



परमाणु ऊर्जा शिक्षण संस्था  
Atomic Energy Education Society

टर्म-1/आवधिक परीक्षा-2 2023-24 Term-I/PT-II Examination 2023 - 24

कक्षा / Class : X

अवधि /Duration : 3 Hrs.

विषय / Subject : SCIENCE

अधिकतम अंक/ Maximum Marks : 80

**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 of 04 marks each with sub-parts.
8. Write your answers neatly and present your answers properly.

**SECTION- A**

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

1) The reaction of hydrogen gas with oxygen gas to form water is an example of:

- |                         |                           |
|-------------------------|---------------------------|
| a) Combination reaction | c) decomposition reaction |
| b) Redox reaction       | d) exothermic reaction    |

2) The compound which is used as an oxidising agent in many chemical industries is:

- |                     |                  |
|---------------------|------------------|
| a) Bleaching powder | c) baking powder |
| b) Washing soda     | d) quicklime     |

3) Which information is not conveyed by a balanced chemical equation?

- a) Physical states of reactants and products
- b) Symbols and formulae of all the substances involved in a reaction
- c) Number of atoms/molecules of the reactants and products formed.
- d) Whether a particular reaction is actually possible to happen or not.

4) When hydrogen chloride gas is prepared on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to

- (a) absorb the evolved gas
- (b) moisten the gas
- (c) absorb moisture from the gas
- (d) absorb  $\text{Cl}^-$  ions from the evolved gas

5) Which are the involuntary actions controlled by medulla?

- a) Salivation
- b) blood pressure
- c) vomiting
- d) all of these

6) Role of placenta is:

- a) To convey nerve impulses
- b) To protect embryo from shocks
- c) To provide nutrition for developing embryo
- d) To act as a strong organ.

7) Sodium hydrogen carbonate when added to acid evolves a gas. Which of the following statements are true about the gas evolved?

- i) It turns lime water milky.
- ii) It extinguishes a burning splinter.
- iii) It dissolves in a solution of sodium hydroxide.
- iv) It has a pungent odour

- a) i and ii
- b) i, ii and iii
- c) ii, iii and iv
- d) i and iv

8) The first enzymes to mix with food in the digestive tract is :

- a) pepsin
- b) trypsin
- c) amylase
- d) cellulose

9) The correct sequence of organs in the male reproductive system for transport of sperms is:

a) Testis → vas deferens → urethra

b) testis → ureter → urethra

c) Testis → urethra → ureter

d) Testis → vas deferens → ureter

10) The main function of thyroid gland in our body is to :

a) build up teeth

b) form calcium compounds

c) maintain overall physical & mental growth of our body

d) build up bones

11) Which one of the following statements is not correct?

(a) The rainbow is produced by the reflection of white sun light by water drops in the atmosphere.

(b) The blue colour of the sky is due to scattering of light.

(c) The stars appear higher in the sky than actually are, due to scattering of light.

(d) The planets twinkle at night due to atmospheric refraction of light.

12) The phenomenon of light involved in the formation of rainbow are:

(a) Refraction, dispersion and scattering.

(b) Refraction, reflection and dispersion.

(c) Refraction, dispersion and internal reflection.

(d) Reflection, dispersion and internal reflection

13) When we enter a dark room coming from outside, immediately the things inside the room do not appear clear to our eyes. This is because:

- (a) pupils do not open at all                      (b) pupils take time to adjust  
(c) light travels slower in a dark room. (d) pupils open very quickly in the dark room.

14) Which part of the eye produces maximum refraction of light rays?

- (a) Lens                      (b) Pupil                      (c) Retina                      (d) Cornea

15) What type of image is formed on the retina?

- (a) Virtual and inverted                      (b) Real and inverted  
(c) Virtual and erect                      (d) Real and erect

16) The image formed by a mirror is virtual. The mirror is

- a) Concave    b) convex  
c) may be concave or convex                      d) none of these

**Q.No 17 to 20 are Assertion – Reasoning based questions.**

These consist of two statements – Assertion (A) and Reasoning (R).

Answer these questions selecting the appropriate option given below.

- a) Both A and R are true and R is the correct explanation of A.  
b) Both A and R are true and 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 (A):** Eye lens has the ability to focus clearly on the retina by adjusting its focal length.

**Reason (R):** This phenomenon is known as power of accommodation.

18. **Assertion (A):** Silver bromide undergoes decomposition reaction in presence of sunlight.

**Reason (R):** This reaction is used in black and white photography.

19. **Assertion (A):** The separation of the right side and the left side of the heart is useful to keep oxygenated and deoxygenated blood from mixing.

