CHINMAYA ENGLISH PRIMARY SCHOOL, HUBBALLI

Preparatory II - 2024 - 25

Std : X | Science | Marks : 80

General instructions:

Read the following instructions very carefully and strictly follow them:

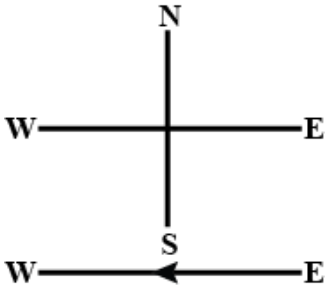
1. All questions would be compulsory.
2. Section A would have 15 simple/ complex MCQs and 2 Assertion – reasoning type questions carrying 1 mark each.
3. Section B would have 6 Very Short Answer (VSA) type questions carrying 2 marks each.
4. Section C would have 8 Short Answer (SA) type questions carrying 3 marks each.
5. Section D would have 3 Long Answer (LA) type questions carrying 5 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

I Choose the correct option:

1. A constant current flows in a horizontal wire. In the plane of paper from east to west as shown in figure. The direction of the magnetic field will be North to South at a point. 1m

   a) Directly above the wire.
   b) Directly below the wire
   c) Located in the plane of the paper on the North side of the wire.
   d) Located in the plane of the paper on the South side of the wire.



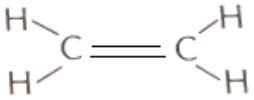
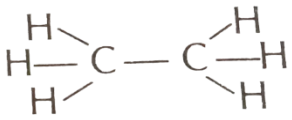
2. Many people in village had growing swollen necks, which was a problem for the hilly areas inhabitants. This issue was largely resolved when they started taking iodized salt. What was the cause of the swollen neck of people in the village? 1m

   a) efficiency of parathyroid hormone.
   b) deficiency of thyroxine hormone.
   c) increased concentration of thyroxine hormone.
   d) deficiency of parathyroid hormone.

3. When a 4V battery is connected acrossan unknown resistor, there is a current of 100mA in the circuit. The value of the resistance of resistor is 1m

   a) 0.4Ω b) 4 Ω c) 40 Ω d) 400 Ω

4. Which of the following is correct about the structure of diamond? 1m
   a) Carbon atoms are held together by single co- valent bonds.
   b) Electrons move freely through the structure.
   c) Layers of atoms slide easily over each other.
   d) Carbon atoms conduct electricity in the molten state.
5. Identify the organism exhibits the property of regeneration. 1m
   a) aschelminthes b) tapeworms c) flukes d) planaria
6 Which of the following statements is correct regarding the propagation of light of different colours of white light in air? 1m
   a) Red light moves faster.
   b) Blue light moves faster than green light.
   c) Yellow light moves with the mean speed as that of the red and the violet light.
   d) All the colours of the white light move with the same speed.

7. Structural formula of ethyne is 1m
   a) $H - C \equiv C - H$ b) $H_3C - C \equiv C - H$
   c) 
   d) 

8. If a tall pea plant is crossed with a pure dwarf pea plant then, what percentage of F_1 and F_2 generation respectively will be tall? 1m
   a) 25% , 25% b) 50% , 50% c) 75%, 100% d) 100%, 75%

9. A full length image of the Taj Mahal can definitely be seen by using. 1m
   a) a plane mirror b) a concave mirror
   c) a convex mirror d) all of these

10. Choose the hormone which is responsible for bending of plant shoot towards sunlight. 1m
   a) Cytokinin b) Auxin c) Ethylene d) Gibberellin

11. An element 'X' on exposure to moist air turns reddish brown and a new compound 'Y' is formed . The substance 'X' and 'Y' are 1m

X	Y
a) Fe	Fe_2O_3
b) Cu	CuO
c) Ag	Ag_2S
d) Al	Al_2O_3

12. Ravi saw his mother dumping the kitchen wastes in the soil, which disappeared after some days . So, he also placed his old plastic bottle and a broken cup inside the soil thinking that it will also disappear. But he saw that it remained there even after a week. The reason was. 1m

a) They were biodegradable.
b) It was a mixture of biodegradable and non- biodegradable.
c) They were inorganic and non – biodegradable.
d) It was a mixture of inorganic and organic.

