Saksham

Saksham Institute, Narayan Vishwa , Infront of Pragati mandal 4th floor , near Dmart 388120

Test / Exam Name: Class 10 Cbse Part Test-2 Standard: 10th **Subject: Science**

Date: 09.01.2024 **Time: 03:00 hh:mm** **Marks: 80**

SECTION-A

Q1. A chemical reaction in which heat is evolved is called a/an: **1 Mark**

A Exothermic reaction. **B** Endothermic reaction. **C** Combination reaction. **D** Decomposition reaction.

Q2. Which of the following are exothermic processes? **1 Mark**

1. Reaction of water with quick lime
2. Dilution of an acid
3. Evaporation of water
4. Sublimation of camphor (crystals)

A (i) and (ii) **B** (ii) and (iii) **C** (i) and (iv) **D** (ii) and (iv)

Q3. In the given experimental set-up, if the experiment is carried out separately with each of the following solutions the cases in which the bulb will glow is/are: **1 Mark**

1. Dilute hydrochloric acid
2. Dilute sulphuric acid
3. Glucose solution
4. Alcohol

A (i) only **B** (ii) only **C** (i) and (ii) **D** (ii), (iii) and (iv)

Q4. $Na_2CO_3 . 10H_2O$ is: **1 Mark**

A Washing soda **B** Baking soda **C** Bleaching powder **D** Tartaric acid

Q5. Give the ratio in which hydrogen and oxygen are present in water by volume. **1 Mark**

A 1 : 2 **B** 1 : 1 **C** 2 : 1 **D** 1 : 8

Q6. For question two statements are given-one labelled Assertion (A) and the other labelled Reason (R). **1 Mark**
Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
Assertion: pH of ammonium nitrate solution is acidic.
Reason: Solution of a salt of weak base and strong acid is acidic.

A Both A and R are true, and R is correct explanation of the assertion.
B Both A and R are true, but R is not the correct explanation of the assertion.
C A is true, but R is false.
D A is false, but R is true.

Q7. For question two statements are given-one labelled Assertion (A) and the other labelled Reason (R). **1 Mark**
Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
Assertion: Baking soda is prepared by chlor-alkali process.
Reason: Brine decomposes to sodium hydroxide on passing electricity through it.

A Both A and R are true, and R is correct explanation of the assertion.
B Both A and R are true, but R is not the correct explanation of the assertion.
C A is true, but R is false.
D A is false, but R is true.

Q8. The production of offspring by the sexual or asexual process is known as: **1 Mark**

A Division **B** Growth **C** Reproduction **D** All of the above

Q9. For two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below: **1 Mark**
Assertion: Most of the solid waste in urban areas is disposed off in landfills.
Reason: Landfills are high lying areas of the ground.

A Both A and R are true, and R is correct explanation of the assertion.
B Both A and R are true, but R is not the correct explanation of the assertion.
C A is true, but R is false.
D A is false, but R is true.

Q10. Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called: **1 Mark**

A Decomposers. **B** Producers. **C** Herbivores. **D** Carnivores.

Q11. Fertilisation results immediately in the formation of: **1 Mark**

A A zygote. **B** An embryo. **C** A placenta. **D** A foetus.

Q12.A Mendelian experiment consisted of breeding tall pea plants bearing violet flowers with short pea plants bearing white flowers. The progeny all bore violet flowers, but almost half of them were short. This suggests that the genetic make-up of the tall parent can be depicted as: **1 Mark**

A TTWW **B** TTww **C** TtWW **D** TtWw

Q13.A cross between a tall plant (TT) and short pea plant (tt) resulted in progeny that were all tall plants because: **1 Mark**

A Tallness is the dominant trait. **B** Shortness is the dominant trait. **C** Tallness is the recessive trait.
D Height of pea plant is not governed by gene 'T' or 't'.

Q14. Living things interact with _____ constantly: **1 Mark**

A Other organisms **B** Environment **C** Non-living things **D** All of the above

Q15. New species may be formed if: **1 Mark**

1. DNA undergoes significant changes in germ cells.
2. Chromosome number changes in the gamete.
3. There is no change in the genetic material.
4. Mating does not take place.

