C–2–B

Roll No. ....

Total No. of Questions : **36**] [Total No. of Printed Pages : **16**

10th ARJKLK23

9402–B

SCIENCE

Time : 3 Hours] **[Maximum Marks : 80**

General Instructions :–

(a) This question paper has four Sections–A, B, C and D. There are thirty six questions in the question paper and all questions are compulsory.

(b) Section–A (Q. Nos. **1** to **20**). All questions and parts thereof are of 1 mark each. These questions contain multiple choice questions, very short answer type questions and assertion and reason type questions. Answer to these should be given in one word or one sentence.

(c) Section–B (Q. Nos. **21** to **26**) are short answer type questions carrying 2 marks each.

(d) Section–C (Q. Nos. **27** to **33**) carring 3 marks each.

(e) Section–D (Q. Nos. **34** to **36**) are long answer type questions carrying 5 marks each.

(f) There is no overall choice. However internal choices have been provided in some questions. A student has to attempt only *one* of the alternatives in such questions.

(g) Wherever necessary, neat and properly labelled diagram should be drawn.

Section–A

1. An object placed at F of a concave mirror forms an enlarged image. What is the position and nature of this image ? 1

2. Define principal focus of a convex mirror. 1

3. Draw a ray diagram showing convergence of refracted rays of light.

Or

What type of mirror is used by a dentist in dental procedures ? 1

4. Which of these regulates the amount of light entering the eye ?

(A) Pupil

(B) Optic nerve

(C) Conjunctiva

(D) Iris 1

5. Draw the symbol of a closed plug key. 1

6. Write a balanced chemical equation for the decomposition reaction of ferrous sulphate into the products on heating. 1

7. Copper and oxygen combine together and copper oxide is formed :

$$2Cu + O_2 \xrightarrow{Heat} 2CuO$$

This reaction is an example of :

(A) Reduction reaction

(B) Redox reaction

(C) Displacement reaction

(D) Decomposition reaction 1

8. In nature carbon is a very interesting element. It exhibits different forms. In one of the form, each carbon atom is bonded to three other carbon atoms in the same plane giving a hexagonal array, thus satisfying the valency. What is this form of carbon ?

Or

Carbon can make compounds with other elements like halogens, oxygen and hydrogen. In such cases the element that replaces hydrogen from a hydrocarbon chain forms a specific group. What is this group called ? Name any *one* such group. 1

9. Which of the following does not exist as solid at room temperature ?

(A) Sodium

(B) Magnesium

(C) Mercury

(D) Zinc 1

10. Electrovalent compounds are generally soluble in :

(A) Kerosene

(B) Petrol

(C) Water

(D) All of these 1

11. Give an example of an alloy. 1

12. When chlorine acts on dry slaked lime [$Ca(OH)_2$], a very usable chemical is formed. What is the chemical in general called ? 1

13. Name any *two* Hormones.

Note : From question numbers 14 to 16, two statements (Assertion–A and Reason–R) are given.

Select the correct answer to these questions from codes (A), (B), (C) and (D) as given below :

(A) Both (A) and (R) are true and (R) is correct explanation of assertion (A).

(B) Both (A) and (R) are true, but (R) is not the correct explanation of the assertion (R).

(C) (A) is true but (R) is false.

(D) (A) is false but (R) is true. 1

14. **Assertion (A) :** If trait 'A' exists in 10% of a population of an 'asexually' reproducing species and a trait B exists in 60% of the same popoulation.

Reason (R) : It indicates that the trait 'B' has arisen earlier in the population. 1

15. **Assertion (A)** : It is seen that there are higher levels of pesticides in certain food items like fruits.

Reason (R) : The condition is due to the bio-accumulation of pesticides through different trophic levels. 1

16. **Assertion (A)** : The ozone (O_3) is formed in the higher levels of atmosphere.

Reason (R) : The UV radiations here split the O_2 into free oxygen, which then combines with molecular oxygen to form ozone (O_3). 1

17. Read the following passage and answer any *four* questions :

An electric current through a metallic conductor produces a magnetic field around it. The pattern of which depends on the shape of the conductor. The magnetic field lines can be drawn as concentric circles around the conductor. The direction of the field can also be checked as well as the explanation is there in Fleming's Right hand rule.

(i) The magnetic field lines form concentric circles, when the conductor is :

(A) Circular

(B) Solenoid

(C) Straight

(D) None of these

(ii) The direction of the magnetic field can be checked by using :

(A) Copper wire

(B) Compass

(C) Iron Fehlings

(D) Right hand thumb only

(iii) With increase in current, the deflection of needle :

(A) Remains same

(B) Decreases

(C) Increases

(D) First increases then decreases

(iv) With a decrease in distance from the conductor, the magnetic field :

(A) Decreases

(B) Increases

(C) Moves westward only

(D) All of these

(v) According to Right hand thumb rule, the thumb points towards the direction of the :

(A) Magnetic field

(B) Force

(C) Current

(D) None of these

1×4=4

18. Read the following passage and answer any *four* questions :

Modern periodic table in designed with groups and periods. The elements in any group have the same number of valence electrons and that there is an increasing trend in respect of Atomic no. through the periods.

