

C-5-Y

Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 16

10thARM(HZ)JKUTL2024-25

405-Y

SCIENCE

Time : 3 Hours]

[Maximum Marks : 80

Section-A

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

1. Which of the following statement is true regarding the focal length of a convex lens ?

☒ (A) It is always positive (+)

(B) It is always (Negative) –

(C) It can be either (positive) + or (Negative) –

(D) It is always 0

10thARM(HZ)JKUTL2024-25-405-Y

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2. Which is correct sequence of structures through which light passes in human eye ?

(A) Cornea, lens, pupil, retina

~~(B)~~ Cornea, pupil, lens, retina

(C) Pupil, lens, cornea, retina

(D) Lens, pupil, cornea, retina

3. Focal length of plane mirror is :

~~(A)~~ At infinity

(B) 0

(C) -

(D) None of these

4. A wire of length l , made of material resistivity ρ is cut into two equal parts. The resistivity of two parts are equal to :

~~(A) ρ~~

(B) $\frac{\rho}{2}$

(C) 2ρ

(D) 4ρ

5. A fuse wire repeatedly gets burnt when used with good heater. It is advised to use a fuse wire of :

(A) More length

(B) Less radius

(C) Less length

~~(D) More radius~~

6. A ray of light falls normally on a plane mirror what will be the angle of reflection ?

☒ (A) 0 degree

(B) 45 degrees

(C) 90 degrees

(D) 180 degrees

7. The salt that does not contain metal :

(A) Magnesium chloride

☒ (B) Ammonium chloride

(C) Aluminium chloride

(D) Calcium chloride

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8. Polymerisation is an example of :

- ☒ (A) Combination
- ☐ (B) Decomposition reaction
- ☐ (C) Displacement reaction
- ☐ (D) Redox reaction

9. Isopentane is :

- ☒ (A) 2 methyl propane
- ☐ (B) 2 methyl butane
- ☐ (C) 2 methy pentane
- ☒ (D) 2, 2 dimethyl propane

10. Which of the following is not an oxide ?

- ☐ (A) CO_2
- ☐ (B) SO_2
- ☒ (C) $\text{Cu}(\text{OH})_2$
- ☐ (D) SO_3

11. Although metals form basic oxides, which of the following metals form amphoteric oxide ?
- (A) Na
- (B) Ca
- ☒ (C) Al
- (D) Cu
12. The ratio of no. of chromosomes in human zygote and a human sperm is :
- ☒ (A) 2 : 1
- (B) 3 : 1
- (C) 1 : 2
- (D) 1 : 3
13. The period of time from conception of the zygote till child birth is known as :
- (A) Fertilisation
- ☒ (B) Gestation
- (C) Gastrulation
- (D) Implantation

14. The fight or fright response is developed by a hormone of :

- (A) Hypothalamus
- (B) Thyroid
- (C) Pituitary
- ~~(D)~~ Adrenal medulla

15. A natural food web contains :

- (A) Only grazing food chain
- (B) Several trophic levels
- (C) Is usually unstable
- ~~(D)~~ All of these

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 correct explanation of A.
- (C) A is true but R is false.
- (D) A is false but R is true.

16. **Assertion (A)** : The magnetic field produced by a current carrying circular loop is uniform at the centre of the loop.

Reason (R) : The strength of magnetic field is proportional to the no. of turns in the coil and the I (current) passing through it.

17. **Assertion (A)** : Gametogenesis is the process of formation of gametes.

Reason (R) : Gametes are formed through mitosis in the reproductive organs.

18. **Assertion (A)** : Aquatic ecosystems have higher primary productivity than terrestrial ecosystems.

Reason (R) : Aquatic ecosystem receives more sunlight and nutrients than terrestrial ecosystems.

Section-B

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

- ~~19.~~ What is short-sightedness ? How can this defect be corrected ?
20. What is significance of yellow spot (macula) in Human eye ?
21. Calculate the total number of electrons constituting one coulomb of charge.
- ~~22.~~ Why does colour of copper sulphate solution change when Iron nail is dipped into it ?
23. What is denatured alcohol ?
24. What is magnitude of force acting on a current carrying conductor placed in a magnetic field ?
25. How is copper extracted from its sulphuric ores ?
- ~~26.~~ What is baking powder ? How does it make the cake soft and spongy ?

27. How does Plaster of Paris ($\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$) differ from gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) in terms of composition and use ?
28. What is meant by tropic movements ?

Section-C

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

29. (i) How many $176 \, \Omega$ resistors in parallel are required to carry a current of 5A in 220 V line ?
- (ii) Explain two advantages of series arrangement for household circuit.

Or

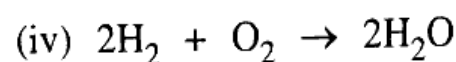
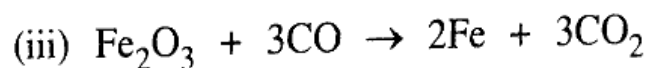
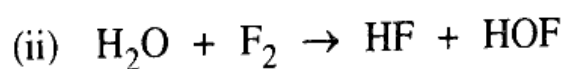
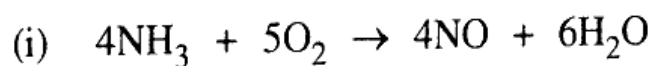
- (i) The power of a lamp is 60 W. Find the energy in joules consumed by it in 1 sec.
- (ii) What is commercial unit of electric energy ? Represent it in terms of Joules.

30. What are magnetic field lines ? How does the strength of magnetic field inside a solenoid vary ?

Or

How does an electromagnet differ from a permanent magnet ? Give application of electromagnet.

31. Identify the reducing agent in the following reactions :



Or

Write balanced chemical equation for the following reactions :

- (i) Sodium carbonate on reaction with hydrochloric acid in equal molar concentration gives sodium chloride and sodium hydrogen carbonate.

(ii) Sodium hydrogen carbonate on reaction with hydrochloric acid gives sodium chloride and water and escapes carbon dioxide.

(iii) Copper sulphate interacts with Potassium Iodide, precipitates Cuprous Iodide (Cu_2I_2), liberates Iodine gas and forms Potassium sulphate.

32. Three metals sodium, magnesium and copper are given. How would you identify them by using dilute HCl ?

Or

✓ Explain the process of smelting and its significance in metallurgy.

33. Name three different glands associated with the digestive system in humans. Also name their secretion.

Or

How do plants get rid of excretory products ?

34. Why insulin cannot be administered orally to a diabetic person ?

Or

 Draw an outline neat labelled diagram of the structure of a chloroplast.

~~35.~~ What is difference between fertilisation and pollination ? Explain.

Or

State the changes that take place in the uterus when :

(a) Implantation of the embryo has occurred

(b) Female gamete is not fertilised

36. How is sex genetically determined in humans and birds ?

Or

Only variation that confer advantage to an individual organisms will survive in a population. Do you agree why or why not ?

