

NAAHAR PUBLIC SCHOOL [CBSE] SENIOR SECONDARY, VILLUPURAM
ACADEMIC YEAR (2022-2023)
FULL REVISION-II

STD: X

SUBJECT: SCIENCE

TEACHERS INITIAL : Mrs.GAYATHRI, Mrs.UMA, Ms.ATCHAYA

TOTAL: 80

DATE: 23.12.2022

TIME: 3 Hours

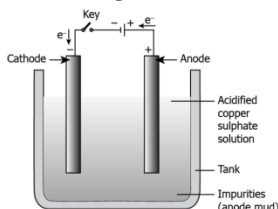
General Instructions:

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
3. Section A consists of 20 Objective Type questions carrying 1 mark each.
4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
7. Section E consists of 3 source-based/case-based units of assessment

SECTION-A

Select and write one most appropriate option out of the four options given for each of the questions 1 – 20

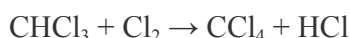
1. The image shows the electrolytic refining of copper.



Which option explains the process to obtain pure copper?

- (a) When current is passed, pure copper from the anode deposits to the cathode.
 - (b) When current is passed, pure copper from the anode deposits in the electrolytic solution.
 - (c) When current is passed, pure copper from the electrolytic solution deposits at the anode.
 - (d) When current is passed, pure copper from the electrolytic solution deposits at the cathode.
2. When a non-metal is allowed to react with water
- | | |
|--|---------------------------------|
| a) CO ₂ gas is formed | b) H ₂ gas is formed |
| c) Product formed depends on the temperature | d) No products are formed |
3. Aqua regia is a freshly prepared mixture of concentrated HNO₃ and concentrated HCl in the ratio of:
- | | | | |
|----------------------|----------------------|----------------------|----------------------|
| a) 1:3, respectively | b) 2:3, respectively | c) 3:1, respectively | d) 3:2, respectively |
|----------------------|----------------------|----------------------|----------------------|
4. Pick the statement which is correct about the non-metal:
- a) Br is an example of a liquid non-metal.
 - b) Graphite is a good conductor of electricity
 - c) Most of the non-metal oxides are acidic
 - d) All of these
5. A carbon compound contains two atoms of carbon. Which name should the carbon compound bear?
- | | | | |
|------------|------------|-------------|-------------|
| (a) Butane | (b) Ethane | (c) Methane | (d) Propane |
|------------|------------|-------------|-------------|

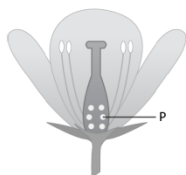
6. The chemical reaction shows the addition of chlorine gas to hydrocarbon in the presence of sunlight.



How does chlorine react to a hydrocarbon compound in the presence of sunlight?

- (a) it adds hydrogen into the compound
 - (b) it adds an oxygen atom into the compound
 - (c) it substitutes hydrogen atom from the compound
 - (d) it breaks double and triple bonds into a single bond
7. Which of the following is not considered as crystalline allotrope of carbon?
- | | | | |
|----------|-------------|--------------|----------------|
| (a) Coal | (b) Diamond | (c) Graphite | (d) Fullerenes |
|----------|-------------|--------------|----------------|

8. The image shows the structure of a flower.



Which process will likely be disturbed or not occur, if the labelled part is removed from the flower?

- a) formation of fruit b) transport of pollen
c) formation of pollen d) development of pollen tube
9. The ratio of number of chromosomes in a human zygote and a human sperm is
a) 2:1 b) 3:1 c) 1:2 d) 1:3

10. Reproduction is essential for living organisms in order to

- a) Keep the individual organism alive
b) Fulfill their energy requirement
c) Maintain growth
d) Continue the species generation after generation

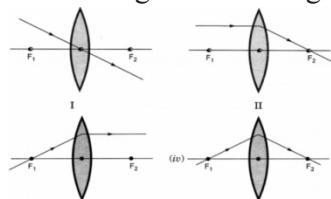
11. Which of the following is an abiotic component of an ecosystem?