A (i) and (ii). **B** (i) and (iii). **C** (ii), (iii) and (iv). **D** (i), (ii) and (iii).

Q16. The embryo in humans gets nutrition from the mother's blood with the help of a special tissue called: **1 Mark**

A Placenta **B** Villi **C** Uterus **D** Womb

Q17. Where does fertilisation take place? **1 Mark**

A Uterus **B** Vagina **C** Fallopian tube **D** Cervix

Q18. If four identical resistors, of resistance 8 ohm, are first connected in series so as to give an effective resistance R_s, and then connected in parallel so as to give an effective resistance R_p, then the ratio $\frac{R_s}{R_p}$ is: **1 Mark**

A 32 **B** 2 **C** 0.5 **D** 16

Q19.A positron enters a uniform magnetic field at right angles to it as shown. The direction of force experienced by the positron will be: **1 Mark**

A Tothe right **B** Totheleft **C** Into the page **D** Out of the page

Q20. For questions number 17 to 20, two statements are given — one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below: **1 Mark**

Assertion (A): Two magnetic field lines around a current carrying straight wire do not intersect each other.

Reason (R): The magnitude of the magnetic field produced at a given point increases as the current through the wire increases.

A Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).

B Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

C Assertion (A) is true, but Reason (R) is false. **D** Assertion (A) is false, but Reason (R) is true.

SECTION-B

Q21. What is a neutralisation reaction? Give two examples. **2 Marks**

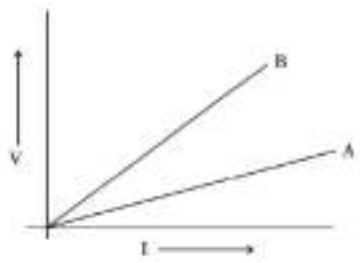
Q22. How does ozone layer protect us from harmful effects in the environment? **2 Marks**

Q23. What is the name of surgical method of birth control (or preventing pregnancy) which is carried out: **2 Marks**

1. In men.
2. In women?

Q24. Explain how, harmful ultraviolet radiations of sunlight are prevented from reaching the earth's surface. **2 Marks**

Q25. V-1 graph for two conducting wires A and B are as shown. If both wires are of the same length and same diameter, which of the two is made of a material of high resistivity? Give reasons to justify your answer. **2 Marks**



Q26. When is the force experienced by a current — carrying straight conductor placed in a uniform magnetic field. **2 Marks**

1. Maximum;
2. Minimum?

SECTION-C

Q27. Salt A commonly used in bakery products on heating gets converted into another salt B which itself is used for removal of hardness of water and a gas C is evolved. The gas C when passed through lime water, turns it milky. Identify A, B and C. **3 Marks**

Q28. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity. **3 Marks**

Q29. Define an ecosystem. Draw a block diagram to show the flow of energy in an ecosystem. **3 Marks**

Q30. List any four steps involved in sexual reproduction and write its two advantages. **3 Marks**

Q31. You are provided with a resistor, a key, an ammeter, a voltmeter, four cells of 1.5V each and few connecting wires. Using these circuit components, draw a labelled circuit diagram to show the setup to study the Ohm's law. **3 Marks**

State the relationship between potential difference (V) across the resistor and the current (I) flowing through it. Also draw V-I graph, taking V on the X-axis.

Q32. 1. A student wants to use an electric heater, an electric bulb and an electric fan simultaneously. **3 Marks**
How should these gadgets be connected with the mains? Justify your answer giving three reasons.

2. What is an electric fuse? How is it connected in a circuit?

Q33. For the current carrying solenoid as shown, draw magnetic field lines and give reason to explain that out of the three points A, B and C, at which point the field strength is maximum and at which point it is minimum? **3 Marks**

SECTION-D

Q34. The teacher while conducting practicals in the laboratory divided the students into three groups and gave them various solutions to find out their pH and classify them into acidic, basic and neutral solutions. **4 Marks**

Group A — Lemon juice, vinegar, colourless aerated drink.

Group B — Tomato juice, coffee, ginger juice.

Group C — Sodium hydroxide, sodium chloride, lime water.

