

Sample Question Paper

SECTION- A

1. Newly formed DNA copies may not be identical at times. Give one reason. 1

OR

Name the hormone in human which regulates carbohydrate, protein and fat metabolism in the body. Mention the site where it is synthesized. 1

2. Name two industries based on forest products. 1

3. **Read the passage and answer the following questions.**

Atoms of eight elements A, B, C, D, E, F, G and H have the same number of electronic shells but are different in their outermost shells. It was found that elements A and G combine to form an ionic compound which can also be extracted from sea water. Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of element D is almost neutral.

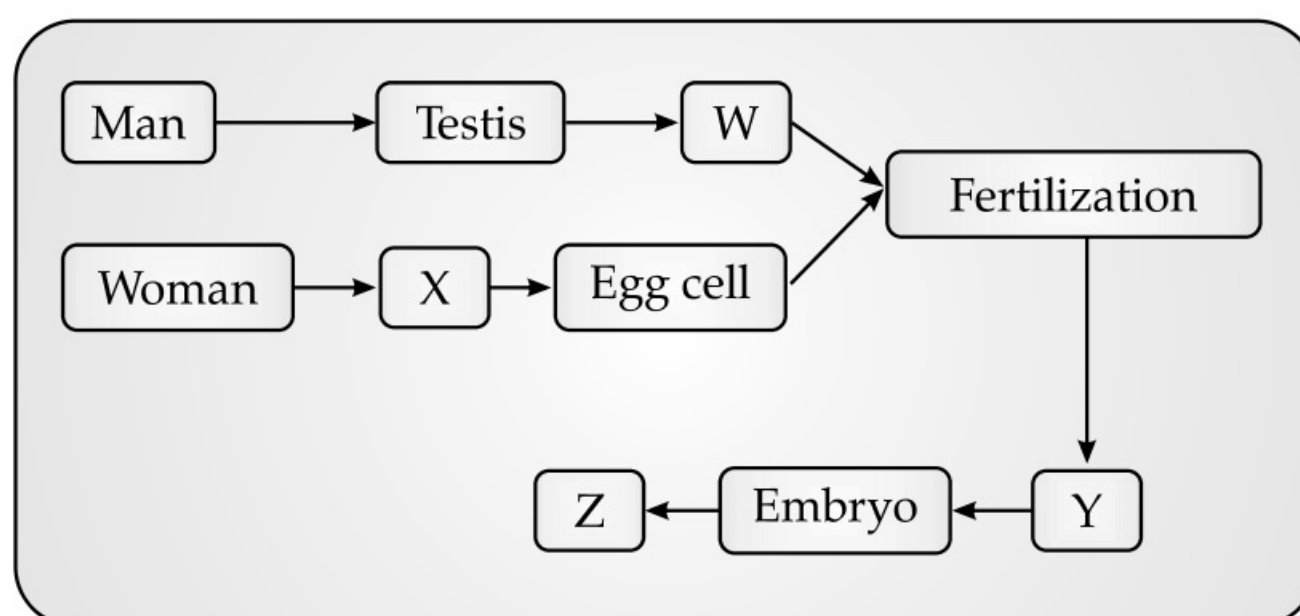
(a) To which group or period of the periodic table do the listed elements belong ?

(b) Which one of the eight elements is likely to be a noble gas ?

(c) Which one of the eight elements would have the largest atomic radius ?

(d) Which two elements amongst these are likely to be the non-metals ? 4

4. **Understand the given flow chart and answer the following questions.**



(a) Which of the following represents W, X, Y and Z?

	W	X	Y	Z
(i)	Gamete	Ovary	Foetus	Zygote
(ii)	Sperm	Ovary	Zygote	Foetus
(iii)	Sperm	Uterus	Foetus	Baby
(iv)	Gamete	Fallopian tube	Zygote	Baby

(b) Where the process of fertilization does takes place in female body?

(c) What is the main function of part X?

