

PRACTICE TEST-5

Class 10 - Science

Time Allowed: 3 hours

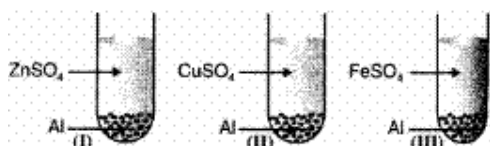
Maximum Marks: 80

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 be 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 be in the range of 50 to 80 words.
6. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answers 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.



[1]

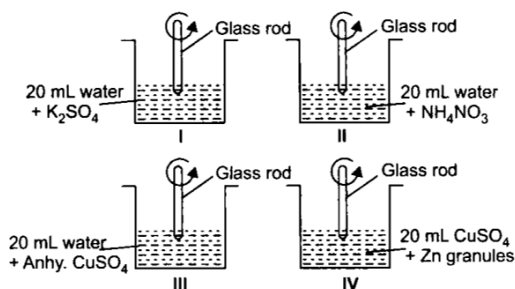
Obseravation	I	II	III
Solution after reaction	Colourless	Colourless	Colourless
Metal Deposited	Zn	Cu	Fe

Which of the following is correct conclusion?

- | | |
|---|--|
| <p>a) Al is more reactive than Cu and Fe but less reactive than Zn</p> <p>c) Al is more reactive than Zn and Cu but less reactive than Fe</p> | <p>b) Al is more reactive than Cu but less reactive than Zn and Fe</p> <p>d) Al is more reactive than Zn, Cu, Fe</p> |
|---|--|

2. Rajni, a class 10 student has set up the apparatus as shown in the figures.

[1]



Which of the following observations is correct?

- | | |
|--|---|
| <p>a) Temperature will rise only in beaker IV as redox reactions are exothermic.</p> <p>c) None of these</p> | <p>b) Temperature of beakers I, II and III will be raised as dissolution of salts is an exothermic process.</p> <p>d) Temperature of beakers III and IV will be raised while temperature of beakers I and II will fall.</p> |
|--|---|

3. Which of the following is acidic in nature?

[1]

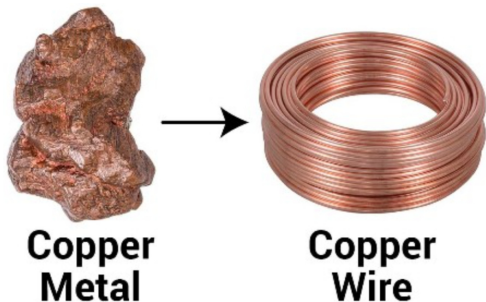
- a) Lime water
- c) Human blood

- b) Lime juice
- d) Antacid

4. Substance **X** is formed by the reaction of carboxylic acid and alcohol. It is used in making ice creams, cold drinks, perfumes and in flavouring agent. Name **X**. [1]

- a) Aldehyde
- c) Ester
- b) Alkyne
- d) Ketone

5. The property of metal by which it can be drawn into wires is called: [1]



- a) Ductility
- c) Conductivity
- b) Malleability
- d) Sonorous

6. Which one of the following elements symbolized as A and B is a metal: ${}_{11}^{23}A, {}_{20}^{40}B$? [1]

- a) Neither A nor B is a metal
- c) A is metal
- b) Both A and B are metals
- d) B is metal

7. The odour of ethanoic acid resembles which one of the following: [1]

- a) Kerosene
- c) Rose
- b) Pungent
- d) Vinegar

8. The digestion of which food component begins in the stomach? [1]

- a) Starch
- c) Proteins
- b) Fats
- d) None of these

9. If a round green seeded pea plant (RRYY) is crossed with wrinkled yellow seeded pea plant (rr yy) the seeds to be produced in F_1 generation will be: [1]

- a) round and green
- c) Wrinkled and yellow
- b) wrinkled and green
- d) round and yellow

10. Offspring formed by the asexual method of reproduction have greater similarity among themselves because [1]

- i. asexual reproduction involves only one parent
- ii. asexual reproduction does not involve gametes
- iii. asexual reproduction occurs before sexual reproduction
- iv. asexual reproduction occurs after sexual reproduction

a) (ii) and (iv)

b) (i) and (iii)

c) (iii) and (iv)

d) (i) and (ii)

11. The two versions of a trait (character) which are brought in by the male and female gametes are situated on [1]

a) any chromosome

b) two different chromosomes

c) sex chromosomes

d) copies of the same chromosome

12. In the experiment to show that carbon dioxide is released during respiration the small test tube of KOH solution is suspended inside the conical flask to absorb the: [1]

a) Oxygen of the flask.

b) Moisture of the flask.

c) Air of the flask.

d) Carbon dioxide of the flask released by the seeds.

