KVS(DR)/2025/KA

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Pre-Board-II Examination 2025-26

Class- X | Subject- Science

M.M.- 80 | Time- 3 hrs

General Instructions:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.

(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

SECTION -A

1. **A few drops of iodine solution were added to rice water. The solution turned blue-black. What does this indicate?**
   - (a) Rice water contains fat.
   - (b) Rice water contains complex proteins.
   - (c) Rice water contains starch.
   - (d) Rice water contains simple sugars. 1

2. **A person's kidneys are damaged. Which life process is most immediately affected, and what procedure might be necessary to sustain their life?**
   - (a) Respiration; Ventilation
   - (b) Digestion; Gastric bypass
   - (c) Excretion; Dialysis
   - (d) Circulation; Transfusion 1

3. **Observe the given figures A and B. When chhui-mui /Touch-me not (sensitive) plant is touched, its leaves fold. This is due to :**



Figure A

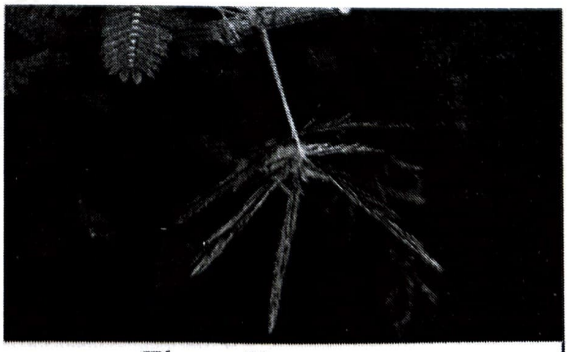


Figure B

A. Hormonal effective
B. Thermal effect
C. Electromagnetic effect
D. Change in amount of water in cells 1

4. **Reproduction is not necessary for an individual organism's survival, unlike nutrition or respiration. What is the most significant reason that reproduction is essential for living organisms?**

   - (a) To keep the individual organism alive.
   - (b) To fulfill their energy requirements.
   - (c) To maintain growth.
   - (d) To ensure the continuity of the species generation after generation. 1

5. **Which of the following character can be acquired during an individual's lifetime but cannot be inherited by their offspring?**

   - (a) Size of body (e.g., gaining muscle mass through exercise)
   - (b) Colour of skin (natural complexion)
   - (c) Texture of hair (curly or straight)
   - (d) Colour of eyes 1

6. A farmer uses a new pesticide, DDT, to protect his crop field. This chemical is non-biodegradable and accumulates in organisms through the food chain. The food chain in the crop field is: **Plants → Frogs → Snakes → Hawks**

In this scenario, which organism would have the highest concentration of DDT, and what is this phenomenon called?
A) Plants; called bio-degradation
B) Hawks; called biological magnification
C) Snakes; called ecological balance
D) Frogs; called decomposition 1

7. During a shopping trip, you notice different waste disposal options for various items. You want to practice environmentally friendly habits. Which of the following is the most eco-friendly practice?
A) Disposing of used plastic bottles by burying them in the soil to decompose quickly.
B) Carrying a reusable cloth bag for purchases and sorting kitchen waste into biodegradable and non-biodegradable bins.
C) Throwing all waste (food peels, paper, plastic bags) into a single large bin for easy collection.
D) Using disposable plastic plates at a party to avoid washing dishes.

The following two questions consist of two statements – Assertion (A) and Reason (R).
Answer these questions by 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.

8. Assertion (A): Variations arise more in sexually reproducing organisms.

Reason (R) : Asexual reproduction involves formation of gametes and recombination of genes. 1

9. Assertion (A): Plastic is a major cause of land pollution.

Reason (R): Plastics are non-biodegradable and remain in the environment for long periods. 1

10. There is a person who is suffering from pneumonia. He/she has fluid filled in his/her Lungs.

a. What will be the impact of above on exchange of gases in the lungs?
b. What will be its impact on the working of the body?