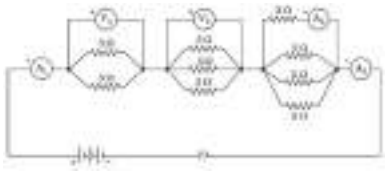
1. For the solutions provided, which group is/are likely to have pH value (i) less than 7, and (ii) greater than 7?
2. List two ways of determining pH of a solution
3. Explain, why the sour substances such as lemon juice are effective in cleaning the tarnished copper vessels.

OR

3. "pH has great importance in our daily life." Justify this statement by giving two examples.

Q35. How do Mendel's experiments show that traits are inherited independently? **4 Marks**

Q36. Consider the following electrical circuit diagram in which nine identical resistors of $3\ \Omega$ each are connected as shown. If the reading of the ammeter A_1 is 1 ampere, answer the following questions: **4 Marks**



1. What is the relationship between the readings of A_1 and A_3? Give reasons for your answer.
2. What is the relationship between the readings of A_2 and A_3?
3. Determine the reading of the voltmeter V_1.

OR

3. Find the total resistance of the circuit.

SECTION-E

Q37. Read the following and answer any four questions from (i) to (v). **5 Marks**

Acids turn blue litmus red but have no effect on red litmus. Bases tum red litmus blue but have no effect on blue litmus. The sample in which phenolphthalein remains colourless while methyl orange changes to pink/ red are acids while the samples in which phenolphthalein colour changes to pink and methyl orange changes to yellow are bases. Some observations of different sample solutions in litmus, phenolphthalein and methyl orange indicator are given in the table:

Sample Solution	**Red litmus Solution**	**Blue litmus Solution**	**Phenolphthalein indicator**	**Methyl orange indicator**
HCl	No colour change	Red	Colourless	Red/ Pink
H_2SO_4	No colour change	Red	Colourless	Red/ Pink
HNO_3	No colour change	Red	Colourless	Red/ Pink
CH_3COOH	No colour change	Red	Colourless	Red/ Pink
NaOH	Blue	No colour change	Pink	Yellow
$Ca(OH)_2$	Blue	No colour change	Pink	Yellow
KOH	Blue	No colour change	Pink	Yellow
$Mg(OH)_2$	Blue	No colour change	Pink	Yellow
NH_4OH	Blue	No colour change	Pink (Becomes colourless after sometime)	Yellow (Becomes colourless after sometime)

1. Which of the following substances does not turn red litmus solution to blue?

1. $Al(OH)_3$ 2. $Mg(OH)_2$ 3. H_3PO_4 4. NH_4 OH

2. Phenolphthalein's colour in basic medium is __, but in acid it is __.

1. Pink, colourless. 2. Yellow, pink. 3. Pink, orange. 4. Blue, red.

3. Which of the following acids are edible?

1. Citric acid. 2. Tartaric acid. 3. Hydrochloric acid 4. Carbonic acid

1. (I) and (II) only. 2. (I), (II) and (IV) only.
3.(I), (II) and (III) only. 4. (I), (II), (III) and (IV).

4. The colour of methyl orange in neutral solution is:

1. Red. 2. Orange. 3. Yellow 4.Purple.

5. Which of the following cannot act as an indicator?

1. Methyl orange. 2. Methyl chloride 3. Turmeric juice. 4.Phenolphthalein.

Q38. 1. What is puberty? **5 Marks**

2. Describe in brief the functions of the following parts in the human male reproductive system:

1. Testes 2.Seminal vesicle 3. Vas deferens 4. Urethra

3. Why are testes located outside the abdominal cavity?

4. State how sperms move towards the female germ cell.

Q39. 1. An electric bulb is rated at 200V; 100W. What is its resistance? **5 Marks**

2. Calculate the energy consumed by 3 such bulbs if they glow continuously for 10 hours for complete month of November.

3. Calculate the total cost if the rate is '6.50 per unit'.

OR

Q39. What is a solenoid? Draw the pattern of magnetic field lines of:

1. A current carrying solenoid.

2. A bar magnet. List two distinguishing features between the two fields.