37. Write short notes on the following :

(i) Chlorofluorocarbons

(ii) Ozone depletion

Or

Write a note on disposal of sewage.

Section-D

Note :- In this Section from Q. Nos. 38 to 40, there will be Long Answer Type Questions each of 5 marks.

38. 4 cm tall object is placed perpendicular to the principal axis of a concave mirror. The distance between the object and mirror is 15 cm and focal length of the mirror is 10 cm :

- (a) Determine the position of the image formed by the mirror.
- (b) Calculate the size of the image.
- (c) State the nature and orientation of the image .
- (d) Draw a ray diagram to show the formation of image by the concave mirror.

(15)

Or

An object of 6 cm high is placed at a distance of 25 cm in front of concave mirror with focal length of 15 cm :

- (a) Determine the position of image formed by the mirror.
- (b) Calculate size of the image.
- (c) State the nature and orientation of the image.
- (d) Draw ray diagram to show the formation of image by concave mirror. <https://www.jkboseonline.com>

39. (a) Explain what is Scum ? How is it formed and ?
- (b) Give reason, why use of synthetic detergents causes pollution of water ?

Or

Explain :

- (a) Dehydration
- (b) Saponification
- (c) Esterification
- (d) Hydrogenation

40. Describe the structure of nephron with functioning.

Or

Describe the types of cells and blood vessels with their functions present in blood.

A-5-Z

Roll No.

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10thARF(SZ)JKUT2024-25

**105-Z
SCIENCE**

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Section-A

1 each

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

1. Convex mirrors are commonly used as :

- (A) Shaving mirror
- (B) Rear-view mirror
- (C) Headlight mirror
- (D) All of these

10thARF(SZ)JKUT2024-25-105-Z

Turn Over

A-5-Z

2. When a fine beam of sunlight enters a smoke filled room through a small hole, the phenomenon is known as :

(A) Reflection of light

(B) Refraction of light

(C) Tyndall effect

(D) None of these

3. The common refractive defects of vision include Myopia, Hypermatropia and Presbyopia. Choose the correct match :

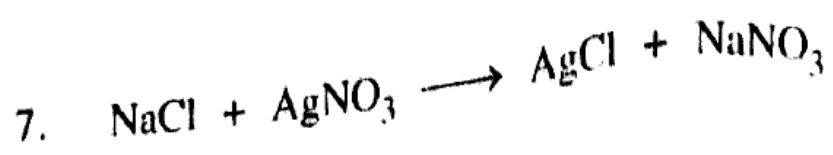
(A) Myopia—Farsightedness, Hypermatropia—Age related farsightedness, Presbyopia—Shortsightedness

(B) Myopia—Shortsightedness, Hypermatropia—Age related farsightedness, Presbyopia—Farsightedness

(C) Myopia—Shortsightedness, Hypermatropia—farsightedness, Presbyopia—Age related farsightedness

(D) None of these match is correct

4. For flow of charges in a conducting metallic wire, the electrons move only if there is a difference of electric pressure, called the :
- (A) Potential difference
 - (B) Resistance
 - (C) Power
 - (D) Both (A) and (B)
5. Which property of a proton can change while it moves freely in a magnetic field ?
- (A) Mass and speed
 - (B) Speed and velocity
 - (C) Mass and momentum
 - (D) Velocity and momentum
6. A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each :
- (A) Two revolutions
 - (B) One revolution
 - (C) Half revolution
 - (D) One-fourth revolution



The above reaction is a :

- (A) Displacement reaction
 - (B) Double displacement reaction
 - (C) Combination reaction
 - (D) None of these
8. Metals can be beaten into thin sheets. This property is called :
- (A) Metallic luster
 - (B) Malleability
 - (C) Ductility
 - (D) Conductivity
9. Which of the following methods is suitable for preventing an iron frying pan from rusting ?
- (A) Applying grease
 - (B) Applying paint
 - (C) Applying coating of zinc
 - (D) All of these

10thARF(SZ)JKUT2024-25-105-Z

A-5-Z

10. Name the acid present tamarind :

- (A) Oxalic acid
- (B) Acetic acid
- (C) Tartaric acid
- (D) Methanoic acid

11. Which of the following types of medicine is used for treating acidity in stomach ?

- (A) Antibiotic
- (B) Antacid
- (C) Analgesic
- (D) Antiseptic

12. Autotrophic nutrition involves :

- (A) Intake of simple inorganic material from the environment
- (B) Using external energy source like the sun
- (C) Intake of complex material prepared by other organisms
- (D) Both (A) and (B)

13. Which plant hormone inhibits (stops) growth in plants :

(A) Cytokinin

(B) Auxin

(C) Abscissic acid

(D) Gibberellins

14. An example of homologous organ is :

(A) Our arm and a dog's fore arm

(B) Our teeth and elephant's tusks

(C) Potato and runners of grass

(D) All of these

10thARF(SZ)JKUT2024-25-105-Z

A-5-Z

15. The use of which chemical has endangered the ozone layer ?

- (A) Pesticides
- (B) CFC's
- (C) Insecticides
- (D) None of these

Note :- From Q. Nos. 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 :

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16. **Assertion (A)** : The two characteristic features seen in carbon, that is tetravalency and catenation.

Reason (R) : Carbon atom has four valence electrons in its outermost shell which makes it possible to form large number of compounds.

17. **Assertion (A)** : Pollen grains from the carpel stick to the stigma of stamen.

Reason (R) : The fertilized egg cells grow inside the ovules and become seeds.

18. **Assertion (A)** : Decomposers act as cleaning agents of the environment.

Reason (R) : The decomposers recycle waste material in the hydrosphere.

Section-B

2 each

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

19. A doctor prescribed a corrective lens of power +1.5 D. Find the focal length of the lens ? Is the prescribed lens a concave or a convex lens ?

10thARF(SZ)JKUT2024-25-105-Z

A-5-Z

20. What do you mean by resistors connected in parallel ?
21. List the properties of magnetic lines of force.
22. What is combination reaction ? Give one example.
23. Write down the structural formula of :
 - (i) Ethane
 - (ii) Pentane
24. Why is sodium kept immersed in kerosene oil ?
25. Write down the functions of salivary amylase and pepsin.
26. Why are some diabetic patients treated by giving insulin ?
27. Why is vegetative propagation practised for growing same types of plants ?
28. How is the sex of the child determined in human beings ?

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. Draw the three ray diagrams for the correction of hypermetropic eye.
Or

(i) What is the far point and near point of the human eye with normal vision ?

(ii) What is meant by power of accommodation of the eye ?

30. Will current flow more easily through a thick wire or a thin wire of the same material, when connected to the same source ? Give reasons in support of your answer.

Or

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 ?

10th ARF(SZ)JKUT2024-25-105-Z

A-5-Z

31. (i) What is Right hand thumb rule ?

