## SHREE RADHEY COACHING CENTER

## SPECIAL SAMPLE PAPER 3 <br> Class 10 - Science

Time Allowed: 3 hours
Maximum Marks: 80

## General Instructions:

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
3. Section A consists of 20 objective type questions carrying 1 mark each.
4. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.
5. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words.
6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
7. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

## Section A

1. Which of the reaction is used in black and white photography?
a) Combination reaction
b) Decomposition reaction
c) Displacement reaction
d) Oxidation reaction
2. Match the following with the correct response:

| (i) Bronze | (a) Iron |
| :--- | :--- |
| (ii) Stainless steel | (b) Aluminium |
| (iii) Solder | (c) Tin and lead |
| (iv) Duralumin | (d) Copper |

a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)
b) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)
c) (i) - (b), (ii) - (d), (iii) - (a), (d) - (c)
d) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)
3. Which of the following are called soft soaps?
a) Potassium salts
b) Calcium salts
c) Magnesium salts
d) Sodium salts
4. Two pea plants one with round green seeds (RRyy) and another with wrinkled yellow (rrYY) seeds produce $\mathrm{F}_{1}$
progeny that have round, yellow (RrYy) seeds. When $F_{1}$ plants are selfed, the $F_{2}$ progeny will have new combination of characters. Choose the new combination from the following
i. Round, yellow
ii. Round, green
iii. Wrinkled, yellow
iv. Wrinkled, green
a) (i) and (iv)
b) (i) and (iii)
c) (ii) and (iii)
d) (i) and (ii)
5. Which of the following ray diagrams is correct for the ray of light incident on a lens shown in Fig.?

a)

b)


d)

6. Find the correct statement:
A. Plant raised by vegetative propagation can bear flowers and traits earlier than those produced from seeds.
B. Plants grown using tissue culture technique áre highly prone to diseases.
C. A plant grown by vegetative propagation is not prone to diseases.
a) (B)
b) (C)
c) (A)
d) All of these
7. The focal length of a concave mirror whose radius of curvature is 32 cm :
a) None of these
b) 32 cm
c) 12 cm
d) 16 cm
8. Four students, A, B, C and D, make the records given below, for the parts marked ' X ' and ' Y ' in this diagram.


| Student | X | Y |
| :---: | :---: | :---: |
|  |  |  |


| A | Stoma | Guard cell |
| :---: | :---: | :---: |
| B | Guard cell | Stoma |
| C | Epidermal cell | Stoma |
| D | Stoma | Epidermal cell |

The correct record, out of these, is that of student :
a) A
b) C
c) B
d) D
9. Which of the following hormone present in the newborn child that becomes smaller with advancing years?
a) Thymus gland
b) Testis
c) Pineal gland
d) Ovary
10. What is the full form of IUCD:
a) Inter-Uterine Contraceptive Device
b) Intra-Uterine Contraceptive Diet
c) Intra-Uterine Cover Device
d) Intra-Uterine Contraceptive Device
11. Match the following with correct response.

| Column A | Column B |
| :--- | :--- |
| (i) Cretinism | (a) Over secretion of growth hormone |
| (ii) Gigantism | (b) Under secretion of ADH |
| (iii) Exophthalmia | (c) Over secretion of thyroxin |
| (iv) Diabetes insipidus | (d) Deficiency of thyroxin |

a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)
b) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)
c) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)
d) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)
12. Dried fruit plastic bags sold in the market are filled with:
a) Hydrogen gas
b) All of these
c) Helium gas
d) Nitrogen gas
13. Out of the given diagrams, the correctly labelled diagram showing budding in yeast is:

a) II
b) I
c) III
d) IV
14. Match the following with the correct response:

| Column A | Column B |
| :---: | :---: |
|  |  |


| (i) Ionic bond | (a) $\mathrm{NH}_{3}$ |
| :--- | :--- |
| (ii) Polar covalent bond | (b) $\mathrm{C}_{60}$ |
| (iii) Non-polar bond | (c) $\mathrm{N}_{2}$ |
| (iv) Fullerene | (d) NaCl |

a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)
b) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)
c) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)
d) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)
15. The formulae of two organic acids X and Y are $\mathrm{C}_{10} \mathrm{H}_{21} \mathrm{COOH}$ and $\mathrm{C}_{19} \mathrm{H}_{39} \mathrm{COOH}$. Which of them exists in the liquid state at room temperature?
a) Neither $X$ and $Y$
b) Both X and Y
c) Y
d) X
16. The taste and smell of food changes when kept for a long time in open. It is called
a) Rancidity
b) Corrosion
c) Oxidation
d) Reduction
17. Assertion (A): pH of ammonium chloride solution is in acidic range.

Reason (R): Solution of a salt of weak base and strong acid is acidic.
a) Both A and R are true and R is the correct
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.
18. Assertion (A): When area of the conductor is halved then the resistance of the material gets doubled when length is kept constant.
Reason (R): Because resistance is inversely proportional to the area of a cross-section of the material.
a) Both A and R are true and R is the correct
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.
19. Assertion (A): Lungs always contain a residual volume of air.

Reason (R): It provides sufficient time for oxygen to be absorbed and for carbon dioxide to be released.
a) Both A and R are true and R is the correct
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.
20. Assertion (A): When a piece of copper metal is added to dilute sulphuric acid, the solution turns blue.

Reason (R): Copper reacts with dilute sulphuric acid to form copper (II) sulphate solution.
a) Both A and R are true and R is the correct
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.