- (a) Humus (b) Bacteria (c) Plants (d) Fungi

12. Which statement shows interaction of an abiotic component with a biotic component in an ecosystem?

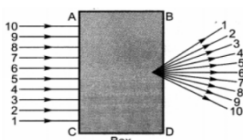
- a) A grasshopper feeding on a leaf. b) Rainwater running down into the lake.
c) An earthworm making a burrow in the soil. d) A mouse fighting with another mouse for food.

13. The diagrams showing the correct path of the ray after passing through the



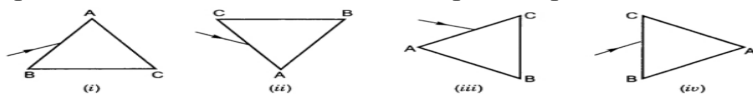
- (a) II and III only (b) I and II only
(c) I, II and III (d) I, II and IV

14. A beam of light is incident through the holes on side A and emerges out of the holes on the other face of the box as show in the figure. Which of the following could be inside the box?



- (a) Concave lens (b) Rectangular glass slab (c) Prism (d) Convex lens

15. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in the Figures given below. In which of the following cases, after dispersion, the third colour from the top corresponds to the colour of the sky?



- (a) (i) (b) (ii) (c) (iii) (d) (iv)

16. Twinkling of stars is due to atmospheric

- (a) dispersion of light by water droplets
(b) refraction of light by different layers of varying refractive indices
(c) scattering of light by dust particles
(d) internal reflection of light by clouds

ASSERTION -REASON TYPE QUESTIONS

In the following questions, two statements (Assertion) A and Reason (R) are given.

Mark

- (a) If A and R both are correct and R is the correct explanation of A
(b) If A and R both are correct 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

17.Assertion: Ethanoic acid liberates hydrogen with Sodium metal.

Reason: More reactive sodium displaces hydrogen from ethanoic acid.

18.Assertion (A): For observing traffic at back, the driver mirror is convex mirror.

Reason (R): A convex mirror has much larger field of view than a plane mirror.

19. Assertion: The girls child to boy child sex ratio is declining at an alarming rate in some sections of our society.

Reason: Female foeticides are carried out recklessly.

20. Assertion: The concentration of harmful chemicals is least in human beings.

Reason: Man is at the apex of the food chain.

SECTION- C

Q. No. 21-26 are very short question answers

21. Give two examples of the metals that are good conductors and poor conductors of heat, respectively.

(OR)

Name one metal and one non-metal that exist in the liquid state at room temperature. Also, name two metals having a melting point of less than 310 K (37°C)

22. a) List two functions of gonads of female reproductive system in human.

b) List two functions performed by the gonads in human beings.

23.(a) List two sexually transmitted diseases in each of the following cases:

(i) Bacterial infections

(ii) Viral infections

(b) How may the spread of such diseases be prevented?

24. a) State two methods of effective plastic waste collection in our school.

b) What is an ecosystem? List its two main components.

25. a) The depletion of ozone layer is a cause of concern. Why?

b) Define Bio-concentration and Bio-magnification?

26. "The magnification produced by a spherical mirror is -3". List four information's you obtain from this statement about the mirror/ image.

A ray of light falls normally on the surface of a transparent glass slab. Draw a ray diagram to show its path and also mark angle of incidence and angle of emergence.

(OR)

What is 'dispersion of white light'? State its cause. Draw a ray diagram to show the dispersion of white light by a glass prism.

SECTION- C

Q. No. 27-33 are short answer type questions

27. What would you observe when zinc is added to a solution of iron (II) sulphate? Write the chemical reaction that takes place.

28.(i) Write the electron-dot structures for sodium and oxygen.