(ii) Draw magnetic field lines around a bar magnet.

Or

(i) What is the function of an earth wire ?

(ii) When does an electric short circuit occur ?

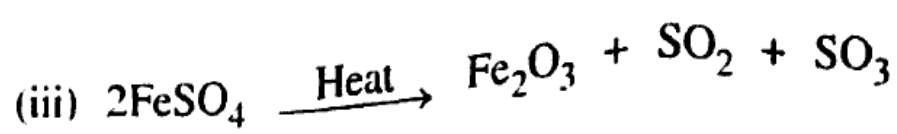
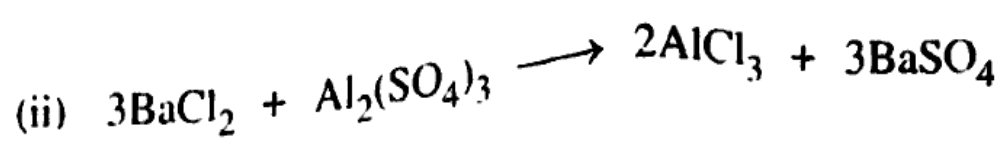
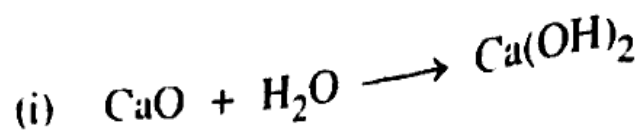
32. Decomposition reactions require energy either in the form of heat or

light or electricity for breaking down the reactants. Write one

example/reaction of each form.

Or

Name the type of chemical reaction in the following equations :



33. Write down a note on Aqua Regia.

Or

Write down *three* properties of ionic compounds.

34. What is an alkali ? Write down *two* properties of alkali.

Or

Write down *three* uses of Washing Soda.

10thARF(SZ)JKUT2024-25-105-Z

A-5-Z

35. Write down the names of different parts of human brain. Draw the labelled diagram of human brain.

Or

Write down the functions of the following human hormones :

- (i) Thyroxin
 - (ii) Adrenaline
36. What is the importance of DNA copying in Reproduction ?
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Or

What are the different methods of contraception ?

37. What is Biological Magnification ? Will the levels of this magnification be different at different levels of the ecosystem ?

Or

Why is the damage to the ozone layer a cause for concern ? What steps are being taken to limit this damage ?

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. An object 5 cm in length is held 25 cm away from a converging lens of focal length 10 cm. Draw the ray diagram and find the position, size and nature of the image formed.

Or

Describe the mirror formula and magnification in spherical mirrors.

39. (i) Explain the mechanism of clearing action of soaps.
(ii) Explain the formation of scum when hard water is treated with soap.

Or

How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties ?

10thARF(SZ)JKUT2024-25-105-Z

A-5-Z

(15)

10. (i) What is the role of saliva in the digestion of food ?
(ii) How are fats digested in our body ?

Or

- (i) How is oxygen and carbon dioxide transported in human body ?
(ii) What would be the consequences of a deficiency of haemoglobin in our bodies ?

A-5-Y

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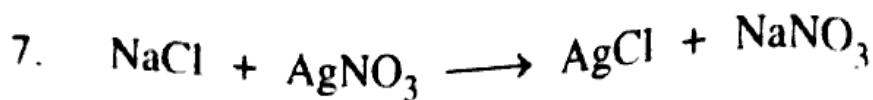
10thARF(SZ)JKUT2024-25-105-Y

Turn Over

5-Y

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10thARF(SZ)JKUT2024-25-105-Y

A-5-Y

10. Bee sting contains which acid :

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- (B) Formic acid
- (C) Oxalic acid
- (D) Citric acid

11. Which of the following types of medicine is used for treating acidity in stomach ?

- (A) Antibiotic
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Section-B

2 each

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

19. Find the focal length of a lens of power -2.0 D. What type of lens is this ?

20. What do you mean by resistors connected in series ?
21. Why don't two magnetic lines of force intersect each other ?
22. Why should magnesium ribbon be cleaned before burning in air ?
23. Write down the structural formula of :
 - (i) Propane
 - (ii) Butane
24. Give an example of each of a metal which :
 - (a) is a liquid at room temperature
 - (b) can be easily cut with a knife
25. How is the small intestine designed to absorb digested food ?
26. Why is the use of iodised salt advisable ?
27. How does binary fission differ from multiple fission ?
28. How does the creation of variations in a species promote survival ?

Section-C

3 each

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Or

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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 ?

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31. (i) What is Right hand thumb rule ?

(ii) Draw magnetic field lines around a bar magnet.

Or

(i) What is the function of an earth wire ?

(ii) When does an electric short circuit occur ?

32. Write a balanced equation with state symbols for the following :

(a) Barium chloride and sodium sulphate in water react to give

insoluble barium sulphate and sodium chloride solution.

(b) Sodium hydroxide solution reacts with hydrochloric acid solution

to produce sodium chloride solution and water.

Or

Describe Displacement reaction with two examples.

33. Write down a note on Aqua Regia.

Or

Write down *three* properties of ionic compounds.

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Or

- (i) How is oxygen and carbon dioxide transported in human body ?
(ii) What would be the consequences of a deficiency of haemoglobin in our bodies ?

A-5-X

Roll No.

Total No. of Questions : 40]

[Total No. of Printed Pages : 15

10thARF(SZ)JKUT2024-25

105-X

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.

1. Convex mirrors are commonly used as :

(A) Shaving mirror

(B) Rear-view mirror

(C) Headlight mirror

(D) All of these

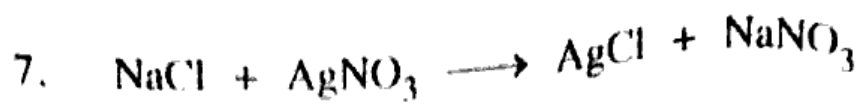
10thARF(SZ)JKUT2024-25-105-X

Turn Over

A-5-X

2. When a fine beam of sunlight enters a smoke filled room through a small hole, the phenomenon is known as :
- (A) Reflection of light
 - (B) Refraction of light
 - (C) Tyndall effect
 - (D) None of these
3. The common refractive defects of vision include Myopia, Hypermatropia and Presbyopia. Choose the correct match :
- (A) Myopia—Farsightedness, Hypermatropia—Age related farsightedness, Presbyopia—Shortsightedness
 - (B) Myopia—Shortsightedness, Hypermatropia—Age related farsightedness, Presbyopia—Farsightedness
 - (C) Myopia—Shortsightedness, Hypermatropia—Farsightedness, Presbyopia—Age related farsightedness.
 - (D) None of these match is correct