(i) Number of periods in modern periodic table is :

(A) 18 (B) 7

(C) 12 (D) 6

(ii) The groups in the periodic table are the Rows that are :

(A) Vertical (B) Horizontal

(C) Diagonal (D) Zig-zag

(iii) The elements in the modern periodic table are arranged on the basis of increasing :

(A) Valency (B) Atomic size

(C) Atomic mass (D) Atomic no.

(iv) The number of valence electrons in the group 17 elements is :

(A) 1 (B) 7

(C) 8 (D) Zero

(v) The elements of this group are usually called 'Inert (noble) gases' :

(A) 11 (B) 16

(C) 17 (D) 18 1×4=4

19. Read the following passage and answer any *four* questions :

All acids have similar chemical properties because hydrogen is common to them. The bases on the contrary can generate OH^-(aq.) ion. The strength of acids and bases can be measured on the basis of H^+ and OH^- concentration.

(i) The acidic solution in respect of electricity is :

(A) Good conductor (B) Bad conductor

(C) Semi-conductor (D) None of these

(ii) The acid can give H^+ ion with :

(A) Base (B) Water

(C) Weak acids (D) All of these

(iii) Alkali is a :

(A) Strong acid (B) Base

(C) Salt (D) Weak acid

(iv) The solution with pH value slightly higher than 7 is :

(A) Acidic (B) Basic (strong)

(C) Neutral (D) Weaker basic

(v) An alkali is soluble in :

(A) Strong acids (B) Ether only

(C) Water (D) All of these 1×4=4

20. Read the following passage and answer any *four* questions :

Natural resources have been there to support life since times immemorial. Forests, wildlife, mineral deposits and other resources were used sustainably. However, with the arrival of Industrial progress the over-exploitation has put these resources at an alarming threat.

(i) Which of the following is not a natural resource ?

(A) Water (B) Wind

(C) Plastic (D) Forests

(ii) Which of the following natural resources is important for energy ?

(A) Wildlife (B) Sunlight

(C) Vegetation in a forest (D) None of these

(iii) Amrita Devi Bishnoi sacrificed her life for the protection of :

(A) Teak (B) Pine tree

(C) Khejri tree (D) Eucalyptus

(iv) Forests are the source of :

(A) Fodder (B) Timber

(C) Paper (D) All of these

(v) Local people in forests use it in making slats for huts :

(A) Pine (B) Bamboo

(C) Teak (D) None of these 1×4=4

Section–B

21. Name any *two* substances which are non-biodegradable in our local environment.

Or

Disposal of solid waste is everybody's concern at domestic level. Suggest any *two* ways of its management. 2

22. What is Myopia ? 2

23. How does a convex lens correct farsightedness ?

Or

The objects at or between a certain distance are visible to human eye. So, there is always a near and far point. What is this near and far point for a normal young human adult ? 2

24. Draw a circuit diagram showing three resistors in series. 2

25. Plant leaf bears small pores for gaseous exchange required for photosynthesis. What are these pores called and which cells control their opening and closing ? 2

26. Regeneration is used as a means of asexual reproduction. Name any *two* organisms showing regeneration. 2

Section–C

27. Explain the structure of human female reproductive system.

Or

What is Pollination ? Describe the reproductive parts of a flowering plant. 3

28. What do you mean by dominant and recessive characters ? Illustrate with the help of an example. 3

29. Plants produce different types of hormones. Discuss any *one* type of hormone with its physiological role. 3

30. Write a short note on extraction of metals. 3

31. With the help of an example, discuss the phenomenon of corrosion. 3

32. What is the basic difference between the thermal and hydel power plants ? 3

33. An electric bulb is connected to a 220 V generator. The current is 0.75 A. Calculate the power of the bulb. 3

Section–D

34. Discuss the nature, size and position of the image formed by a convex lens, when the object is placed at :

(a) Infinity

(b) Focus F_1

(c) Between focus F_1 and optical centre o.

Or

Describe refraction through a rectangular glass slab. Write down the laws of refraction of light. Also draw the diagram. 5

35. What are Hydrocarbons ? Describe the saturated carbon compounds.

Or

Define Allotropy. Describe the various allotropic forms of carbon with their properties. 5

36. What is Respiration ? Describe the structure of respiratory system of man. Draw a diagram also.

Or

What is Heterotrophic Nutrition ? Describe the process of photosynthesis. 5