**Reason (R):** This is useful in animals that have high energy needs such as birds and mammals.

20. **Assertion (A):** A hypermetropic person prefers to remove his spectacles, while driving.

**Reason (R):** When a hypermetropic person wearing spectacles looks at a distant object, the parallel rays from the distant object get converged in front of the retina. The image thus appears blurred.

### **SECTION B**

(Q. No 21 to 26 are very short answer questions)

21. The muscular walls of the stomach help in mixing the food thoroughly with more digestive juices.

i) What are gastric glands? Write its secretion. (1)

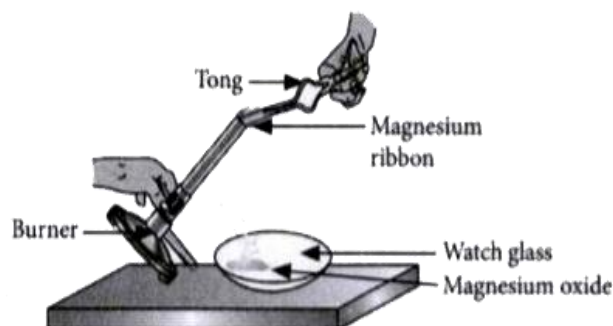
ii) What are enzymes? (1)

22. Kidneys are vital organs for survival. Several factors like infections, injury reduce the activity of kidneys.

i) What do you understand by dialysis? (1)

ii) What is nephron? (1)

23. Observe the figure and answer the following questions given below.



i) Write any two observations related to the experiment. (1)

ii) Define the type of reaction with chemical equation. (1)

OR

23. A small quantity of light green coloured substance is heated. In the beginning, it loses some water and then a suffocating gas is evolved and a red residue is left behind. Answer the following.
- i) Name the red residue and write its formula. (1)
- ii) Name the light green coloured substance. What is the type of reaction that takes place during heating. (1)
24. What is observed when aqueous solutions of potassium iodide and lead nitrate are mixed together? Name the type of reaction and write the chemical equation for the reaction that occurs. (2)
25. State the laws of refraction. (2)
26. Why does the colour of sky appear blue? Explain in brief. (2)

OR

26. What type of spectacles should be worn by a person having the defects of myopia as well as hypermetropia? How does it help? (2)

### **SECTION- C**

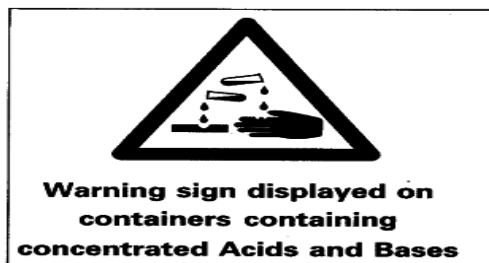
**(Q. No .27 to 33 are short answer questions)**

27. What is Rancidity? Give any two ways to prevent rancidity. (3)
28. Salt P, commonly used in bakery products, on heating gets converted into another salt Q which itself is used for the removal of hardness of water and a gas R is evolved. The gas R when passed through freshly prepared lime water turns milky. Identify P, Q and R giving balanced chemical equations for the justification of your answer. (3)

OR

1g of solid sodium chloride is taken in a clean test tube and 2ml of conc. Sulphuric acid is added to it. If the gas evolved is tested first with dry and then with wet litmus paper, in which case will the litmus paper change colour? Give reason for your answer. What inference can be drawn about the nature of the evolved gas? Support your answer with chemical equation for the reaction. (3)

29. Acids and bases are dissolved in water. All bases do not dissolve in water. Never taste or touch them as they may cause harm. Observe the figure given below and answer the following questions.



i) How do we dilute an acid? (1)

ii) How is the concentration of hydronium ions affected when a solution of an acid is diluted? (1)

iii) You might have seen these warning sign on the can of concentrated sulphuric acid and in the bottle of sodium hydroxide pellets. Write two problems that can occur if dilution is not done properly. (1)

30. Draw longitudinal section of a bisexual flower and label the following parts on it.

(i) Anther (ii) Ovary (iii) Stigma (iv) Style (3)

OR

30. (a) What are sexually transmitted diseases (STD)?