13. Which of the following property of a proton can change while it moves freely in a magnetic field? [1]

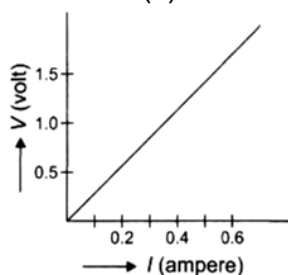
a) momentum

b) speed

c) acceleration

d) mass

14. Following graph was plotted between V and I values, across a metal wire. Which of the following statement(s) is/are correct regarding this? [1]



a) This graph illustrates the non-ohmic law.

b) While plotting this graph, the temperature remains constant.

c) Value of ratio $\frac{V}{I}$ when the potential difference is 0.8 V is not equal to the value of ratio $\frac{V}{I}$ when the potential difference is 1.2 V.

d) All of these

15. Which one of the following is an artificial ecosystem? [1]

a) Crop field

b) Forest

c) Lake

d) Pond

16. If a grasshopper is eaten by a frog, then the energy transfer will be from: [1]

a) Primary consumer to secondary consumer

b) Secondary consumer to primary consumer

c) Producer to decomposer

d) Producer to primary consumer

17. **Assertion (A):** In a balanced chemical equation, total mass of the reactants is equal to the total mass of the products. [1]

Reason (R): Mass can neither be created nor destroyed during a chemical change.

- a) Both 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.

18. **Assertion (A):** In the human, male testes are extra-abdominal which are present inside the scrotum. **[1]**
Reason (R): Scrotum has a relatively lower temperature needed for the production and storage of sperms.

- a) Both 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.

19. **Assertion (A):** A compass is kept near a wire carrying current gets deflected. **[1]**
Reason (R): Electric current is capable of producing a magnetic effect.

- a) Both 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.

20. **Assertion (A):** Ozone is very important layer of atmosphere. **[1]**
Reason (R): Ozone protects the living organisms from harmful UV radiation of sun.

- a) Both 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.

Section B

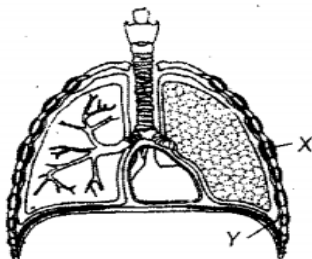
21. A gas is evolved when ethanol reacts with sodium. Name the gas evolved and also write the balanced chemical equation of the reaction involved. **[2]**

22. i. List two sexually transmitted diseases in each of the following cases: **[2]**
a. Bacterial infections
b. Viral infections
ii. How may the spread of such diseases be prevented?

23. Why respiration is called catabolic process? **[2]**

OR

The diagram given below shows the lungs. Which structure will contract while inhalation takes place?



24. Name the type of mirror used in a solar furnace. How can high temperature be achieved by this device? **[2]**
25. How is ozone formed in the higher levels of the atmosphere? **Damage to the ozone layer is a cause of concern.** Justify this statement. **[2]**

OR

Explain why the uses of plastic bags are banned in many places? What could be more environment friendly alternative?

26. A person is suffering from an eye defect in which the far point of the eye is nearer than infinity. Identify the defect. List two main causes of this defect. Draw a ray diagram to show how this defect is corrected by using a suitable lens. [2]

Section C

27. P, Q and R are 3 elements which undergo chemical reactions according to the following equations: [3]
- a. $P_2O_3 + 2Q \rightarrow Q_2O_3 + 2P$
b. $3RSO_4 + 2Q \rightarrow Q_2(SO_4)_3 + 3R$
c. $3RO + 2P \rightarrow P_2O_3 + 3R$
- Answer the following questions:
- Which element is most reactive?
 - Which element is least reactive?
 - State the type of reaction listed above.
28. Two ores A and B were taken. On heating, ore A gives CO_2 , whereas, ore B gives SO_2 . What steps will you take to convert them into metals? [3]