(ii) Show the formation of Na_2O and MgO by the transfer of electrons.

(iii) What are the ions present in these compounds?

29. Define the terms pollination and fertilization. Draw a diagram of a pistil showing pollen tube growth into the ovule and label them.

(OR)

a) What is DNA copying? State its importance.

b) List two advantages of vegetative propagation practiced in the case of an orange plant.

30. The refractive indices of glass and water with respect to air are $\frac{3}{2}$ and $\frac{4}{3}$ respectively. If speed of light in glass is 2×10^8 m/s, find the speed of light in water.

31. (a) What is meant by power of a lens? What does its sign (+ve or -ve) indicate? State its S.I. unit. How is this unit related to focal length of a lens?

(b) Draw the ray diagram and also state the position, the relative size and the nature of image formed by a concave mirror when the object is placed at the centre of curvature of the mirror.

32. Millions of people of the developing countries of world are suffering from corneal blindness. These persons can be cured by replacing the defective cornea with the cornea of a donated eye. A charitable society of your city has organized a campaign in your neighborhood in order to create awareness about this fact. If you are asked to participate in this mission how would you contribute in

this noble cause?

- (a) State the objective of organizing such campaigns.
- (b) List two arguments which you would give to motivate the people to donate their eyes after death.
- (c) List two values which are developed in the persons who actively participate and contribute in such programmes.

(OR)

- (a) Why do the component colors of incident white light split into a spectrum while passing through a glass prism, explain.
- (b) Draw a labeled ray diagram to show the formation of a rainbow.

33. (a) From the following group of organisms create a food chain which is most advantageous for human beings in terms of energy. [Hawk, Rat, Cereal plant, Goat, Snake, Human being]

- (b) State the possible disadvantage if the cereal plant is growing in soil rich in pesticides.
- (c) Construct a food web using the organisms you recall of an ocean ecosystem.

SECTION-D

Q. No. 34-36 are of long answer type and carries 5 marks each

34. Draw the possible isomers of the compound with the molecular formula C_3H_6O and give their electron dot structures.

(OR)

Explain the given reactions with the examples

- (a) Hydrogenation reaction
- (b) Oxidation reaction
- (c) Substitution reaction
- (d) Saponification reaction
- (e) Combustion reaction

35. (a) Draw a sectional view of human female reproductive system and label the parts and answer to the following.

- (i) Where the development of egg occurs?
- (ii) Where fertilization takes place?
- (b) Describe the changes of the uterus
 - (i) If zygote is formed &
 - (ii) if zygote is not formed.

(OR)

- a) List two reasons to show that the existence of decomposers is essential in an ecosystem.
- b) State with reason any two possible consequences of elimination of decomposers from the earth.
- c) What will happen if we kill all carnivores in one forest ecosystem?
- d) Very shortly brief about global warming.
- e) Give one example each from our daily life where the domestic waste can be effectively reused and recycled.

36. A 5 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 12 cm. The distance of the object from the lens is 8 cm. Using the lens formula find the position, size and nature of the image formed.

SECTION -E

The following are case study questions 37-39.

Read the passage given below and answer the following questions:

37. All chemical reactions involve interaction of atoms and molecules. A large number of atoms/molecules are present in a few gram of any chemical compound varying with their atomic/molecular masses. To handle such large number conveniently, the mole concept was introduced. All electrochemical cell reactions are also based on mole concept. For example, a 4.0 molar aqueous solution of NaCl is prepared and 500 mL of this solution is electrolysed. This leads to the evolution of chlorine gas at one of the electrode. The amount of products formed can be calculated by using mole concept.