4. For flow of charges in a conducting metallic wire, the electrons move only if there is a difference of electric pressure, called the :
- (A) Potential difference
 - (B) Resistance
 - (C) Power
 - (D) Both (A) and (B)
5. Which property of a proton can change while it moves freely in a magnetic field ?
- (A) Mass and speed
 - (B) Speed and velocity
 - (C) Mass and momentum
 - (D) Velocity and momentum
6. A rectangular coil of copper wires is rotated in a magnetic field. The direction of the induced current changes once in each :
- (A) Two revolutions
 - (B) One revolution
 - (C) Half revolution
 - (D) One-fourth revolution



The above reaction is a :

- (A) Displacement reaction
 - (B) Double displacement reaction
 - (C) Combination reaction
 - (D) None of these
8. Metals can be beaten into thin sheets. This property is called :
- (A) Metallic luster
 - (B) Malleability
 - (C) Ductility
 - (D) Conductivity
9. Which of the following methods is suitable for preventing an iron frying pan from rusting ?
- (A) Applying grease
 - (B) Applying paint
 - (C) Applying coating of zinc
 - (D) All of these

10. The leaves of Nettle have stinging hair, which cause painful stings when touched accidentally. This is due to presence of :
- (A) Methanoic acid
 - (B) Oxalic acid
 - (C) Citric acid
 - (D) Carbonic acid
11. Which of the following types of medicine is used for treating acidity in stomach ?
- (A) Antibiotic
 - (B) Antacid
 - (C) Analgesic
 - (D) Antiseptic
12. Autotrophic nutrition involves :
- (A) Intake of simple inorganic material from the environment
 - (B) Using external energy source like the sun
 - (C) Intake of complex material prepared by other organisms
 - (D) Both (A) and (B)

13. Which plant hormone inhibits (stops) growth in plants ?

- (A) Cytokinin
- (B) Auxin
- (C) Abscissic acid
- (D) Gibberellins

14. An example of homologous organ is :

- (A) Our arm and a dog's forearm
- (B) Our teeth and elephant's tusks
- (C) Potato and runners of grass
- (D) All of these

10th ARF(SZ)JKUT2024-25-105-X

A-5-X

15. The use of which chemical has endangered the ozone layer ?

- (A) Pesticides
- (B) CFCs
- (C) Insecticides
- (D) None of these

Note :- From Q. Nos. 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 but R is not the correct explanation of A.
- (C) When A is true but R is false.
- (D) When A is false but R is true.

16. **Assertion (A)** : The two characteristic features seen in carbon, that is tetravalency and catenation.

Reason (R) : Carbon atom has four valence electrons in its outermost shell which makes it possible to form large number of compounds.

17. **Assertion (A)** : Pollen grains from the carpel stick to the stigma of stamen.

Reason (R) : The fertilized egg cells grow inside the ovules and become seeds.

18. **Assertion (A)** : Decomposers act as cleaning agents of the environment.

Reason (R) : The decomposers recycle waste material in the hydrosphere.

Section-B

2 each

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

19. A concave mirror produces three times magnified real image of an object placed 10 cms in front of it. Where is the image located ?

10thARF(SZ)JKUT2024-25-105-X

A-5-X

20. State and explain Ohm's law. Define resistance.
21. State the factors on which the strength of magnetic field produced by a current carrying solenoid depend.
22. Why does the colour of copper sulphate solution change when an iron nail is dipped in it ?
23. Name the following two compounds of carbon :
 - (i) $\text{CH}_3\text{—CH}_2\text{—Br}$
 - (ii) $\text{CH}_3\text{—CH}_2\text{—OH}$
24. Explain the meanings of malleable and ductile.
25. Write two differences between autotrophic and heterotrophic nutrition.
26. Write down two differences between reflex action and walking.
27. Why is DNA copying an essential part of the process of reproduction ?
28. Why are the traits acquired during the lifetime of an individual not inherited ?

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. Draw the three ray diagrams for the correction of hypermatropic eye.

Or

(i) What is the far point and near point of the human eye with normal vision ?

(ii) What is meant by power of accommodation of the eye ?

30. Will current flow more easily through a thick wire or a thin wire of the same material, when connected to the same source ? Give reasons in support of your answer.

Or

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 ?

11. (i) What is Right hand thumb rule ?

(ii) Draw magnetic field lines around a bar magnet.

Or

(i) What is the function of an earth wire ?

(ii) When does an electric short circuit occur ?

Write the balanced equation for the following reactions :

(a) Hydrogen + Chlorine $\longrightarrow$ Hydrogen chloride

(b) Barium chloride + Aluminium sulphate $\longrightarrow$ Barium sulphate
+ Aluminium chloride

(c) Sodium + Water $\longrightarrow$ Sodium hydroxide + Hydrogen

Or

Describe Oxidation and Reduction reactions with examples.

33. Write down a note on Aqua Regia.

Or

Write down *three* properties of ionic compounds.

34. What is an alkali ? Write down *two* properties of alkali.

Or

Write down *three* uses of Washing Soda.

35. Write down the names of different parts of human brain. Draw the labelled diagram of human brain.

Or

Write down the functions of the following human hormones :

- (i) Thyroxin
- (ii) Adrenaline

36. What is the importance of DNA copying in Reproduction ?

Or

What are the different methods of contraception ?

37. What is Biological Magnification ? Will the levels of this magnification be different at different levels of the ecosystem ?

Or

Why is the damage to the ozone layer a cause for concern ? What steps are being taken to limit this damage ?

Section-B

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. An object 5 cm in length is held 25 cm away from a converging lens of focal length 10 cm. Draw the ray diagram and find the position, size and nature of the image formed.

Or

Describe the mirror formula and magnification in spherical mirrors.

39. (i) Explain the mechanism of clearing action of soaps.
(ii) Explain the formation of scum when hard water is treated with soap. <https://www.jkboseonline.com>

Or

How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties ?

40. (i) What is the role of saliva in the digestion of food ?
- (ii) How are fats digested in our body ?

Or

- (i) How is oxygen and carbon dioxide transported in human body ?
- (ii) What would be the consequences of a deficiency of haemoglobin in our bodies ?

Roll No.....

Total No. of Questions : 40+36+18]

[Total No. of Printed Pages : 48

10thAPB.AJKLUT-2025
805-B
SCIENCE
(New/Old/Old-I Course)

Time : 3 Hours]

[Maximum Marks : 80

NOTE :- The questions in the question paper are based on revised/pre-revised and old course syllabus marked as “New Course”, “Old Course”, and “Old I Course”, respectively and candidates are advised to appear in the relevant course meant for them. Candidates who may attempt the questions partly from “New Course”, partly from “Old Course”, and party from “Old I Course”, will not be awarded. Candidates are also advised to record “New Course”, or “Old Course”, or “Old I Course”, as the case may be, on the front page of the answer-book.