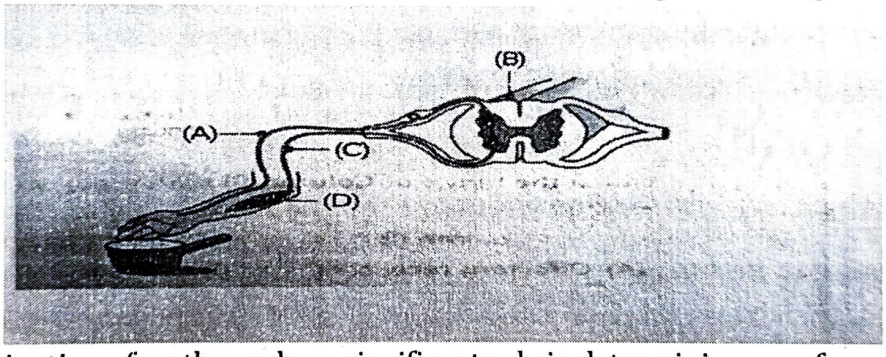
OR

What type of respiration takes place in human muscles during vigorous exercise and Why ? 2

11. How do the Guard cells regulate opening and closing of stomatal pores?

12. A gas 'X' which is a deadly poison is found at the higher levels of the atmosphere and performs an essential function. Name the gas and write the function performed by this gas in the atmosphere. Which chemical is linked to the decrease in the level of this gas? Name an appliance in which this harmful chemical is used ? 2

13. Label the parts A,B,C and D. Show the direction of flow of electrical signals in the given figure. 3



14. A. Do genetic combination of mothers play a significant role in determining sex of a new born child.

B. How is the sex of the child determined in human beings ? Draw a diagrammatic sketch showing the sex determination in human beings. 3

15. Besides heart, the human circulatory system consists of a network of closed Branching blood vessels and the blood that circulates continuously in all parts of the Human body. The human heart is a muscular organ which is as big as our fist. It has Four chambers two upper chambers called atria and two lower chambers called Ventricles. The right side of the human heart is separated from the left side by a Dividing wall, which is known as septum.

a. Name the smallest blood vessel and state its role in the circulation of blood.
b. Write the importance of platelets in the human blood.

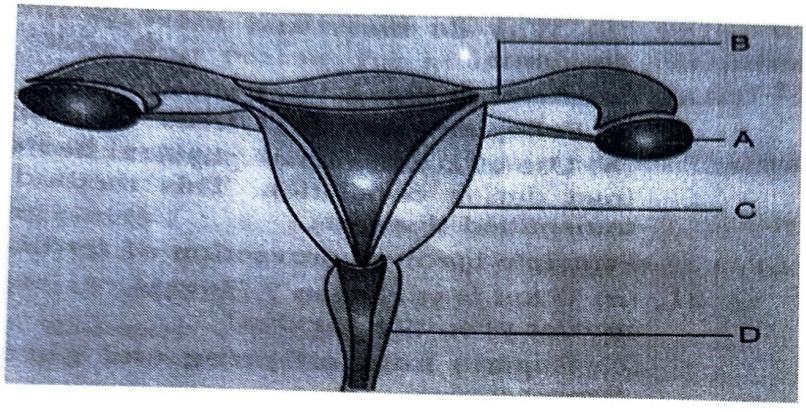
(c) (i) Write in tabular form, two differences between an artery and a vein.

OR

(ii) Why is blood circulation in the human heart called double circulation? Explain.