## Section B

21. What is astigmatism ? How is it corrected ?

What is the colour of an emergent light when white light is passed through a colloidal solution of sulphur? Explain.
22. DDT was sprayed in minute amount on food plants but was detected in high concentration in man? How did it happen? Explain.
23. An object is placed at a distance of 12 cm in front of a concave mirror. It forms a real image four times larger than the object. Calculate the distance of the image from the mirror
24. Draw Human Heart and label its parts.
25. Name the gas evolved when dilute HCl reacts with sodium hydrogen carbonate. How is it recognised?
26. With the help of an example, explain the process of hydrogenation. Mention the essential condition for the reaction and state the change in physical property with the formation of the product.

## Section C

27. $\mathrm{P}, \mathrm{Q}$ and R are 3 elements which undergo chemical reactions according to the following equations:
a. $\mathrm{P}_{2} \mathrm{O}_{3}+2 \mathrm{Q} \rightarrow \mathrm{Q}_{2} \mathrm{O}_{3}+2 \mathrm{P}$
b. $3 \mathrm{RSO}_{4}+2 \mathrm{Q} \rightarrow \mathrm{Q}_{2}\left(\mathrm{SO}_{4}\right)_{3}+3 \mathrm{R}$
c. $3 \mathrm{RO}+2 \mathrm{P} \rightarrow \mathrm{P}_{2} \mathrm{O}_{3}+3 \mathrm{R}$

Answer the following questions:
i. Which element is most reactive?
ii. Which element is least reactive?
iii. State the type of reaction listed above.
28. Depict diagrammatically a food web in any ecosystem. How many food chains are there in that food web?
29. i. What should be the position of the object when a concave mirror is to be used
a. as a shaving mirror and
b. in torches producing parallel beam of light?
ii. A man standing in front of a mirror, finds his image having a very small head and legs of normal size. What type of mirrors are used in designing such a mirror?

OR
What should be the position of an object with respect to focus of a convex lens of focal length 20 cm , so that its real and magnified image is obtained?
30. Observe the following table carefully and match the components of part I with part II of the table. Write them in complete sentences.

| Part I | Part II |
| :--- | :--- |
| Unicellular organism | Transpiration |
| Human beings | Diffusion |
| Plants | Urination |

31. A student sitting at the back of the classroom cannot read clearly the letters written on the backboard. What advice will a doctor give to her?
32. Fertilization is possible if copulation has taken place during middle of menstrual cycle. Give reason.

OR
Answer the following:
i. With the help of a diagram demonstrate the process of regeneration as seen in Planaria?
ii. Which type of cells are used by such multicellular organisms to regenerate?
33. Find the direction of magnetic field due to a current carrying circular coil held:
i. Vertically in North-South plane and an observer looking it from East sees the current to flow in anticlockwise direction.
ii. Vertically in East-West plane and an observer looking it from South sees the current to flow in anti-clockwise direction.
iii. Horizontally and an observer looking at it from below and see the current flowing in clockwise direction.

## Section D

34. How is plaster of Paris prepared ? Why is temperature control necessary during its preparation ? How does it react with water ?

## OR

Discuss the role of pH in (a) digestive system (b) causes of tooth decay.
35. List some functions of the human brain.

OR
With the help of labelled diagram explain the general scheme to illustrate how nervous impulses travel in the body?
36. What precaution should be taken to avoid the overloading of domestic electric circuit ?

## Section E

37. Read the text carefully and answer the questions:

Pea plants can have smooth seeds or wrinkled seeds. One of the phenotypes is completely dominant over the other. A farmer decides to pollinate one flower of a plant with smooth seeds using pollen from a plant with wrinkled seeds. The resulting pea pod has all smooth seeds.
(i) Which crosses will give smooth and wrinkled seeds in the same proportion?
(ii) Which cross can be used to determine the genotype of a plant with a dominant phenotype?

## OR

On the crossing of two heterozygous smooth seeded plants $(\mathrm{Rr})$, a total of 1000 plants were obtained in $\mathrm{F}_{1}$ generation. What will be the respective number of smooth and wrinkled seeds obtained in $\mathrm{F}_{1}$ generation?
38. Read the text carefully and answer the questions:

If two or more resistances are connected in such a way that the same potential difference gets applied to each of them, then they are said to be connected in parallel.


The current flowing through the two resistances in parallel is, however, not the same. When we have two or more resistances joined in parallel to one another, then the same current gets additional paths to flow and the overall resistance decreases.
(i) Three resistances, $2 \Omega, 6 \Omega$ and $8 \Omega$ are connected in parallel, then what will be the equivalent resistance?
(ii) A wire of resistance $12 \Omega$ is cut into three equal pieces and then twisted their ends together, then what will be the equivalent resistance?
(iii) Three resistances are connected as shown. Calculate the equivalent resistance between A and B?


OR
Find the current in each resistance.

39. Read the text carefully and answer the questions:

When the fats and oil present in the food material get oxidized by the oxygen (of air), their oxidation products have unpleasant smells and tastes. Due to this taste of food material containing fats and oil change and become very unpleasant. The condition produced by aerial oxidation of fats and oils in food marked by unpleasant smell and taste is called rancidity. Rancidity spoils the food material prepared in the fats and oils which have been kept for a considerable time and makes them unfit for eating.

The development of rancidity in food can be prevented in the following ways-
i. Rancidity can be prevented by adding an antioxidant to foods containing fats and oils.
ii. Rancidity can be prevented by packaging fat and oil-containing food in Nitrogen gas.
iii. Rancidity can be prevented by keeping food in a refrigerator.
(i) What do you understand by oxidation?
(ii) How does the food become rancid?
(iii) How can we prevent the rancidity of food?

> OR

Which type of food material gets spoiled by the phenomenon of rancidity?

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