[2]

(New Course)

SECTION-A

1. The stars twinkle due to atmospheric : (1 mark each)

(a) Dispersion of light

(b) Refraction of light ✓

(c) Interference of light

(d) Reflection of light

2. The size of the pupil of the eye is adjusted by :

(a) Cornea

(b) Optic nerve

(c) Iris ✓

(d) Ciliary muscles

[3]

3. By what name is the physical quality coulomb/second called?

(a) Volt

(b) Ohm

~~(c)~~ Ampere ✓

(d) Joule

4. Which of the following is not attracted by a magnet?

(a) Steel

(b) Cobalt

~~(c)~~ Brass ✓

(d) Nickel

[4]

5. The magnetic field inside a long straight solenoid carrying current.

- (a) Is zero
- (b) Increases as we move towards its end
- (c) Decreases as we move towards its end
- (d) Is the same at all points.

6. How many isomers of C_4H_{10} is possible?

- (a) 2
- (b) 3
- (c) 4
- (d) 5 ✓

[5]

7. Which of the following is an ore of mercury metal?

(a) Rock salt ✓

(b) Calamine

(c) Haematite

(d) Cinnabar

8. Burning of coal in air $C + O_2 \rightarrow CO_2 + \text{Heat}$ is a/an :

(a) Endothermic reaction

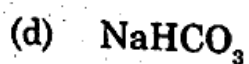
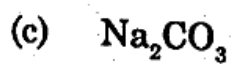
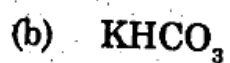
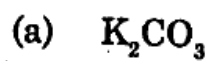
(b) Combination and Exothermic reaction ✓

(c) Displacement reaction

(d) None of these

[6]

9. The formula of baking soda is



10. A solution turns blue litmus red. Its pH is likely to be :

(a) 7

(b) 5

(c) 8

(d) 14

11. Which of the following cannot be considered receptor?

(a) Ear

(b) Nose

(c) Muscle

(d) Eye

12. Which of the following reproduces by forming spores?

(a) Fern

(b) Planaria

(c) Spirogyra

(d) Potato

13. A gene is a :

- (a) Hybrid
- (b) Heritable trait
- (c) Pure breed
- (d) Part of chromosome that transmits a trait.

14. The flow of energy in an ecosystem is always :

- (a) Unidirectional
- (b) Bidirectional
- (c) Cyclic
- (d) Multidirectional

15. One of the following is not a biodegradable material this one is :

- (a) Cotton
- (b) Animal bones
- (c) Aluminium foil
- (d) Wood

Note : For Q No's 16 to 18 two statements are given (Assertion A and reason R). Select the correct answer from the codes (a), (b), (c) and (d) as given below : (3×1=3)

Code (a) : A and R are true and R is correct explanation of A

Code (b) : Both A and R are true and R is not correct explanation of A

Code (c) : A is true but R is false

Code (d) : A is false but R is true

16. Assertion (A) : The height of an object is always considered positive.

Reasons (R) : An object is always placed above the principle axis in upward direction.

17. Assertion (A) : Pungent gas is produced when sulphur burns in air.

Reason (R) : Sulphur trioxide is formed on reaction of sulphur with oxygen.

18. Assertion (A) : The large intestine is the largest part of alimentary canal.

Reason (R) : Tiger has a shorter small intestine than herbivores.

SECTION-B

(2 Marks Each)

19. A lens has a focal length of 150 mm what kind of lens is it and what is its power?

20. What is a balanced chemical equation? Write the balanced chemical reaction for :

Calcium hydroxide + carbon dioxide $\rightarrow$ calcium carbonate + water

21. What is the name of tissues which transport :

(a) Food in a plant.

(b) Water and minerals in a plant.

22. A heating coil has a resistance of 200Ω . At what rate will heat be produced in it when a current of 2.5 A flows through it?

23. Distinguish between the terms 'overloading' and 'short circuiting' as used in domestic circuits.

24. Give any two differences between soaps and detergents.

25. Write equations of the chemical reactions involved when water acts on:

(a) Magnesium

(b) Aluminium

26. What is a plant hormone? Name four plant hormones.

27. Draw a neat labelled diagram of a flower showing its various parts.

28. What do you understand by term variation? Name two human traits which show variation?

SECTION-C

(3 marks each)

29. What is dispersion of light? Mark the various colours of spectrum by drawing diagram of dispersion through prism.

OR

What is long-sightedness? State its causes.

30. State Ohm's law. Define unit of resistance. What happens to resistance as the conductor is made thinner?

OR

Calculate the equivalent resistance when three resistors of resistances 2Ω , 3Ω and 5Ω are connected in parallel.

31. Define magnetic field. Draw a diagram to show the magnetic field lines in a bar magnet.

OR

State Fleming's left hand rule. State two ways to increase the force on a current carrying conductor in a magnetic field.

32. What is meant by displacement reaction and double displacement reaction? Explain with one example each.

[14]

OR

Explain the term rancidity. What type of chemical reaction is responsible for causing rancidity? How rancidity of food is prevented?

33. Write down three properties of Ionic compounds.

OR

Write a short note on Enrichment of ores.

What is plaster of paris? Write its chemical formula and state two importance uses of it.

34. What is meant by reactivity series of metals? Hydrogen is not a metal but still it has been assigned a place in the reactivity series of metals. Why?

[15]

OR

What is corrosion? Name four methods of preventing rusting of iron.

35. Write the names of regions in hind brain and give one function of each region.

OR

What is a reflex action? Explain with the help of an example.

36. What is the difference between two asexual methods of reproduction fission and fragmentation?

OR

What is meant by Regeneration? Name two animals which can regenerate fully from their cut body parts.

37. Give two differences between food chain and food web. Write down a food chain in the sea.

OR

What is ozone? How is it formed? How it protect us from harmful effects in the environment?

SECTION-D

(5 Marks Each)

38. With the help of ray diagram, show the formation of images when object is placed in front of a concave mirror (i) Between its pole and focus (ii) Between its center of curvature and focus. Describe the nature, size and position of the image formed in each case.

OR

- (a) State and explain the laws of refraction with the help of a labelled diagram.
- (b) What is meant by refractive index?
39. (a) What is a homologous series? Explain with an example.
- (b) State two characteristics of a homologous series.
- (c) The molecular formula of an organic compound is $C_{18}H_{36}$. Name its homologous series.

[17]

OR

- (a) What are hydrocarbons? Explain with examples.
 - (b) Explain the meaning of saturated and unsaturated hydrocarbons with two examples each.
40. (a) Draw a labelled diagram of human excretory system.
- (b) What is the function of excretory system in humans?

OR

- (a) What are herbivores, carnivores and omnivores? Give two examples of each.
- (b) Name the five steps which occurs in the process of nutrition in animals?

[18]

Old Course)

Time : 3 Hours]

[Maximum Marks : 80

SECTION-A

(1 mark each)

1. Define Reflection of Light.
2. Define a concave Lens.
3. Draw a neat Diagram of Human eye.

OR

Define Myopia.