4

16. Given below is a diagram . Study it carefully and answer the following questions.



1 .Label the parts A,B,C and D

2. Which part forms the egg (ova) ?

3. In which part does fertilization occur ?

4. In which part does implantation occur ?

5. Name the part through which penis is inserted to deliver sperms during sexual intercourse .

OR

a) Draw a Longitudinal section of a flower and label the following parts

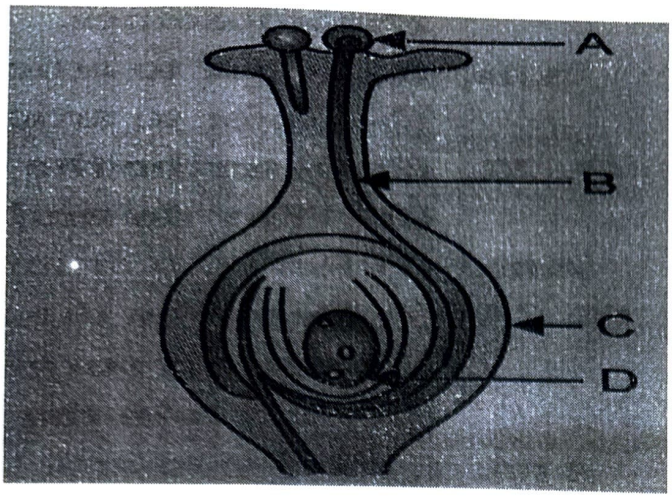
(i) Part that develop into fruit

(ii) Part that produces pollen grain

(iii) Part that transfers male gamete

(iv) Part that is sticky to trap

b) Write the names of the parts labelled as A B,C,D in the given diagram given below



5

SECTION - B

17. A student mixes an aqueous solution of lead nitrate with an aqueous solution of potassium iodide. A yellow precipitate is formed. What type of reaction is this, and what is the yellow precipitate?

- **A.** Combination reaction; Potassium nitrate
- **B.** Decomposition reaction; Lead iodide
- **C.** Displacement reaction; Potassium iodide
- **D.** Double displacement reaction; Lead iodide 1

18. Rancidity in food items containing fats and oils is a common problem. Which of the following methods would be most effective in preventing rancidity?

- **A.** Storing food at room temperature
- **B.** Storing food away from light
- **C.** Adding antioxidants
- **D.** Storing food in airtight containers without any modifications 1

19. To protect against tooth decay, dentists recommend brushing teeth regularly with toothpaste. What is the nature of the toothpaste commonly used, and how does it help?

- **A.** Acidic; it neutralizes the basic substances in the mouth.
- **B.** Basic; it neutralizes the acids produced by bacteria in the mouth.
- **C.** Corrosive; it removes the enamel layer along with the food particles.
- **D.** Neutral; it cleans the teeth without affecting the pH. 1

20. A substance 'A' does not dissociate completely into its ions in aqueous solutions. It is bitter in taste and soapy to the touch. Identify substance A.

- **A.** Weak base
- **B.** Strong base
- **C.** Strong acid
- **D.** Weak acid

1

21. An oxide of an element 'X' reacts with both acids and bases to form salt and water. The element 'X' is likely to be:

- **A.** Aluminium
- **B.** Sulphur
- **C.** Carbon
- **D.** Sodium

1

22. Highly reactive metals like sodium and potassium are stored in kerosene oil. The reason for this practice is:

- **A.** Kerosene is a good solvent for these metals.
- **B.** Kerosene prevents them from melting at room temperature.
- **C.** To prevent their reaction with oxygen and moisture in the air.
- **D.** Kerosene makes them less reactive.

1

23. Butanone is an organic compound with a specific functional group. Which of the following options correctly identifies the functional group present in butanone?

- **A.** Carboxylic acid
- **B.** Aldehyde
- **C.** Alcoholic
- **D.** Ketonic

1

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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.

24. Assertion (A): Soaps do not work well in hard water.
Reason (R) Soaps form scum due to reaction with calcium and magnesium ions in hard water.

1

25.Give reasons:
(a) Platinum gold and silver are used to make jewellery .
(b) Carbonates and sulphide ores are usually converted into oxides during the process of extraction.