13. Alkalis are generally soluble in H_2O on the basis of this. Which among the following Hydroxide is not an alkali? 1m

a) Ammonium hydroxide b) Calcium hydroxide
c) Copper hydroxide d) Sodium hydroxide

14. Study the following table and select the row that has the incorrect information: 1m

	Aerobic	Anaerobic
a) Location	Cytoplasm	Mitochondria
b) End product	CO_2 $and H_2O$	Ethanol and CO_2
c) Amount of AT8	High	Low
d) Oxygen	Needed	Not needed

Assertion and Reason:

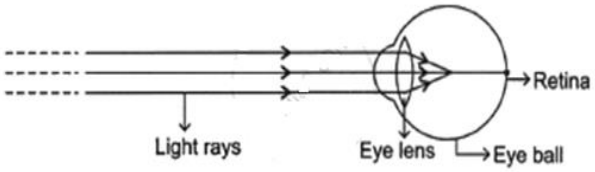
a) Assertion and Reason both are correct and Reason is the correct explanation of the Assertion.
b) Assertion and Reason both are correct and Reason is not the correct explanation of the Assertion
c) Assertion is correct statement but reason is wrong.
d) Assertion is wrong statement but reason is correct.

15. Assertion : At high temperature, metal wires have a greater chance of short circuiting.
Reason: Both resistance and resistivity of material vary with temperature. 1m
16. Assertion: Saliva contains Ptyalin enzyme.
Reason: Ptyalin digest lipids. 1m
17. Assertion: Copper does not react with dil H_2SO_4
Reason: Copper is more reactive than Hydrogen 1m

Section -B

18. Write two precautions to be taken by a student while making the experimental set up to show the experiment "CO_2 is released during respiration". 2m

19. Observe the diagram and answer the questions:



a) Identify the defect of vision shown.
b) List its two causes.
c) Name the type of lens used for correction of this defect. 2m

20. How the growth hormone is important in human body? 2m
21. a) A student detected the pH four unknown solutions A,B,C and D as follows 11, 5 , 7 and 2. Predict the nature of the solution.
    b) Dry hydrogen chloride gas does not turn blue litmus red whereas dil. HCl acid does. Give reason. 2m
22. Write the full form of IUCD. Is it possible to stop the spread of STDs by using IUCD? 2m
23. If 2,00,000 Joules of energy is absorbed by the carrot plants , calculate the energy available at each trophic level of the following food chain. 2m

    Carrots ⟶ Rabbit ⟶ Wolf

Section - C

24. Draw a ray diagram to show the formation of real image of an object when refraction of light takes place through a convex lens. Mark as per the new Cartesian sign convention, the object distance (u) image distance(v) and the focal length (f) and also write the relation between u, v, and f 3m
25. Draw a diagram to show the double circulation in human body. 3m
26. i) Find the minimum resistance that can be made using 4 resistors each of 20 Ω . 3m

    ii) Study the following circuit and find
    a) Effective resistance of the circuit. b) Current drawn from battery.
    b) Potential difference across the 5 Ω resistor.

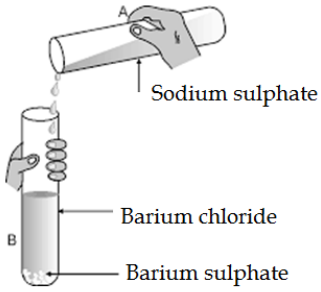
27. Observe the figure and answer the following questions. 3m

a) Write the complete balanced reaction

for the reaction that takes place.

b) Type of reaction involved.

c) Is there any precipitate formed if any.
Write the colour of the precipitate.



28. Draw a labeled diagram of female reproductive system. 3m
Identify and label the following parts.
a) Producing female gametes.
b) Place of fertilization.
c) Place of embryo implantation .

29. A dry pallet of a common base 'B' when kept in open absorbs moisture and turns sticky . The compound is a by product of chlor – alkali process. Identify B. What type of reaction occurs when B is treated with an acidic oxide? Write a balanced chemical equation for one such solution. 3m

30. i) Explain the meaning of overloading of an electric circuit. 3m
ii) List 2 possible causes due to which overloading may occur in household circuits.
iii) Write one preventive measure that should be taken to avoid overloading of domestic circuits.