4. The fundamental base for the arrangement of elements in the modern periodic table is:

10thAPB.AJKLUT-2025-805-B

5. Give one advantage of using copper wires in electric fittings.



What sort of reaction is this?

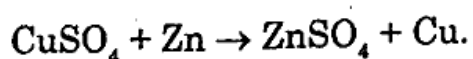
7. What is the cation present in acids?

8. Draw the electron dot structure of ethane.

9. Arrange the following metals in increasing order of their reactivity.

K, Na, Zn, Fe, Au.

10. Name the following reaction



11. Name two elements that have one electron in their outermost shell.

12. What is the enzyme that breaks down emulsified fats?
13. What is the process of removing excess water in plants?

Note : From Question No. 14 to 16 (Assertion 'A' and Reason 'R'. Select correct answers to these questions from codes (a), (b), (c) and (d) as given below:

Code (a): When you think Assertion 'A' and Reason 'R' are true and 'R' is the correct explanation of 'A'.

Code (b): When you think Both Assertion 'A' and Reason 'R' are true but 'R' is not the correct explanation of 'A'

Code (c): When you think Assertion 'A' is true but 'R' is false.

Code (d): When you think Assertion 'A' is false but 'R' is true.

14. Assertion 'A': daughter can resemble only her mother and not her father

Reason 'R': Sex chromosomes of the daughter (XX) are received from both the parents.

15. Assertion 'A': Ozone (O_3) shields the surface of the earth from the UV radiations.

Reason 'R': Ozone is deadly Poison and can not be used for respiration by organisms.

16. Assertion 'A': Magnification of a real image is negative but magnification of virtual image is positive.

Reason 'R': Real image is an inverted image but virtual image is an erect image.

17. Answer any four MCQ's out of five questions given below :

(i) The most suitable material for making the core of an electromagnet is :

(a) Steel

(b) Iron

(c) Soft Iron

(d) Aluminium

(ii) Which of the following is not attracted by a magnet?

(a) Steel

(b) Cobalt

(c) Boron

(d) Nickle

(iii) Two magnetic field lines :

- (a) Intersect each other
- (b) Never intersect each other
- (c) Intersect near north or south pole
- (d) Intersect at the mid point

(iv) The front face of a circular loop of a wire is the north pole, the direction of current in the face of loop will be

- (a) Clock-wise
- (b) Anti-clockwise
- (c) Towards North
- (d) Towards South

(v) The magnetic field inside a long straight solenoid carrying current :

- (a) is zero
- (b) decreases as we move towards its end
- (c) is the same at all points
- (d) increases as we move towards its end

18. Answer any four MCQ's out of five questions given below : $1 \times 4 = 4$

(i) Which of the following acids is strongest

- (a) HCl (pH_1)
- (b) CH_3COOH (pH_5)
- (c) Lemon juice ($\text{pH } 2.2$)
- (d) Pure milk (pH_6)

(ii) pH value less than 7 indicates that the solution is :

- (a) Acidic
- (b) Basic
- (c) Neutral
- (d) None of the above

(iii) Lactic acid is present in :

- (a) Orange
- (b) Tea
- (c) Curd
- (d) Vinegar

(iv) Farmers neutralise the effect of Acidity on the soil by adding

- (a) Slaked lime
- (b) Gypsum
- (c) Caustic Soda
- (d) Baking Soda

(v) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} \rightarrow$ In this compound the water molecule is called :

- (a) Pure water
- (b) Water of Crystallization
- (c) Soda Water
- (d) None of the above

19. Answer any four MCQ's out of five questions given below : 1×4=4

(i) Which of the following is a plant Hormone?

- (a) Cytokinin
- (b) Thyroxine
- (c) Cellulose
- (d) Insulin

(ii) 'Synapse' is formed between two :

- (a) Cerebral Hemispheres
- (b) Hormones
- (c) Sensory organs
- (d) Neurons

(iii) The tropic movements include the movements related to :

- (a) Direction
- (b) Stimuli
- (c) Touch
- (d) All the above

(iv) The changes associated with puberty are because of :

- (a) Oestrogen
- (b) ACTH
- (c) Calcitonin
- (d) Auxins

(v) Which of the following causes 'wilting of leaves' :

- (a) CO_2
- (b) Abscissic Acid
- (c) Cytokinin
- (d) Auxins

20. Answer any four MCQ's out of five questions given below : $1 \times 4 = 4$

(i) Which factor is mainly responsible for increase in demand of natural resources.

- (a) Increased human population
- (b) Scientific advancement
- (c) Use of non-biodegradable chemicals
- (d) Environmental pollution

(ii) The three R's that will help us to conserve natural resources for longer term are :

- (a) Reduce, regenerate, reuse
- (b) Reduce, recycle, reuse
- (c) Reuse, recycle, regenerate
- (d) Reduce, reuse, redistribute

(iii) Chipko Movement was associated with :

- (a) Conservation of water bodies
- (b) Conservation of wild life only
- (c) Conservation of forests
- (d) Conservation of birds

(iv) Ganga action plan came about in the year :

(a) 1985

(b) 1988

(c) 1973

(d) 1980

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

(a) Soil

(b) Water

(c) Air

(d) Electricity

SECTION-B

(SHORT ANSWER TYPE QUESTIONS)

(2 marks each)

21. Why is a normal eye not able to see clearly the objects placed closer than 25 cm?

OR

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

22. What is Tyndall Effect?
23. Define Potential difference.
24. What were the limitations of Newlands law of Octaves?

OR

Why noble gases have been placed in a separate group?

[33]

25. Give two differences between metals and non-metals on the basis of their chemical properties?
26. What is self pollination and what is cross pollination?

SECTION-C

(3 marks each)

27. What do you mean by 'watt', kilowatt and kilowatt hour?
28. Write down three disadvantages of Fossil fuels.

OR

What do you know about Energy from sea?

29. What do you mean by precipitation reaction? Give example.
30. What do you understand by Anodising process?

Q. 1.12 Q

[34]

OR

Explain the process of Enrichment of Ores.

31. What are the different methods for the management of Garbage?
32. What is importance of seminal vesicles and prostate glands in reproductive system?
33. Define the terms Acquired traits and Inherited traits.

SECTION-D

(5 marks each)

34. List the new Cartesian sign convention for reflection of light by spherical mirrors. Draw a diagram and apply these conventions.

OR

An object is placed at a distance of 60 cm from a concave lens of focal length 30 cm. Use lens formula to find the distance of the image, nature, position and size.

35. What is Saponification? Why are detergents better cleansing agents than soaps? Explain.

OR

Explain the given reactions with the examples :

(a) Hydrogenation reaction

(b) Substitution Reaction

36. What is photosynthesis? Name the raw materials required for photosynthesis and where do plants get these?

OR

Explain in detail how are water and Minerals transported in plants.