2

26. What type of chemical reactions take place when :
(i) Magnesium wire is burnt in here

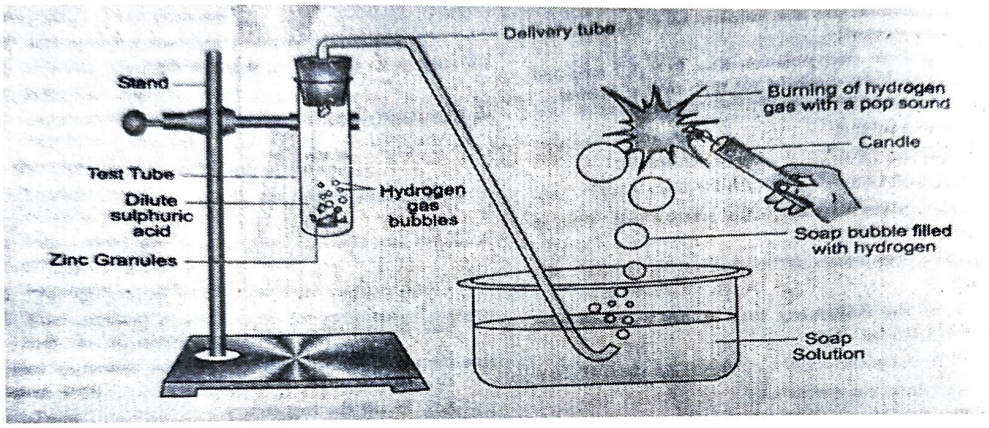
(ii) Electric current is passed through water
(iii) Limestone is heated
(iv) Digestion of food occurs in the body
(v) Ammonia and hydrogen chloride gases are mixed
(vi) Sulphuric acid is added into barium chloride solution

OR

i. A + BC -------□ AC + B
ii. AB + CD ------□ AC + BD

Identify the type of reactions mentioned above in (i) and (ii). Give one example for each type in the form of a balance chemical equation. 3

27.A student named Rinki was performing an experiment in chemistry lab. The following Diagram shows the reaction of zinc granules with dilute sulphuric acid and testing hydrogen gas by burning.



What would happen if the following changes are made?

a. In place of zinc granules, same amount of gold is taken.
b. In place of zinc granules, copper pieces are taken
c. Instead of dilute sulphuric acid, nitric acid is taken. 3

28.A student performed and experiment to study the reactivity of 3 metals X,Yand Z. He played small pieces of these metals in the solution of their respective sulphates and recorded his observations in the table below :

Experiment	Observation
Metal X in $CuSO_4$ solution	Reddish-brown layer formed on X
Metal Y in $ZnSO_4$ solution	No reaction observed
Metal Z in $FeSO_4$ solution	Grey metal deposited, green colour faded

Answer the following questions

a. Identify metals X Y and Z using the reactivity series
b. Write balanced chemical equations for the reactions that took place
c. Explain why no reaction was observed when why was placed in zinc sulphate solution

OR

d. Classify the types of reactions occurring in the above cases.4

29. A carbon compound 'A' is widely used as a preservative in pickles and has a molecular formula C2H4O2. This compound reacts with ethanol to form a sweet smelling compound 'B'.
(i) Identify the compound 'A' and write its structure.
(ii) Write the chemical equation for the reaction of 'A' with ethanol to form compound 'B'. State the role of presence of an acid in the reaction.
(iii) How can we get compound 'A' back from 'B'?
(iv) How can 'A' be obtained from ethanol?
(v) Name the gas produced when compound 'A' reacts with washing soda.

OR

(i) Name a commercially important carbon compound having functional group ----OH and write its molecular formula.
(ii) Write chemical equation to show its reaction with
(a) Sodium metal
(b) Excess conc. Sulphuric acid
(c) Ethanoic acid in the presence of an acid catalyst
(d) Acidified potassium dichromate
Also write the name of the product formed in each case. 5

SECTION -C

30. A person is unable to clearly see objects placed beyond 1.2 meters. He visits an ophthalmologist who prescribes a corrective lens.

Based on this condition, what type of defect is he suffering from, and what kind of lens should be prescribed?

A) Myopia; Concave lens of negative power.

B) Hypermetropia; Concave lens of negative power.

C) Presbyopia; Convex lens of positive power.

D) Myopia; Convex lens of positive power. 1

31. An astronaut looks at the sky while standing on the surface of the Moon. What will be the apparent colour of the sky to the astronaut, and why?

A) Blue, because the sun's light is scattered by the lunar dust.