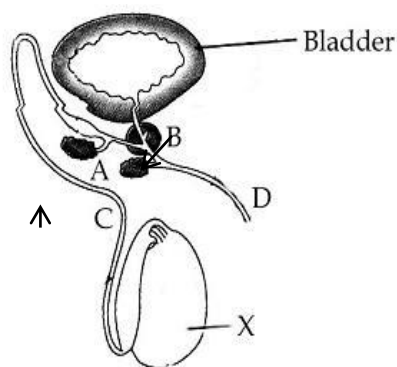
(b) Name two viral and two bacterial sexually transmitted diseases

31. In the diagram of the male reproductive system:

i) Label A and B. (1)

ii) Name the hormone produced by X. What is the role of this hormone in males? (1)

iii) Mention the name of substances that are transported by tubes C and D. (1)



32. You are given a convex lens of focal length 10 cm. Where will you place an object to get a real, inverted and highly enlarged image of the object? Draw a ray diagram. (3)
33. (a) State the relationship between focal length and radius of curvature of a spherical mirror. (1)
- (b) Why is the refractive index of a medium always greater than one? (1)
- (c) A lens has -4 D power. Is the lens concave or convex? (1)

### SECTION-D

(Q.no34 to 36 Long answer questions)

34. State what happens when: (5)
- i) Gypsum is heated at 373K
  - ii) Blue crystals of copper sulphate are heated
  - iii) Excess of carbon dioxide gas is passed through lime water.
  - iv) Zinc granules are heated with sodium hydroxide solution
  - v) Dilute HCl is added to sodium hydrogen carbonate.

OR

34. Sahil bought compound X on electrolysis in aqueous solution produces a strong base Y along with two gases A and B. B is used in manufacture of bleaching powder. Identify X, Y, A and B. Write chemical equations. (5)



35.i) Mention three points of differences between nervous coordination and Chemical coordination in Humans. (3)

(ii) What are tropic and nastic movements? Give one example each. (2)

OR

i) What is geotropism? Name the plant part that shows positive geotropism and plant part that shows negative geotropism? (2)

ii) Why is the use of iodised salt advisable. (1)

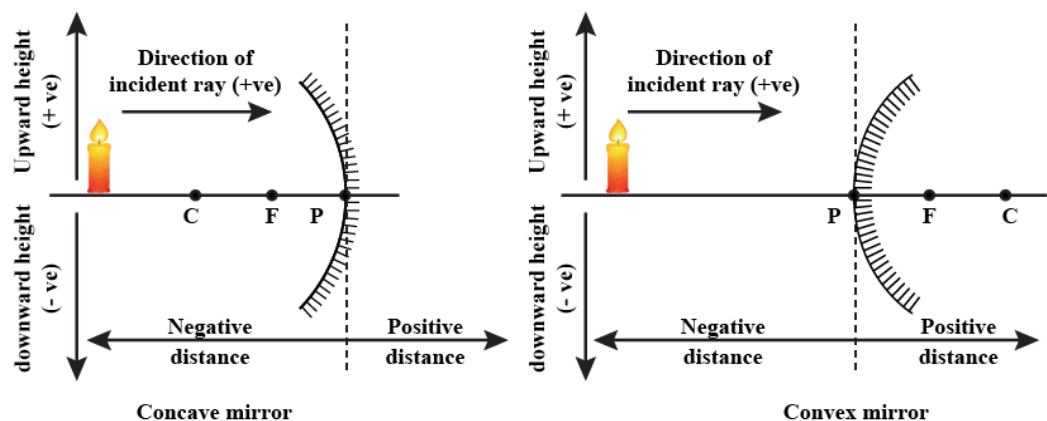
iii) Name the plant hormone which help/promote (1)

- a. cell division
- b. growth in stem and roots

iv) A young green plant receives sunlight from one direction only.

What will happen to its shoots? (1)

36. While dealing with the reflection of light by spherical mirrors, we shall follow a set of sign conventions called the New Cartesian Sign Convention. In this convention, the pole (P) of the mirror is taken as the origin. The principal axis of the mirror is taken as the x-axis of the coordinate system. In a spherical mirror, the distance of the object from its pole is called the object distance (u). The distance of the image from the pole of the mirror is called the image distance (v). Magnification produced by a spherical mirror gives the relative extent to which the image of an object is magnified with respect to the object size. It is expressed as the ratio of the height of the image to the height of the object. It is usually represented by the letter (m).



- (i) How can you calculate the magnification of a spherical mirror? (1)
- (ii) What does a negative sign in the value of magnification indicates? (1)
- (iii) Find the focal length of a convex mirror whose radius of curvature is 32 cm. (1)
- (iv) Why does the height of the object is taken to be positive? (1)
- (v) Find the nature of mirror if the focal length is +12cm. (1)

**OR**

36. Write the nature of image and the place of image when the image is formed by a concave mirror when an object is placed:

- (i) between pole and focus of the mirror (1)
- (ii) between focus and centre of curvature of the mirror (1)
- (iii) at centre of curvature of the mirror (1)
- (iv) a little beyond the centre of curvature of the mirror (1)
- (v) at infinity. (1)

### SECTION E

( Q.no 37 to 39 are case based/data based questions with 2 to 3 sub parts)

37. Reproduction of the species in higher organisms is a complicated process involving the existence of two sexes, each contributing a gamete formed after meiosis for the formation of the new individual after fertilization. There are many plants in which parts like the root, stem and leaves develop into new plants under appropriate conditions. Unlike in most animals, plants can indeed use such mode of reproduction.