(d) What is menstruation? 4

5. In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity, if lead nitrate is not available, which of the following can be used in place of lead nitrate ? 1

(a) Lead sulphate (insoluble)

(b) Lead acetate

(c) Ammonium nitrate

(d) Potassium sulphate

6. What happens when calcium is treated with water? 1
- (i) It does not react with water.
 - (ii) It reacts violently with water.
 - (iii) It reacts less violently with water.
 - (iv) Bubbles of hydrogen gas formed stick to the surface of calcium.
- (a) (i) and (iv) (b) (ii) and (iii)
(c) (i) and (ii) (d) (iii) and (iv)

7. The brain is responsible for : 1
- (a) thinking (b) regulating the heart beat.
(c) balancing the body (d) all of the above.

OR

Length of pollen tube depends on the distance between :

- (a) pollen grain and upper surface of stigma
- (b) pollen grain on upper surface of stigma and ovule
- (c) pollen grain in anther and upper surface of stigma
- (d) upper surface of stigma and lower part of style

8. According to the evolutionary theory, formation of a new species is generally due to : 1
- (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.

9. A teacher sets up the stand carrying a convex lens of focal length 15 cm at 42.7 cm mark on the optical bench. He asks four students *A*, *B*, *C* and *D* to suggest the position of screen on the optical bench so that a distinct image of a distant tree is obtained almost immediately on it. The positions suggested by the students were as : 1

- (i) 12.7 cm (ii) 29.7 cm
(iii) 57.7 cm (iv) 72.7 cm

The correct position of the screen was suggested by

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

10. The bluish colour of water in deep sea is due to : 1
- (a) the presence of algae and other plants found in water
 - (b) reflection of sky in water
 - (c) scattering of light
 - (d) absorption of light by the sea

11. To convert an AC generator into DC generator : 1
- (a) split-ring type commutator must be used
 - (b) slip rings and brushes must be used
 - (c) a stronger magnetic field has to be used
 - (d) a rectangular wire loop has to be used

12. Rays from Sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object ? 1
- (a) 15 cm in front of the mirror (b) 30 cm in front of the mirror
(c) Between 15 cm and 30 cm in front of the mirror. (d) More than 30 cm in front of the mirror.

For question numbers 13 and 14, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below :

- (i) Both A and R are true and R is correct explanation of the assertion.
- (ii) Both A and R are true but R is not the correct explanation of the assertion.
- (iii) A is true but R is false.
- (iv) A is false but R is true.

13. **Assertion (A)** : Nerve impulse is a one way conduction. 1

Reason (R) : Nerve impulse is transmitted from dendrite to axon terminals.

OR

Assertion (A) : Double fertilisation is unique to angiosperms.

Reason (R) : Two types of fusion takes place in double fertilisation.

14. **Assertion (A)** : Convex mirror is used in the headlights of a car. 1

Reason (R) : Field of view of convex mirror is larger and it forms virtual, erect and diminished images of the objects behind.

SECTION- B

[AI] 15. (a) While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid ?

(b) Dry hydrogen chloride gas does not change the colour of dry litmus paper. Why ? 3

OR

How is sodium hydroxide manufactured in industries ? Name the process. In this process, a gas X is formed as by-product. This gas reacts with lime water to give a compound Y, which is used as a bleaching agent in the chemical industry. Identify X and Y and write the chemical equation of the reactions involved.

[AI] 16. Given below are the steps for the extraction of copper from its ore. Write the chemical equations of the reactions involved in each case. 3

(i) Roasting of copper (I) sulphide

(ii) Reduction of copper (I) oxide from copper (I) sulphide

(iii) Electrolytic refining.

17. Which compounds are called (i) alkanes, (ii) alkenes and (iii) alkynes ? C_4H_{10} belongs to which of these ? Draw two structural isomers of this compound. 3

18. What is feedback mechanism of hormonal regulation. Take the example of insulin to explain this phenomenon. 3

OR

Nervous and hormonal systems together perform the function of control and coordination in human beings. Justify this statement with the help of an example.

