

**2020
SCIENCE**

Total marks : 80

Time : 3 hours

General instructions:

- i) Approximately 15 minutes is allotted to read the question paper and revise the answers.
- ii) The question paper consists of 26 questions. All questions are compulsory.
- iii) Internal choice has been provided in some questions.
- iv) Marks allocated to every question are indicated against it.

N.B: Check that all pages of the question paper is complete as indicated on the top left side.

1. Choose the correct answer from the given alternatives:

- (a) $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$
The above reaction is an example of **1**
(i) combination reaction (ii) double displacement reaction
(iii) decomposition reaction (iv) displacement reaction
- (b) A solution reacts with crushed egg shells to give a gas that turns lime water milky. The solution contains **1**
(i) NaCl (ii) HCl
(iii) LiCl (iv) KCl
- (c) The electronic configuration of an element X is 2, 8, 1. In the periodic table, the element belongs to group **1**
(i) 1 (ii) 2
(iii) 3 (iv) 4
- (d) The part of the brain which is responsible for maintaining the posture and balance of the body is **1**
(i) cerebrum (ii) cerebellum
(iii) pituitary gland (iv) hypothalamus
- (e) Which of the following is a plant hormone? **1**
(i) Insulin (ii) Thyroxin
(iii) Oestrogen (iv) Cytokinin
- (f) Where should an object be placed in front of a convex lens to get a real image of the size of the object? **1**
(i) At the principal focus of the lens
(ii) At twice the focal length
(iii) At infinity
(iv) Between the optical centre of the lens and its principal focus
- (g) The change in focal length of an eye lens is caused by the action of the **1**
(i) pupil (ii) retina
(iii) ciliary muscles (iv) iris

- (h) The essential difference between AC generator and a DC generator is that 1
- (i) AC generator has an electro magnet while a DC generator has permanent magnet
 - (ii) DC generator will generate higher voltage
 - (iii) AC generator will generate higher voltage
 - (iv) AC generator has slip rings while DC generator has a commutator
- (i) Which of the following is not an example of a bio-mass energy source? 1
- (i) Wood (ii) Gobar gas
 - (iii) Nuclear energy (iv) Coal
- (j) Disposable plastic plates should not be used because 1
- (i) they are light weight
 - (ii) they are made of toxic materials
 - (iii) they are non-biodegradable
 - (iv) they are biodegradable

Answer the following questions in one word or one sentence:

2. Name the acid present in sour milk. 1
3. What are amphoteric oxides? 1
4. Draw the electron dot structure of ethene. 1
5. What is an artificial kidney? 1
6. Define fossils. 1

Answer the following questions in about 20-30 words:

7. Explain the term analogous organs with one example. 1+1=2
8. Define power of a lens. What is its S.I unit? 1+1=2
9. The far point of a myopic eye is 80cm in front of the eye. What is the nature and power of lens required to correct the problem? 1+1=2
10. Mention any two qualities of an ideal source of energy. 1+1=2
11. Everyone of us can do something to reduce our consumption of various natural resources. List any two such activities based on 3-R approach. 1+1=2

Answer the following questions in about 40-60 words:

12. Translate the following statements into chemical equations and balance them:
1. Hydrogen gas combines with nitrogen to form ammonia.
2. Zinc reacts with sulphuric acid to give zinc sulphate and hydrogen gas.
3. Potassium metal reacts with water to give potassium hydroxide and hydrogen gas. **3×1=3**
13. **a.** What is neutralization reaction? Give one example. And write the chemical reaction taking place. **1+1+1=3**
Or
b. How is baking soda produced? Write the chemical reaction taking place in its preparation. Give one use of baking soda.
14. Explain the trends in Modern Periodic table. **3×1=3**
15. **a.** Draw a neat diagram of the human brain and label any four different parts of it. **1+1½×4=3**
Or
b. Draw a neat diagram of the reflex arc and label any four different parts of it.
16. Explain any three types of asexual reproduction in organisms. **3×1=3**
17. **a.** An object 4cm in size is placed at 25cm in front of a concave mirror of focal length 15cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the size of the image. **3**
Or
b. A concave lens has focal length 15cm. At what distance should the object be placed from the lens so that it forms an image 10cm from the lens? Also find the magnification produced by the lens.
18. Name the type of mirror or lens used in the following:
1. By dentist.
2. In cameras.
3. Rear view mirror of vehicles. **3×1=3**
19. **a.** An electric iron consumes energy at a rate of 840 W when heating is at the maximum rate and 360 W when the heating is at the minimum. The voltage is 220V. What are the current and the resistance in each case? **3**
Or
b. Two lamps, one rated 100W at 220V, and the other 60W at 220V, are connected in parallel to electric mains supply. What current is drawn from the line if the supply voltage is 220V?

20. What are the factors on which the resistance of a conductor depends? **3×1=3**
21. Write any three advantages and disadvantages of solar cell panels. **1½+1½=3**

Answer the following questions in about 70-100 words:

22. a. Explain the steps involved in the extraction of metals from their ores. **5×1=5**
Or
 b. (i) Explain any two properties of ionic compounds.
 (ii) List one metal found in free state in the earth's crust and mention where it is located in the activity series.
 (iii) Metals towards top of activity series cannot be obtained from their compounds by reducing with carbon. Why? **(2+1+2=5)**
23. a. Explain the versatile nature of carbon. Differentiate between saturated and unsaturated carbon compounds. **3+2=5**
Or
 b. Explain the following chemical properties of carbon compounds and give the chemical equation involved in:
 (i) Combustion.
 (ii) Addition reaction.
 (iii) Substitution reaction. **(1+2+2=5)**
24. a. Describe the different parts of a flower with a labelled diagram.
Or **3+2=5**
 b. Describe the germination of pollen on stigma with a labelled diagram.
25. Draw a labelled diagram of the common domestic electric circuit. Why does an electric short circuit occur? What is the importance of fuse in an electric circuit? **3+1+1=5**
26. a. Explain the process of digestion, absorption and assimilation of the human alimentary canal with a labelled diagram.
Or **3+2=5**
 b. Explain the structure of nephron with a labelled diagram.