- a) Write the importance of vegetative propagation. ( 2 points) (2)
- b) Differentiate between asexual and sexual reproduction (2 points) (2)

OR

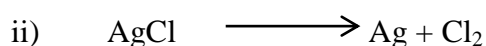
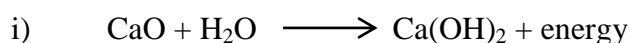
- b) Differentiate between cross and self-pollination. (2points) (2)

38. To survive, yeast requires three things: food, warmth and moisture. In the presence of warmth and moisture, yeast ferments the sugar and starch in its food to produce carbon dioxide, ethanol and energy. There are two more pathways through which living cells can derive energy.

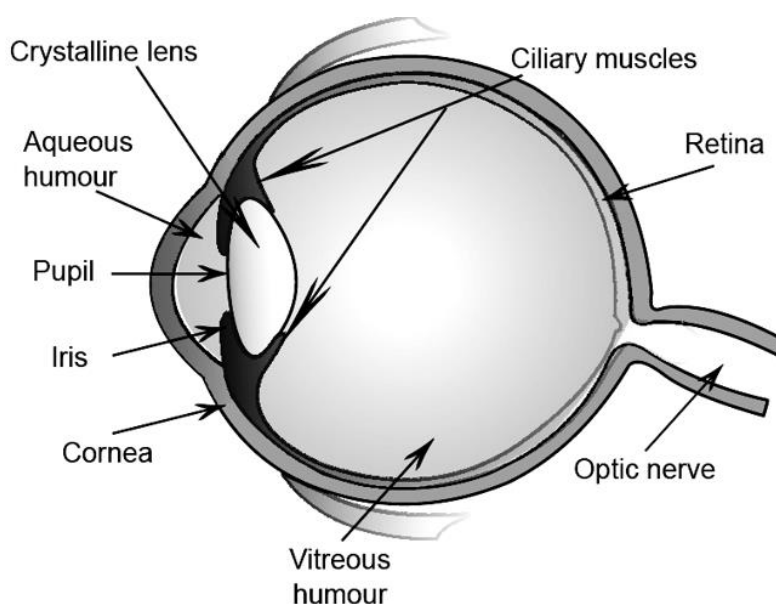
- a) How do muscle cells derive energy during lack of oxygen? Explain with the help of a word equation. (2)
- b) Differentiate between aerobic and anaerobic respiration (2 points). (2)

OR

c) What are exothermic reactions? Pick the exothermic reaction from the following.



39. The human eye is like a camera. Its lens system forms an image on a light-sensitive screen called the retina. Light enters the eye through a thin membrane called the cornea. It forms the transparent bulge on the front surface of the eyeball as shown in the figure. The crystalline lens merely provides the finer adjustment of focal length required to focus objects at different distances on the retina. We find a structure called iris behind the cornea. Iris is a dark muscular diaphragm that controls the size of the pupil. The pupil regulates and controls the amount of light entering the eye.



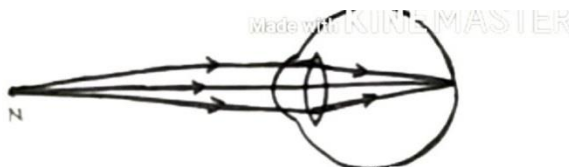
There are mainly three common refractive defects of vision. These are (i) myopia or near-sightedness, (ii) hypermetropia or far-sightedness, and (iii) Presbyopia. These defects can be corrected by the use of suitable spherical lenses.

- (i) What is the function of pupil in the human eye? (1)
- (ii) What is the far point and near point of human eye with normal vision? (1)
- (iii) A student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from? (1)
- (iv) What is the function of iris in human eye? (1)

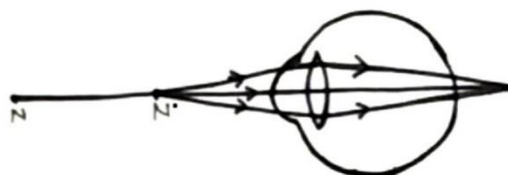
**OR**

39. Observe the following diagram and answer the questions.

- (i) Which type of defect is shown in the diagram? (1)
- (ii) A person with this defect cannot see which objects distinctly- nearby or far away? (1)
- (iii) What is another name for this defect? (1)
- (iv) Which type of lens is used to correct this defect? (1)



**a) Near point of defective eye.**



**b) Defective eye**



**c) Correction of defective eye**

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