(Old I Course)

Time : 3 Hours]

[Maximum Marks : 84

SECTION-A

PHYSICS

(LONG ANSWER TYPE QUESTIONS)

(6 marks each)

1. (a) Draw a labelled ray diagram to show the formation of image of an object by a convex mirror. Mark the pole, focus and Centre of curvature.
- (b) State uses of convex mirror.

OR

- (a) State and explain the laws of refraction of light with the help of diagram.
- (b) What is meant by refractive index?
- (c) How is the refractive index of a material related to the speed of light in it?

(SHORT ANSWER TYPE QUESTIONS)

(4 marks each)

2. What is the power of a lens? Two lenses of power $+3.5\text{D}$ and -2.5D are placed in contact. Find the power and focal length of the combination.

OR

An object of 5 cm height is placed at a distance of 10 cm from a convex mirror of focal length 15 cm. Find the nature, position and size of image formed.

3. Explain the function of following parts of the eye :

- (a) Cornea
- (b) Iris
- (c) Pupil
- (d) Retina

OR

What is atmospheric refraction? What causes atmospheric refraction?

4. State and explain ohm's law. Define the unit of resistance.

OR

If the two resistors with resistances 5Ω and 10Ω respectively are connected to a battery of 6v in series. Find the current obtained.

(VERY SHORT ANSWER TYPE QUESTIONS)

(2 marks each)

5. (a) Define electric current. Give its S.I unit.
(b) Write two properties of magnetic field lines.
(c) State any two characteristics of a good source of energy.

(MULTIPLE CHOICE QUESTIONS)

(1 mark each)

6. (i) Which of the following can undergo nuclear fusion reactions?
- (a) Uranium
 - (b) Deuterium
 - (c) Barium
 - (d) Krypton

(ii) At the time of short circuit, the current in the circuit :

- (a) Reduces substantially
- (b) Does not change
- (c) Increases heavily
- (d) Varies continuously

(iii) The device used for producing electric current is called a :

- (a) Generator
- (b) Galvanometer
- (c) Motor
- (d) Ammeter

[40]

- (iv) Which of the following colours of white light is least deviated by the prism?
- (a) Green
 - (b) Violet
 - (c) Indigo
 - (d) Yellow

SECTION-B

(CHEMISTRY)

(LONG ANSWER TYPE QUESTIONS)

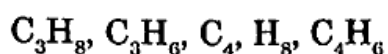
(6 marks)

7. (a) What are hydrocarbons? Explain with examples.
- (b) Explain the meaning of saturated and unsaturated hydrocarbons with examples.
- (c) How many isomers of (i) C_4H_{10} and (ii) C_5H_{12} are possible?

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OR

- (a) Explain homologous series with an example.
- (b) State two characteristics of homologous series.
- (c) Which of the following belong to same homologous series?



(SHORT ANSWER TYPE QUESTIONS)

(4 marks each)

8. What do you understand by exothermic and endothermic reactions? Give one example of each.

OR

What is the difference between displacement and double displacement reactions? Write equations for these reactions.

9. What is rusting of iron? Name three methods of preventing it.

OR

Differentiate between metals and non metals on the basis of their chemical properties. Which non metal has been placed in the reactivity series of metals?

10. How is plaster of Paris prepared? Write chemical equation of the reaction involved. State two uses of plaster of Paris.

OR

Define an acid and a base with examples. Write the neutralisation reaction between acids and bases.

(VERY SHORT ANSWER TYPE QUESTIONS)

(2 marks each)

11. (a) What is the difference between a mineral and an ore?
(b) Explain the cleansing action of soap.
(c) Why all elements of a period have different chemical properties?

(MULTIPLE CHOICE QUESTIONS)

(1 mark each)

12. (i) The property which is common between vinegar and curd is that they :
(a) Have sweet taste
(b) Have bitter taste
(c) Are tasteless
(d) Have sour taste

(ii) In order to prevent the spoilage of potato chips, they are packed in plastic bags in an atmosphere of

(a) Cl_2

(b) H_2

(c) N_2

(d) O_2

(iii) Where would you locate the element with electronic configuration 2, 8 in the modern periodic table?

(a) Group 8

(b) Group 2

(c) Group 18

(d) Group 10

(iv) The Newland's law of octaves for the classification of elements was found to be applicable only up to the element :

- (a) Potassium
- (b) Calcium
- (c) Cobalt
- (d) Phosphorus

SECTION-C

(LIFE SCIENCE)

(LONG ANSWER TYPE QUESTIONS)

(6 marks each)

13. Define nutrition. Why is nutrition necessary for an organism? Explain different modes of nutrition with one example each.

OR

What is the function of the respiratory system? What are the major organs of respiratory system in humans? Draw a labelled diagram of human respiratory system.

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(SHORT ANSWER TYPE QUESTIONS)

(4 marks each)

14. What is a natural resource? Name three important natural resources?
Why do we need to manage our natural resources?

OR

State the main aim of management of forests and wildlife. Name the four main stakeholders in the management of forest resources.

15. What is a food chain? Give one example. What is food web? Show its formation.

OR

What is ozone? How does ozone layer protect us from harmful effects in the environment?

16. Explain vegetative propagation with the help of the examples. List two advantages of it. <https://www.jkboseonline.com>

OR

What is pollination? How does it occur? Describe the process of fertilisation in a flower.

(VERY SHORT ANSWER TYPE QUESTIONS)

(2 marks each)

17. (a) What is regeneration? Name two animals which can regenerate fully from their cut body parts.
- (b) What is the difference between voluntary and an involuntary action?
- (c) What is meant by dominant genes and recessive genes?

(MULTIPLE CHOICE QUESTIONS)

(1 mark each)

18. (i) The human animal which has an XY pair of chromosomes is called :
- (a) Male
- (b) Hybrid
- (c) Female
- (d) Doomed

(ii) Scientists believe that all life originated in :

- (a) The sea
- (b) The soil
- (c) The ground
- (d) The air

(iii) Which of the following cannot be considered a receptor?

- (a) Ear
- (b) Nose
- (c) Muscle
- (d) Eye

(iv) The plant part which exhibits negative geotropism is :

- (a) Root
- (b) Stem
- (c) Branch
- (d) Leaves

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Roll No.....

Total No. of Questions : 40]

[Total No. of Printed Pages : 16

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SCIENCE

Time : 3 Hours]

[Maximum Marks : 80

Section-A

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

1. Which of the following statement is true regarding the focal length of a convex lens ?

(A) It is always positive (+)

(B) It is always (Negative) -

(C) It can be either (positive) + or (Negative) -

(D) It is always 0

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2. Which is correct sequence of structures through which light passes in human eye ?