31. a) Draw the electron dot structures of the following compound. 3m
i) KCl ii) CaO
b) The electronic configuration of two elements X and Y are given below.
X : 2 , 7 Y: 2 , 8 , 1
What type of bond will be formed between the atoms of 'X' and 'Y'

Section –D

32. i) What is meant by power of a lens? Name and define its SI unit.
ii) The image of an object formed by the convex lens is real, inverted and of the same size as the object. If the image is at a distance of 40 cm from the lens, what is the nature and power of the lens? Justify your answer with a diagram.
5m

33. Make a cross by selecting characters, traits and allels to explain the law of independent assortment. 5m

34. What is structural isomer? Also draw the isomeric structures of butane. Compare the structure of benzene and cyclohexane by drawing them. 5m

OR

Rahul wants to extract pure copper from its sulphide ore .How can he extract copper from its sulphide ore? Explain the various steps supported by chemical equations.

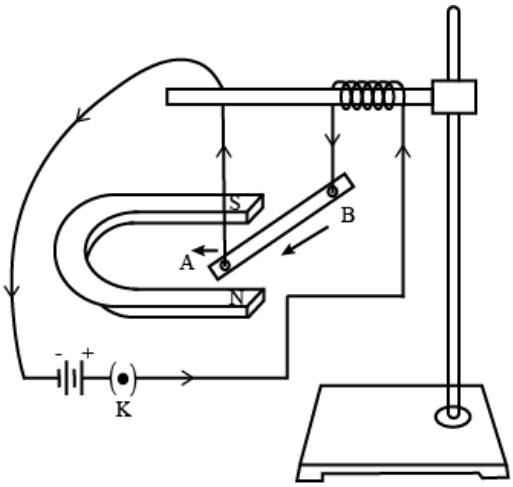
Name and explain the process along with a labeled diagram.

Write the steps involved in the extraction of pure metals in the middle of the activity series from their carbonate ores.

Section - E

Case Study\

35. A student was asked to perform an experiment to study the force on a current carrying conductor in a magnetic field. He took a small aluminium rod AB, a strong horse shoe magnet, some connecting wires, a battery and a switch and connected them as shown. He observed that on passing current, the rod gets displaced on reversing the direction of current, the direction of displacement also gets reversed.



On the basis of your understanding of this phenomenon, answer the following questions. 4m

a) Why does the rod get displaced on passing current through it?

b) State the rule that determines the direction of the force on the conductor AB.

c) i) What will happen to the displacement if the polarity of the magnet and the direction of current both are reversed?

ii) Name any 2 devices that use current carrying conductors and magnetic field.

OR

c) i) Draw the pattern of magnetic field lines produced around a current carrying straight conductor held vertically on a horizontal cardboard.

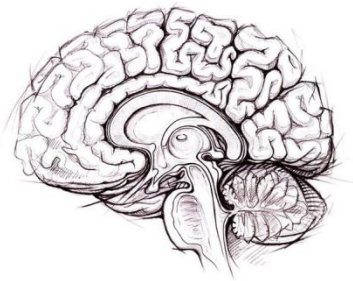
ii) Indicate the direction of the field lines as well as the direction of current flowing through the conductor.

36. Human brain is the Chief co-ordinating centre in the body. It is protected by skull and cranium. Meninges covers the brain. Space between meninges is filled with a fluid. Main parts of brain are fore brain, mid brain and Hind brain. 4m

a) Name the labeled parts A and B.

b) Which fluid is present in between meninges? Write one of its function.

c) Write two functions of part A and two functions of B



37. Pure metals are usually too soft and weak for most uses. In pure metals the atoms are arranged orderly in layers. When force is applied to the metal, the layers of metal atoms can slide over one another. To improve the strength and hardness of metals atoms of another element can be added usually in small amounts which prevents atoms of the metal from sliding over one another taking the metals stronger and harder and less likely to get in shape distorted. The final product is an alloy of metal eg. Ornaments are made up of 22 carat gold in which copper is added to gold. Alloy is a homogenous mixture of two or more metals. One of them can be non- metal also eg . Steel is an alloy of Fe and carbon. Alloys are made so as to improve properties of metals. Amalgam is alloy of metal with Mercury.

4m

1) Stainless steel contains
   a) Fe + C b) Fe + C + Cr c) Fe + C + Cr + Ni d) Fe + Cr
2) Solder is made up of
   a) Cu and Sn b) Pb and Sn c) Zn and Cu d) Pb and Sb
3) The alloy of Mercury with other metals like Na, Zn is called
   a) Alloy b) Amalgam c) Colloidal solution d) suspension
4) Gold ornaments are made by mixing it with
   a) Co b) Cu c) Sn d) Pb