B) Red, due to the absence of the atmosphere and Rayleigh scattering.

C) Blue, due to the reflection of the Earth's blue oceans.

D) Black or dark, because there is no atmosphere to scatter sunlight. 1

The following question consist of two statements – Assertion (A) and Reason (R).
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C. A is true but R is false.
D. A is false but R is true.

32.Assertion (A): A concave mirror always forms a real and inverted image.

Reason (R) : Real images are formed when reflected rays actually meet. 1

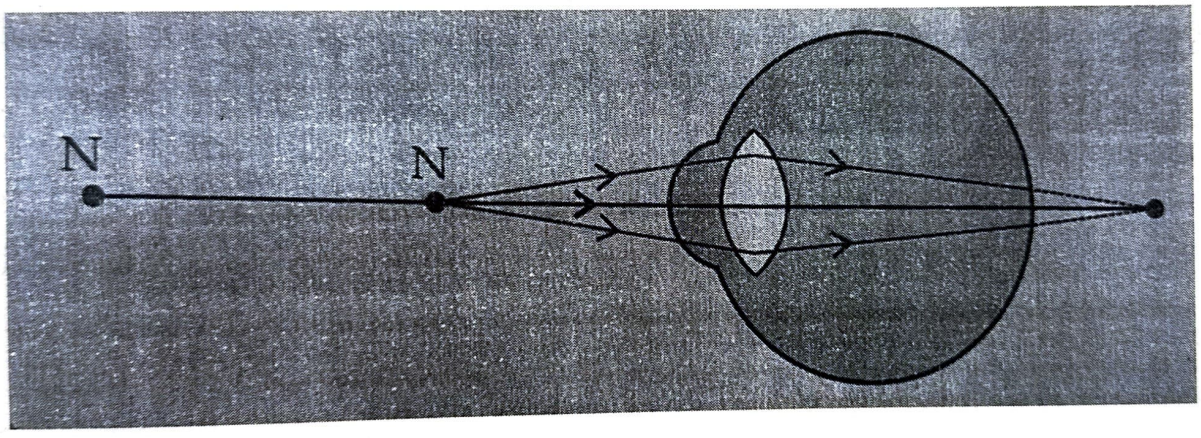
33. A convex lens has focal length of 30 cm . Calculate at what distance should the object be placed from the lens so that it forms and image of 60cm on the other side of the lens? Find the magnification produced by the lens in this case. 2

34. A wire of 3 ohm resistance and 10 cm length is stretched to 30 cm length. Assuming that it has uniform cross section , what will be it's new resistance?

OR

Why does resistance increase (i) in a series combination of resistors (ii) Decrease in a parallel combination of resistors ? 2

35. A ray Diagram of the human eye is given below



(i) Which defect of vision is represented in this case?

(ii) What could be the two causes of this defect?

(iii) With the help of a diagram show how this defect can be corrected using a suitable lens.
3

36. (i) On what factors does the resistance of a conductor of a wire depend on?

(ii) Why are metals good conductors of electricity whereas rubber is a bad conductor of electricity? Give reason.

(iii) Why are alloys commonly used in electrical heating devices? Give reason.3

37. A current carrying conductor is placed in a magnetic field. Now answer the following.

(i) List the factors on which the magnitude of force experienced by conductor depends.

(ii) State the rule which helps, in finding the direction of motion of conductor.

