

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

10thARFJD(S/Z) JKUT-2026

1305-A

SCIENCE

Time : 3 Hours]

[Maximum Marks : 80

SECTION-A

Note:- Q.No.'s 1 to 18 are very short answer type questions of 1 mark each.

1. A person has difficulty reading close objects but can see distant objects clearly. His near point is 50 cm. What focal length of the lens would be suitable to help him read at 25 cm?

(a) + 25 cm	(b) + 50 cm
(c) + 100 cm	(d) + 75 cm

2. In Which of the following medium, the speed of light is the fastest?

(a) Glass	(b) Water
(c) Air	(d) Vacuum

3. Which of the following describes the correct application of a concave lens?
 - (a) To correct hypermetropia
 - (b) To converge light rays for a spot-light
 - (c) To produce a virtual, erect image for a peephole in doors
 - (d) To magnify small objects

4. Which of the following converts electrical energy into mechanical energy?

(a) Electric Motor ✓	(b) Generator
(c) Electric Circuit	(d) Resistors

5. At the time of short circuit, the current in the circuit:
 - (a) Reduces substantially
 - (b) Does not change
 - (c) Increases heavily ✓
 - (d) Vary continuously

6. If a few drops of phenolphthalein are added to a solution and it turns pink, what does it indicate about the solution?
- (a) The solution is acidic
 - (b) The solution is basic
 - (c) The solution is neutral
 - (d) The solution is saturated
7. Which among the following has higher melting point?
- (a) NaCl
 - (b) CaCl_2
 - (c) CaO
 - (d) MgCl_2
8. What are the primary products of complete combustion of ethanol?
- (a) Water and carbon monoxide
 - (b) Water and carbon dioxide
 - (c) Methane and water
 - (d) Carbon and oxygen

9. Oiling or painting is a common method to prevent rusting of iron, because :
- (a) It increases the reactivity of iron
 - (b) It changes iron's chemical properties
 - (c) It forms a barrier between iron and moisture/oxygen
 - (d) It enhances the rate of oxidation
10. A convex lens has a focal length of 15 cm. Where should an object be placed to get an image of the same size as the object?
- (a) At 15 cm
 - (b) At 30 cm
 - (c) At 45 cm
 - (d) At 60 cm
11. Which of the following non-metals is a liquid?
- (a) Bromine
 - (b) Sulphur
 - (c) Carbon
 - (d) Phosphorus

12. In the human female reproductive system, the fertilization of the egg typically occurs in the:
- (a) Uterus (b) Ovaries
- (c) Fallopian tube (d) Cervix
13. Vegetative propagation in plants is primarily used for:
- (a) Producing Seeds
- (b) Sexual reproduction
- (c) Growing genetically identical offsprings
- (d) Pollination
14. Pesticides used in agriculture can harm top consumers in a food chain due to:
- (a) Biomagnification (b) Photosynthesis
- (c) Decomposition (d) Nitrogen fixation

15. While walking on a narrow ledge, Rohan finds it challenging to balance. Which part of his brain is mainly responsible for coordinating this balance?

- (a) Cerebrum
- (b) Hypothalamus
- (c) Medulla oblongata
- (d) Cerebellum

Note:- From Q No's 16 to 18 two statements (Assertion-A and Reason-R) are given. Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below :

- (a) A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

16. Assertion (A) : In a series circuit, the voltage across each resistor is different if the resistors have different values.

Reason (R) : The same current flows through all resistors in a series circuit.

17. Assertion (A) : Amoeba reproduces through binary fission.

Reason (R) : Binary fission is a process where the organism splits into multiple daughter cells.

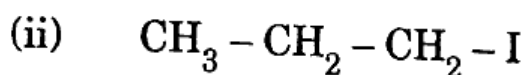
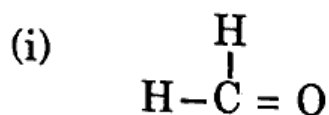
18. Assertion (A) : Pesticides can lead to biological magnification in a food chain.

Reason (R): Pesticides accumulate in the bodies of organisms and increase in concentration at higher trophic levels.

SECTION-B

Note :- There will be Ten Questions in this Section (Q.No's 19 to 28)
each of 2 marks.

19. Name the following compounds:



20. Why does the colour of copper sulphate solution change when iron nail is dipped in it?

21. Draw the magnetic field pattern around a current carrying circular loop of wire.

22. Calculate the amount of work done in moving a charge of 2C across two points having a potential difference of 12V?

23. Make a diagram to show how myopia is corrected.

24. A person in a desert region notices that the sun appears to rise before the actual time of sunrise and sets after the actual time of sunset. What causes this apparent early sunrise and late sunset?
25. Give an example of a metal which
- (i) is a liquid at room temperature
 - (ii) can be easily cut with knife
 - (iii) is the best conductor of heat
 - (iv) is a poor conductor of heat
26. A milkman adds a very small amount of baking soda to fresh milk. Why does he shift the pH of the fresh milk from 6 to slightly alkaline?
27. Four solutions A, B, C and D when tested with universal indicator showed pH as 5, 2, 13 and 7, respectively. Which solution is:
- (i) Strongly alkaline
 - (ii) Weakly acidic
 - (iii) Neutral
 - (iv) Strongly acidic

28. A person feels increased heartbeat and nervousness before giving a public speech. Which hormone is responsible for this physical change in the body?

SECTION-C

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

29. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal?

OR

100 J of heat is produced each second in a 4Ω resistance. Find the potential difference across the resistor.

30. State the rule to determine the direction of a force experienced by a current carrying straight conductor placed in a magnetic field which is perpendicular to it.

OR

What is the function of an Earth wire? Why is it necessary to earth metallic appliances?

31. Why do copper objects develop a greenish layer when exposed to moist air for a long time? Write a balanced chemical equation for the reaction.

OR

Why is baking soda used in baking? Write the chemical equation for its decomposition. <https://www.jkboseonline.com>

32. What are amphoteric oxides? Give two examples of amphoteric oxides.

OR

Differentiate between roasting and calcination with examples.

33. Draw a labeled diagram of human excretory system.

OR

Make a diagram of human alimentary canal and label it.

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

OR

How are involuntary actions and reflex actions different from each other?



35. DNA copying is an essential part of the process of reproduction. Why?

OR

What are the advantages of sexual reproduction over asexual reproduction?

36. A pure tall pea plant (TT) is crossed with a pure short pea plant (tt). What will be the phenotypic and genotypic ratios of the F_2 generation? Show the cross.

OR

How is the sex of a child determined in humans?

37. A factory dumps untreated waste into a nearby river, affecting aquatic life and the local population. Suggest measures to prevent such pollution.

OR

An NGO launches a campaign to reduce the use of chemical fertilizers and promote organic farming. How can farmers be encouraged to adopt organic farming?

SECTION-D

Note :- In this section from Q.No's 38 to 40, there are Three Long answer type questions with internal choice, each of 5 marks.

38. Draw a ray diagram to show the image formation by a convex lens when:

- (i) The object is placed at F_1 .
- (ii) The object is placed between F_1 and $2 F_1$.
- (iii) The object is placed at $2 F_1$.

What will be the position, nature and size of the image in each case?

Or

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

39. What are hydrocarbons? With the help of suitable examples, explain alkanes, alkenes and alkynes.

OR

What are Soaps? Explain the mechanism of the cleansing action of Soaps.

40. What is heterotrophic nutrition? Describe the different types of heterotrophic nutrition with examples.

OR

Explain the role of xylem and phloem in transportation. How does transpiration help in the upward movement of water?