[AI] 19. What is photosynthesis ? Explain its mechanism. 3

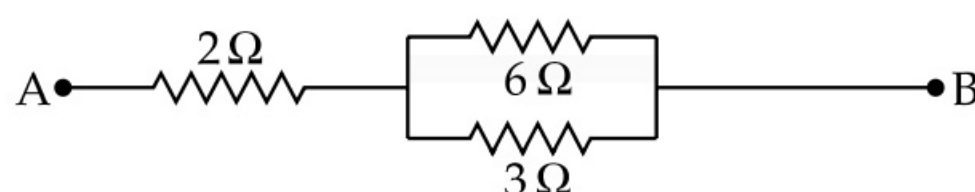
[AI] 20. The image of an object formed by a lens is of magnification – 1. If the distance between the object and its image is 60 m, what is the focal length of the lens ? If the object is moved 20 cm towards the lens, where would the image be formed ? State reason and also draw a ray diagram in support of your answer. 3

OR

(a) What is presbyopia ? State its cause. How is it corrected ?

(b) Why does the Sun appear reddish early in the morning ? Explain with the help of a labelled diagram.

[AI] 21.



Find the effective resistance between the points A and B in the network shown in the figure. 3

22. Name, state and explain with an example the rule used to determine the direction of force experienced by a current carrying conductor placed in a uniform magnetic field. 3
23. Why should there be equitable distribution of resources ? List three forces that would be working against an equitable distribution of our resources. 3
24. What is water harvesting ? List two main advantages associated with water harvesting at the community level. Write two causes for the failure of sustained availability of groundwater. 3

SECTION- C

25. Write the main difference between an acid and a base. With the help of suitable examples explain the term neutralization and the formation of : 5
- (i) acidic,
(ii) basic and
(iii) neutral salts.
26. (a) What was the basis of Mendeleev's classification of elements ? 5
(b) List two achievements of Mendeleev's Periodic table.
(c) List any two observations which posed a challenge to Mendeleev's periodic law.

OR

[AI] Explain giving justification the trends in the following properties of elements, on moving from left to right in a period, in the Modern Periodic Table :

- (a) Variation of valency.
(b) Change of atomic radius.
(c) Metallic to non-metallic character.
(d) Electronegative character.
(e) Nature of oxides.

[AI] 27. Define evolution. How does it occur ? Describe how fossils provide us evidences in support of evolution. 5

28. (a) Name the organ that produces sperms as well as secretes a hormone in human males. Name the hormone it secretes and write its functions.
(b) Name the parts of the human female reproductive system where fertilisation occurs.
(c) Explain how the embryo gets nourishment inside the mother's body. 5

OR

- (i) List three distinguishing features between sexual and asexual types of reproduction.
(ii) Explain why variations are observed in the offspring of sexually reproducing organisms ?

[AI] 29. Analyse the following observation table showing variation of image distance (v) with object distance (u) in case of a convex lens and answer the questions that follow, without doing any calculation : 5

S. No.	Object distance u (cm)	Image distance v (cm)
1	- 90	+18
2	- 60	+ 20
3	- 30	+ 30
4	- 20	+ 60
5	- 18	+ 90
6	- 10	+ 100

- (a) What is the focal length of the convex lens? Give reason in support of your answer.
(b) Write the serial number of that observation which is not correct. How did you arrive at this conclusion ?
(c) Take an appropriate scale to draw ray diagram for the observation at S. No. 4 and find the approximate value of magnification.

- AI** 30. (a) Draw magnetic field lines produced around a current carrying straight conductor passing through a cardboard. Name, state and apply the rule to mark the direction of these field lines.
- (b) How will the strength of the magnetic field change when the point where magnetic field is to be determined is moved away from the straight wire carrying current ? Justify your answer. 5

OR

- (a) Draw a schematic labelled diagram of domestic electric circuit.
- (b) Why is it necessary to provide–
- (i) A fuse in an electric circuit.
 - (ii) An earth wire to electric appliance of metallic body? Explain.

