

A-5-Z

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 16

10thARM(SZ)JKUT2024

1005-Z

SCIENCE

Time : 3 Hours]

[Maximum Marks : 80

Section-A

1 each

Note :- Q. Nos. 1 to 18 are very short answer type questions of 1 mark each.

17 No matter how far you stand from a mirror, your image appears erect. The mirror is likely to be :

(A) Plane

(B) Concave

(C) Convex

(D) Either plane or convex

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2X The danger signals installed at the top of a tall building are red in colour. These can be easily seen from a distance because among all other colours, the red light :

- (A) is scattered the most by smoke or fog
- (B) is scattered the least by smoke or fog
- (C) is absorbed the most by smoke or fog
- (D) moves fastest in air

3. The power of concave lens is 0.5 D. Its focal length will be :

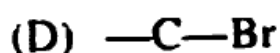
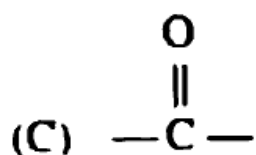
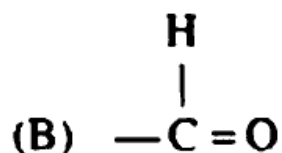
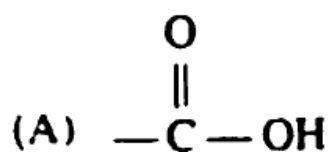
- (A) 100 cm
- (B) 200 cm
- (C) 150 cm
- (D) 250 cm

4. A wire of resistance $1\ \Omega$ is divided into two halves and both halves are connected in parallel. The new resistance will be :

- (A) $1\ \Omega$
- (B) $2\ \Omega$
- (C) $0.5\ \Omega$
- (D) $0.25\ \Omega$

5. Magnitude of magnetic field around a current carrying conductor at any point is :
- (A) Directly proportional to the intensity of electric current
 - (B) Inversely proportional to the distance from the conductor
 - (C) Directly proportional to the distance from the conductor
 - (D) Both (A) and (B)
6. Which of the following statements are correct about an aqueous solution of an acid and of a base ?
- (A) Higher the pH, stronger the acid
 - (B) Higher the pH, weaker the acid
 - (C) Lower the pH, stronger the base
 - (D) Lower the pH, weaker the base
7. $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Fe}$
- The above reaction is an example of a :
- (A) Combination reaction
 - (B) Displacement reaction
 - (C) Double displacement reaction
 - (D) Decomposition reaction

8. Butanone is a four carbon compound with the functional group :



9. Which among the following is the least reactive metal ?

(A) Sodium

(B) Zinc

(C) Mercury

(D) Aluminium

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10. When the object is placed beyond centre of curvature of a concave mirror, the image formed will be :
- (A) Erect and diminished
 - (B) Erect and magnified
 - (C) Inverted and diminished
 - (D) Inverted and magnified
11. Which of the following oxide(s) of iron would be obtained on prolonged reaction with steam ?
- (A) FeO
 - (B) Fe_2O_3 and Fe_3O_4
 - (C) Fe_3O_4
 - (D) Fe_2O_3
12. The process where the unfertilized egg is released out of the body with blood is known as :
- (A) Menstruation
 - (B) Fertilization
 - (C) Germination
 - (D) Pollination

13. The testes are located outside the abdominal cavity in scrotum because :

- (A) Sperm formation requires more space
- (B) Sperm formation requires a lower temperature
- (C) Sperm formation requires a higher temperature
- (D) Both (A) and (C)

14 The decomposers in an ecosystem :

- (A) Convert inorganic materials to simpler forms
- (B) Convert organic materials to inorganic forms
- (C) Convert inorganic materials into inorganic compounds
- (D) Do not breakdown organic compounds

15. Which part of the brain regulates the body temperatures ?

- (A) Hypothalamus
- (B) Thalami
- (C) Pituitary
- (D) Medulla oblongata

Note :- From Q. Nos. 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 :

Codes :

- (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.

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16. **Assertion (A) :** When a compass needle is moved away from a current carrying straight conductor, the deflection of the needle decreases.

Reason (R) : The strength of magnetic field decreases on moving away from the conductor.

17. **Assertion (A) :** At puberty human male develops secondary sexual characters.

Reason (R) : There is decreased secretion of testosterone at puberty.

