shoot towards light? 3

23. What are receptors? Name and write role of any three receptors present in our body. Think of situation where receptors do not work properly. What problems are likely to arise? 3

24. In a 'pea plant, the trait of flowers bearing violet colour (RR) is dominant over white colour(r r). explain the inheritance pattern of F_1 and F_2 generations with the help of a cross following the rules of inheritance of traits. State the phenotypic characters of F_1 and F_2 progenies. 3

SECTION C

25. Draw a labelled diagram of an electric motor. Explain its principle and working. What is the function of splits rings in an electric motor? 5

26. (a) State the snell's law of refraction of light and also express it mathematically.
(b) A 4 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 24 cm. the distance of object from lens is 16 cm. find the position, size and nature of image formed. (2+3)

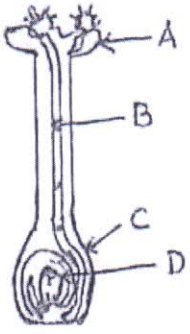
27. (a) Determine the ratio of the (a) highest (b) lowest resistance that can be secured by Combining four coils of resistance 4 Ω, 8 Ω, 12 Ω, and 24 Ω in an electric circuit. 2
(b) An electric bulb draws a current of 0.8A from 250 V mains. The bulb is used for 8 hours a day, If energy costs Rs 3 per kWh, calculate the monthly bill for 30 days. 3

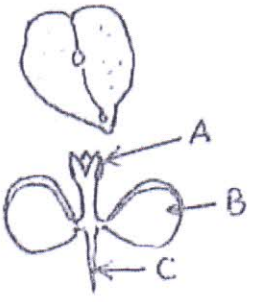
28 .a) a compound b molecular formula C2 H4 O2 reacts with sodium metal to form compound c and evolves a gas which burns with pop sound. Compound b on treatment with an alcohol a in the presence of a mineral acid forms a sweet smelling compound molecular formula C4 h8 O2 identify a b c and d and write chemical equation.
a) differentiate between soaps and detergents. (3+2)

OR

Q.a) draw electron dot structure of ethanoic acid. (3+2)
b) what happens when methane reacts with chlorine in presence of sunlight.
c)write chemical equation for hydrogenation reaction.
B. What is Scum and why it is formed ?

29.





(i) Identify the different parts from the above mentioned diagrams a and b. 5
(ii) What is pollination?
(iii) List events occuring after pollination and after fertilisation.

30. (i) Describe how the sex of the offspring is determined in the zygote in human beings? 3
(ii) What is a gene? Where are genes located? What is the chemical nature of a gene? 2

OR

(i) How is nuclear energy generated? What are nuclear reactors? Name two elements used to generate nuclear energy. List two limitations associated with nuclear energy generation. 3
(ii) Why should we conserve forests and wildlife? 2