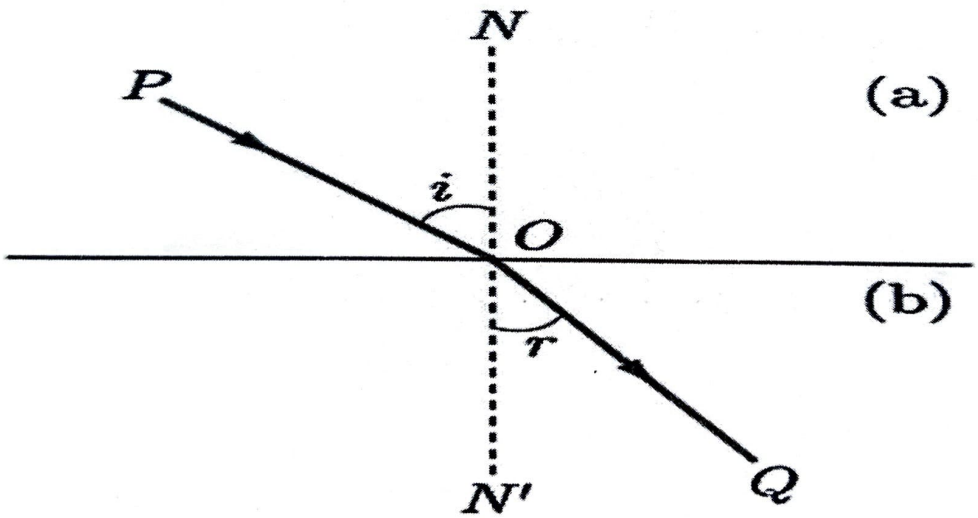
(iii) If initially this force was acting from right to left, how will the direction of force change if the:

(a) direction of magnetic field is reversed?

(b) direction of current is reversed? 3

38. When light ray goes from one transparent medium to another transparent medium, it suffers a change in direction, into second medium. The extent of the change in direction suffered by the phenomenon of change in the path of light rays when going from one medium to another medium is known as refraction. Ray is a given pair of media can be expressed in terms of refractive index. The refractive index is related to an important physical quantity in the relative speed of light in different media.

(i) When light goes from one medium to another, which of the three parameters: frequency, wavelength, velocity



change?

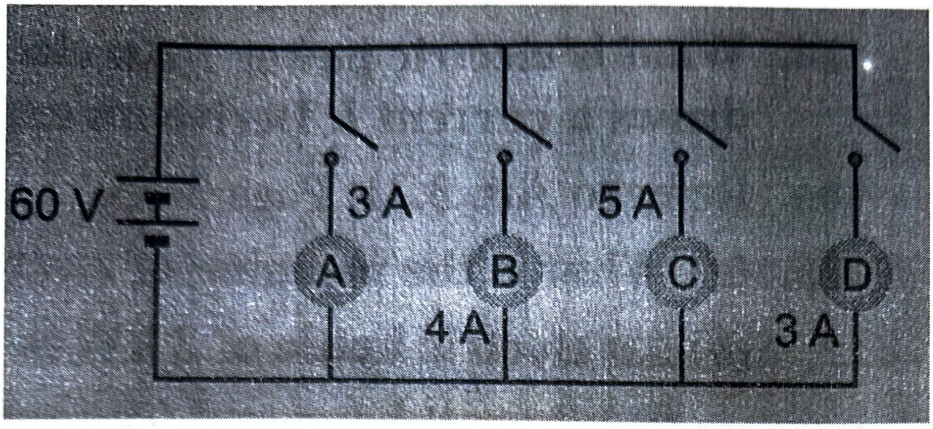
(ii) A ray of light enters into the glass from air. Does it bend towards normal?

(iii) Define Snell's law.

OR

Light enters from air to glass having refractive index 1.50. What is the speed of light in the glass? The speed of light in vacuum is 3×10^8 ms-1 4

39. In the circuit given below A, B, C and D are four lamps connected with a battery of 60 V.



Analyse the circuit to answer the following questions : (1+2+1+1)

(i) What kind of combination are the lamps arranged (in series or parallel)?

(ii) Explain with reference to your above answer, what are the advantages (any two) of this combination of lamps?

(iii) Explain with proper calculations which lamp glows the brightest.

(iv) Find the total resistance of the circuit.

OR

i. Consider a conductor of resistance 'R', Length ' L' , thickness 'd' and resistivity 'rho'. Now this conductor is cut into four equal parts. What will be the new resistivity of each of these parts? Why?

ii. Find the resistance if all of these parts are connected in : (a) Parallel (b) Series

iii. Out of these combinations of resistors mentioned above in the previous part, for a given voltage which combination will consume more power and why? 5