The following questions are multiple choice questions. Choose the most appropriate answer:

(i) The total number of moles of chlorine gas evolved is

- (a) 0.5
- (b) 1.0
- (c) 1.5
- (d) 1.9

(ii) If cathode is a Hg electrode, then the maximum weight of amalgam formed from this solution is

- (a) 300g
- (b) 446 g
- (c) 396 g
- (d) 256 g

or

The total charge (coulomb) required for complete electrolysis is

- (a) 186000
- (b) 24125
- (c) 48296
- (d) 193000

(iii) In the electrolytes, the number of moles of electrons involved are

- (a) 2 (b) 1 (c) 3 (d) 4

(iv) In electrolysis of aqueous NaCl solution when Pt electrode is taken, then which gas is liberated at cathode?

- (a) H₂ gas (b) Cl₂ gas (c) O₂ gas (d) None of these

38. Menstrual cycle is the cycle of events taking place in female reproductive organs, under the control of sex hormones, in every 28 days. At an interval of 28 days, a single egg is released from either of two ovaries. Regular menstrual cycle stopped abruptly in a married woman. She got herself tested and was happy to discover that she is pregnant with her first baby.

(i) Why menstruation stops in a pregnant female?

- (a) The egg gets fertilised so need not to be expelled out of body
(b) Ovulation stops during pregnancy and so do menstruation
(c) Thick uterine lining is needed for proper development of embryo, so that it is retained
(d) All of these

(ii) Select the correct sequence of acts that leads to pregnancy in a female.

- A. Fertilisation of egg B. Ovulation
C. Formation of zygote D. Implantation

- (a) D $\Rightarrow$ C $\Rightarrow$ B $\Rightarrow$ A (b) B $\Rightarrow$ A $\Rightarrow$ C $\Rightarrow$ D
(c) A $\Rightarrow$ B $\Rightarrow$ C $\Rightarrow$ D (d) D $\Rightarrow$ C $\Rightarrow$ A $\Rightarrow$ B

(iii) How is a zygote different from embryo?

- (a) Zygote is formed by repeated division of embryo
(b) Zygote is formed by fusion of sperm and egg whereas embryo is formed by fusion of zygote with other zygote
(c) Zygote is single celled but embryo is multicellular
(d) Zygote is formed by fertilisation but embryo is formed without fertilisation

(iv) What change takes place in the uterus of a pregnant female?

- (a) Uterine lining becomes thick and vascular
(b) Placenta develops which links the embryo to mother through umbilical cord
(c) Uterine lining containing lots of blood capillaries breaks down
(d) Both (a) and (b)

(OR)

Select the correct statement.

- (a) The average duration of human pregnancy is about nine months
(b) The time period from fertilisation up to the birth of baby is called gestation
(c) If doctor finds any anomaly in the developing fetus then he may terminate pregnancy at an early stage, known as abortion
(d) All of these

39. The lenses form different types of images when object placed at different locations. When a ray is incident parallel to the principal axis, then after refraction, it passes through the focus or appears to come from the focus. When a ray goes through the optical centre of the lens, it passes without any deviation. If the object is placed between focus and optical center of the convex lens, erect and magnified image is formed. As the object is brought closer to the convex lens from infinity to focus, the image moves away from the convex lens from focus to infinity. Also the size of image goes on increasing and the image is always real and inverted. A concave lens always gives a virtual, erect and diminished image irrespective to the position of the object.

(i) The location of image formed by a convex lens when the object is placed at infinity is

- (a) at focus (b) at 2F (c) at optical center (d) between F and 2F

(ii) When the object is placed at the focus of concave lens, the image formed is

- (a) real and smaller (b) virtual and inverted
(c) virtual and smaller (d) real and erect

(iii) The size of image formed by a convex lens when the object is placed at the focus of convex lens is

- (a) small (b) point in size (c) highly magnified (d) same as that of object

(iv) When the object is placed at 2F in front of convex lens, the location of image is

- (a) at F (b) at 2F on the other side
(c) at infinity (d) between F and optical center

(v) At which location of object in front of concave lens, the image between focus and optical centre is formed

- (a) anywhere between centre and infinity (b) at F (c) at 2F (d) infinity