18. **Assertion (A) :** There is always interaction between ecosystem.

Reason (R) : An ecosystem is recognized as self-regulating and self-sustaining entity.

Section-B

2 each

Note :- There will be *ten* questions in this Section (Q. Nos. 19 to 28) each of 2 marks.

19. What happens to the image distance in the eye when we increase the distance of an object from the eye ?

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20. We cannot read a printed page by holding it very close to our eyes. Why ?
21. Write the balanced chemical equation for the following chemical reactions :
- (i) Barium chloride + Aluminium sulphate \rightarrow Barium sulphate
+ Aluminium chloride
- (ii) Zinc carbonate \rightarrow Zinc oxide + Carbon dioxide
22. Let the resistance of an electrical component remains constant while the potential difference across the two ends of the component decreases to half of its former value. What change will occur in the current through it ?
23. Write the formula of a cyclopentane and draw its electron dot structure.
24. Draw the pattern of magnetic field lines around a current carrying solenoid.
25. What would you observe when zinc is added to a solution of Iron (II) sulphate ? Write the chemical reaction that takes place.

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(10)

26. How is the concentration of hydroxide ions affected when excess base is dissolved in a solution of sodium hydroxide ?
27. Under what soil conditions do you think a farmer would treat the soil of his fields with quick lime (calcium oxide) or slaked lime (calcium hydroxide) or chalk (calcium carbonate) ?
28. How does our body respond when adrenaline is secreted into the blood ?

Section-C

3 each

Note :- In this Section from Q. Nos. 29 to 37, there will be *nine* questions with internal choice, each of 3 marks.

29. The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4 A from the source. What current will the heater draw if the potential difference is increased to 120 V ?

Or

An electric iron of resistance $20\ \Omega$ takes a current of 5 A. Calculate the heat developed in 30 seconds.

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30. Define Magnetic Field. List any *three* sources of magnetic field.

Or

What is an Electromagnet ? State any *two* points of difference between an electromagnet and a permanent magnet.

31. Differentiate between combination and decomposition reactions with the help of examples.

Or

What is a balanced chemical equation ? Why should chemical equations be balanced ?

32. Differentiate between minerals and ores with the help of examples.

Or

In an electrolytic refining of a metal M. what would you take as the anode, the cathode and the electrolyte ?

Turn Over

33 Write one function of each of the following components of the transport system in human beings ?

- (i) Blood vessels
- (ii) Blood platelets

Or

Why do the herbivores have longer whereas carnivores have a shorter small intestine ?

34 Some diabetic patients are treated by giving insulin injections. Why ?

Or

Which animal or plant hormone is associated with the following ?

- (i) Develop secondary sexual characters at puberty in boys.
- (ii) Inhibits growth of plants

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(iii) Goitre

35. Chances of fertilization are more if copulation has taken place during the middle of the menstrual cycle. Give reason.

Or

Give reasons for the following :

- (i) Petals of flowers are variously coloured
 - (ii) Some plants are propagated only by vegetative methods.
36. What are the different ways in which individuals with a particular trait may increase in a population ? <https://www.jkboseonline.com>

Or

Will geographical isolation be a major factor in the speciation of an organism that reproduces asexually ? Why or why not ?

(14)

37. How can you help in reducing the problem of waste disposal at local level ? Give any *two* methods.

Or

What are the problems caused by the non-biodegradable wastes that we generate ?

Section-D

5 each

Note :- In this Section from Q. Nos. 38 to 40, there will be *three* long answer type questions with internal choice, each of 5 marks.

38. Draw a ray diagram in each of the following cases to show the formation of image when the object is placed :

(i) Between centre of curvature and principal focus of a concave mirror

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- (ii) At the focus of a concave mirror
- (iii) Between focus and pole of the concave mirror

Or

An object of size 7.0 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp focused image can be obtained ? Find the size and the nature of the image.

39. Draw the structures for the following compounds :

- (i) Bromopentane
- (ii) Hexanal
- (iii) Propene
- (iv) 2, 3-dimethyl butane
- (v) 2-Propanol

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(16)

Or

Explain the following reactions with examples :

(i) Combustion reaction

(ii) Substitution reaction

40. Describe the structure and functioning of nephron.

Or

Describe transport of the following materials in plants :

(i) Water

(ii) Minerals

(iii) Food

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