Roll No.....

Total No. of Questions : 40] [Total No. of Printed Pages : 15

10th ARNKD(W/Z) JKLUT-2025

1005-A

SCIENCE

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

Note:- **"Attempt any 68 Marks out of 80 Marks".**

SECTION-A

Note:- Q.No.'s 1 to 15 are Very short answer type questions carrying 1 mark each.

1. Define Radius of curvature of a spherical mirror.

2. The image formed by a concave mirror is real, inverted and of the same size as the object. What is the position of the object? & C

3. The refractive index of Diamond is

(a) 1.77 (b) 1.65

(c) 2.42 (d) 2.13

4. The S.I unit of Potential difference is

(a) Watt (b) Ampere

(c) Volt (d) None of these

5. Name the device used to measure potential difference across a conductor.

6. Which of the following processes involve chemical reaction?

(a) Storing of oxygen under high pressure in a gas cylinder.

(b) Keeping petrol in a china dish in open air.

(c) Heating copper wire in presence of air at high temperature.

(d) None of the above

7. Food cans are coated with Tin and not with Zinc because

(a) Zinc is costly than Tin

(b) Zinc has a high melting point than Tin

(c) Zinc is more reactive than Tin

(d) Zinc is less reactive than Tin

8. Name two metals, which are mostly found in nature in free native state. gold and Pt

9. Buckminster fullerene is allotropic form of

(a) Phosphorus (b) Sulphur

(c) Carbon (d) Tin

10. The general formula of Alkenes is

(a) $CnH_2n + 2$ (b) CnH_2n

(c) $CnH_2n - 2$ (d) None of them

14. Exchange of genetic material takes place in

(a) Vegetative reproduction

(b) Asexual reproduction

(c) Sexual reproduction

(d) Budding

15. A zygote which has an x-chromosome inherited from the father will develop into a

(a) Boy

(b) Girl

(c) x-chromosome doesn't determine the sex of a child

(d) Either boy or girl

11. Soil erosion is prevented by

(a) Overgrazing (b) Removal of vegetation

(c) Afforestation (d) Deforestation

12. The estimated sunlight captured by the green plants in a terrestrial ecosystem is :

(a) 10% (b) 20%

(c) 2% (d) 1%

13. In a monohybrid cross, we get a Genotypic ratio of

(a) 1 : 2 : 1 (b) 1 : 1 : 2

(c) 3 : 1 (d) 2 : 1 : 2

Note:- From Q No's 16 to 18 two statements (Assertion-A and Reason-R) are given. Select the correct statement/answer to these questions from the codes (A), (B), (C) and (D) as given below :

Codes :

(a) When A and R are true and R is the correct explanation of A.

(b) When A and R are true and R is not the correct explanation of A.

(c) When A is true and R is false.

(d) When A is false but R is true.

16. Assertion (A) : If a graph is plotted between the current flowing and potential difference, the graph is a straight line passing through the origin.

Reason (R) : The current is directly proportional to the potential difference.

17. Assertion (A) : If the first member of a homologous series is methanol, its third member will be Ethanol.

Reason (R) : All the members of a homologous series show similar chemical properties.

18. Assertion (A) : Insulin regulates blood sugar level of the body.

Reason (R): Insufficient secretion of Insulin will cause diabetes mellitus.

SECTION-B

Note :- There will be Ten Question in this section (Q.No's 19 to 28) each carrying 2 marks each.

19. On passing through a glass prism white light splits into its seven constituent colors. What is this phenomenon called and how it is caused?

20. What precautions should be taken to avoid the overloading of domestic electric circuits?

21. Why does a compass needle get deflected when brought near a bar magnet?

22. Identify the substance oxidized and the substance reduced in the following reactions :

(i) $4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$

(ii) $CuO(s) + H_2(g) \rightarrow Cu(s) + H_2O(l)$

23. Why is sodium kept immersed in kerosene oil?

24. Why does an aqueous solution of an acid conduct electricity?

25. Which part of the brain maintains posture and equilibrium of the body?

26. What is the importance of DNA copying in reproduction?

27. Draw a labeled diagram of the longitudinal section of a flower.

28. What are the functions performed by the testis in human beings?

SECTION-C

Note :- In this section from Q.No's 29 to 37, there will be Nine Questions with internal choice carrying 3 marks each.

29. An electric motor takes 5A current from a 220 volt line, determine the power and energy consumed in 2 hours.

OR

An electric iron of resistance 20 Ohm Ω takes a current of 5A. Calculate the heat developed in 30 seconds.

30. Why do Stars Twinkle?

OR

Why does the sky appear dark instead of blue to an astronaut?

31. The magnetic field in a given region is uniform. Draw a diagram to represent it.

OR

How does a solenoid behave like a magnet? Can you determine the north and south poles of a current carrying solenoid with the help of a bar magnet? Explain.

32. Balance the following Chemical equations :

(a) $HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + H_2O$

(b) $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$

(c) $Bacl_2 + H_2SO_4 \rightarrow BaSO_4 + Hcl$

OR

Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity.

33. Why does distilled water not conduct electricity where as rain water does?

OR

Fresh milk has a pH of 6. How do you think the pH will change as it turns into curd?

34. Why do ionic compounds have high melting points?

OR

Define the following terms :

(a) Mineral

(b) Ore

(c) Gangue

35. What are the differences between Autotrophic and Heterotrophic Nutrition?

OR

Define Haemoglobin. Explain its importance in transporting oxygen and carbon dioxide in the blood.

36. How do auxins promote the growth of a tendril around a support?

OR

What is the need for a system of control and coordination in an organism?

37. What are Trophic Levels? Give an example of food chain and state the different trophic levels in it?

OR

What is the role of Decomposers in the Ecosystem?

SECTION-D

Note :- In this section from Q.No's 38 to 40, there will be Three Long answer type Questions with internal choice each carrying 5 marks.

38. Define Refraction. With the help of a ray diagram explain refraction of light through a glass slab.

Or

An object 5.0 cm in length is placed at a distance of 20 cm from the convex mirror of radius of curvature 30 cm. Find the position of the image, its nature and size.

39. Draw the structures of the following compounds :

(i) 1–Butene

(ii) 2–Iodopropane

(iii) 2–Propanol

(iv) Butanoic Acid

(v) 3–Pentanone

OR

Discuss briefly the physical and chemical properties of Ethanol.

40. Describe transport of water and food in plants.

OR

(i) What is the role of saliva in the digestion of food?

(ii) How are fats digested in our body?

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