(A) Cornea, lens, pupil, retina

(B) Cornea, pupil, lens, retina

(C) Pupil, lens, cornea, retina

(D) Lens, pupil, cornea, retina

3. Focal length of plane mirror is :

(A) At infinity

(B) 0

(C) -

(D) None of these

4. A ray of light falls normally on a plane mirror, what will be the angle of reflection ?
- (A) 0 degree
(B) 45 degrees
(C) 90 degrees
(D) 180 degrees
5. Which of the following is the resistance of a superconductor ?
- (A) Zero
(B) Infinite
(C) 1 ohm
(D) 10 ohm
6. A fuse wire repeatedly gets burnt when used with good heater. It is advised to use a fuse wire of :
- (A) More length
(B) Less radius
(C) Less length
(D) More radius

7. Polymerisation is an example of :

(A) Combination

(B) Decomposition reaction

(C) Displacement reaction

(D) Redox reaction

8. A hydrocarbon should have a minimum of carbon atoms to show isomerism.

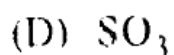
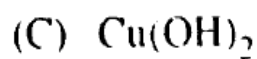
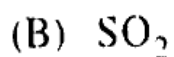
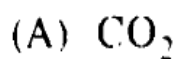
(A) 3

(B) 4

(C) 5

(D) 6

9. Which of the following is not an oxide ?



10. The salt that does not contain metal :

(A) Magnesium chloride

(B) Ammonium chloride

(C) Aluminium chloride

(D) Calcium chloride

11. Although metals form basic oxides, which of the following metals form amphoteric oxide ?
- (A) Na
 - (B) Ca
 - (C) Al
 - (D) Cu
12. Stamens of a flower are collectively known as :
- (A) Androecium
 - (B) Filament
 - (C) Anther
 - (D) Gynoecium
13. The period of time from conception of the zygote till child birth is known as :
- (A) Fertilisation
 - (B) Gestation
 - (C) Gastrulation
 - (D) Implantation

14. The fight or fright response is developed by a hormone of :

- (A) Hypothalamus
- (B) Thyroid
- (C) Pituitary
- (D) Adrenal medulla

15. A natural food web contains :

- (A) Only grazing food chain
- (B) Several tropic levels
- (C) Is usually unstable
- (D) All of these

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 correct explanation of A.
- (C) A is true but R is false.
- (D) A is false but R is true.

16. **Assertion (A)** : The magnetic field produced by a current carrying circular loop is uniform at the centre of the loop.

Reason (R) : The strength of magnetic field is proportional to the no. of turns in the coil and the I (current) passing through it.

17. **Assertion (A)** : Gametogenesis is the process of formation of gametes.

Reason (R) : Gametes are formed through mitosis in the reproductive organs.

18. **Assertion (A)** : Aquatic ecosystems have higher primary productivity than terrestrial ecosystems.

Reason (R) : Aquatic ecosystem receives more sunlight and nutrients than terrestrial ecosystems.

Section-B

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

19. What is short-sightedness ? How can this defect be corrected ?
20. What is significance of yellow spot (macula) in Human eye ?
21. Calculate the amount of charge passed through any area of cross section of the conductor when a current of 10 A flows through a conductor for 2 minutes
22. Why does the colour of copper sulphate solution change when iron nail is dipped into it ?
23. What is Power Alcohol ?
24. What is magnitude of force acting on a current carrying conductor placed in a magnetic field ?

25. Why aluminium is used for wrapping of food items ?
26. What is baking powder ? How does it make the cake soft and spongy ?
27. How does Plaster of Paris ($\text{CaSO}_4 \cdot \frac{1}{2} \text{H}_2\text{O}$) differ from gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) in terms of composition and use ?
28. Write the main functions of :
- (A) Vertebral column
 - (B) Sensory neuron
 - (C) Cranium
 - (D) Motor neuron

Section-C

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

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29. Calculate the electric energy consumed by a 1200 W toaster in 20 minutes.

Or

- (a) Illustrate how you would connect given three resistors, each of whose resistance is 6Ω so that the combination has a resistance of (i) 9Ω or (ii) 4Ω .
- (b) How does the resistance of a wire depend upon its radius ?
30. What are magnetic field lines ? How does the strength of magnetic field inside a solenoid vary ?

Or

- ✓ How does an electromagnet differ from a permanent ? Give application of electromagnet.
31. Two grams of ferrous sulphate crystals are heated in a dry boiling tube :
- (i) Explain two observations.
- (ii) Name the type of chemical reaction taking place.
- (iii) Write a balanced chemical equation for the reaction and name the products formed.

Or

A student conducted an experiment where she mixed solution of Barium chloride and Sodium sulphate. She observed the formation a white precipitate :

- (i) Write balanced chemical equation.
- (ii) Identify the type of chemical reaction and name the white precipitate formed.

32. Three metals sodium, magnesium and copper are given. How would you identify them by using dilute HCl ?

Or

Explain the process of smelting and its significance in metallurgy.

33. Mention the role of the following in digestion :

- (i) Pepsin
- (ii) Saliva
- (iii) Bile juice

Or

- (i) Write the different ways in which glucose is oxidised to provide energy in human body. Write the product formed.
- (ii) Write difference between respiration in plants and respiration in animals.

34. Why insulin cannot be administered orally to a diabetic person ?

Or

Draw an outline diagram of human body and show the location of six endocrine glands. <https://www.jkboseonline.com>

35. Define Pollination. Why is it necessary for reproduction in flower bearing plants ?

Or

What is difference between Asexual and Sexual Reproduction ?

36. How is sex genetically determined in humans and birds ?

Or

Only variation that confer advantage to an individual organisms will survive in a population. Do you agree why or why not ?

37. Write short notes on the following :

(i) Chlorofluorocarbons

(ii) Ozone depletion

Or

Write a note on disposal of sewage.

Section-D

Note :- In this Section from Q. Nos. 38 to 40, there will be Long Answer Type Questions each of 5 marks.

38. 4 cm tall object is placed perpendicular to the principal axis of a concave mirror. The distance between the object and mirror is 15 cm and focal length of the mirror is 10 cm :

(a) Determine the position of the image formed by the mirror.

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(15)

- (b) Calculate the size of the image.
- (c) State the nature and orientation of the image .
- (d) Draw a ray diagram to show the formation of image by the concave mirror.

Or

~~/~~ An object of 6 cm high is placed at a distance of 25 cm in front of concave mirror with focal length of 15 cm :

- (a) Determine the position of image formed by the mirror.
- (b) Calculate size of the image.
- (c) State the nature and orientation of the image.
- (d) Draw ray diagram to show the formation of image by concave mirror.

39. ~~/~~ (a) Explain what is Scum ? How is it formed and ?

- (b) Give reason, why use of synthetic detergents causes pollution of water ?

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C-5-Z

Turn Over

(16)

Or

Explain :

- (a) Dehydration
- (b) Saponification
- (c) Esterification
- (d) Hydrogenation

40. Describe the structure of nephron with functioning.

Or

Describe the types of cells and blood vessels with their functions present in blood.