OR

- Predict the reaction, if any, between
 - zinc and silver nitrate solution,
 - magnesium and iron (II) chloride solution,
 - copper and magnesium sulphate solution.Write the equations, with its physical form symbols, for the reaction.
 - A lump of element X can be cut by a knife. During its reaction with water, X floats and melts. What is X? Explain.
29.
 - Why do the herbivores need longer small intestine as compared to that of the carnivores?
 - List three types of substances secreted by the gastric glands and state the role of each in the digestion of food in alimentary canal of human beings. [3]
30. A Mendelian's experiment consist of breeding a pea plant bearing violet flowers with pea plant that bear white flowers. What will be the result in F_1 progeny? [3]
31.
 - Define focal length of a divergent lens.
 - A divergent lens of focal length 30 cm forms the image of an object of size 6 cm on the same side as the object at a distance of 15 cm from its optical centre. Use lens formula to determine the distance of the object from the lens and the size of the image formed.
 - Draw a ray diagram to show the formation of image in the above situation. [3]
32.
 - Several electric bulbs designed to be used on a 220V electric supply line are rated 10W. How many lamps can be connected in parallel with each other across the two wires of 220V line if the maximum allowable current is 5A?
 - A heater coil connected to 200 V has a resistance of 80Ω . If the heater is plugged in for the time t such that 1 kg of water at $20^\circ C$ attains a temperature of $60^\circ C$. Find the power of the heater and the heat absorbed by water. [3]
33. Show how would you join three resistors, each of resistance 9Ω so that the equivalent resistance of the combination is [3]
- 13.5Ω
 - 6Ω ?

Section D

34. i. What happens when a small piece of sodium is dropped in ethanol? Write the equation for this reaction. [5]
 ii. Why is glacial acetic acid called so?
 iii. What happens when ethanol is heated at 443 K in the presence of conc. H_2SO_4 ? Write the role of conc. H_2SO_4 in this case.
 iv. Write an equation showing saponification.

OR

- i. How is vinegar made?
 ii. What is glacial acetic acid? What is its melting point?
 iii. Why is butanoic acid a weak acid?
 iv. Write the name and the formula of the two compounds formed when the ester, $\text{CH}_3\text{COOC}_2\text{H}_5$ undergoes saponification.
35. i. Name the organ that produces sperms as well as secretes a hormone in human males. Name the hormone it secretes and write its functions. [5]
 ii. Name the parts of the human female reproductive system where fertilisation occurs.
 iii. Explain how the developing embryo gets nourishment inside the mother's body?

OR

Following are the two examples of plant movement. One is drooping of leaves in touch-me-not plant and second is attaching of pea plant to a support with the help of tendrils.

- i. What is the stimulus which is common for movement in both the cases?
 ii. What is the difference in movement in both the plants? Explain.
 iii. Give appropriate scientific terms for the movements described in both cases.
36. A student places a candle flame at a distance of about 60 cm from a convex lens of focal length 10 cm and focuses the image of the flame on a screen. After that he gradually moves the flame towards the lens and each time focuses the image on the screen. [5]
 i. In which direction: toward or away from the lens, does he move the screen to focus the image?
 ii. How does the size of the image change?
 iii. How does the intensity of the image change as the flame moves towards the lens?
 iv. Approximately for what distance between the flame and the lens, the image formed on the screen is inverted and of the same size?

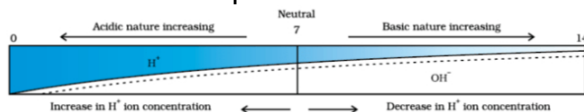
OR

An object 5 cm high is placed at a distance of 10 cm from a convex mirror of radius of curvature 30 cm. Find the nature, position and size of the image.

Section E

37. Read the text carefully and answer the questions: [4]

A scale for measuring hydronium ion in a solution is called the pH scale. The pH of a neutral solution is 7. A value of less than 7 on the pH scale represents an acidic solution. As the pH value, increases from 7 to 14 it represents OH^- ion concentration in solution i.e a basic solution.



- (i) What is the pH range of the Human Body?
 (ii) The strength of acid and bases depends on which factor?

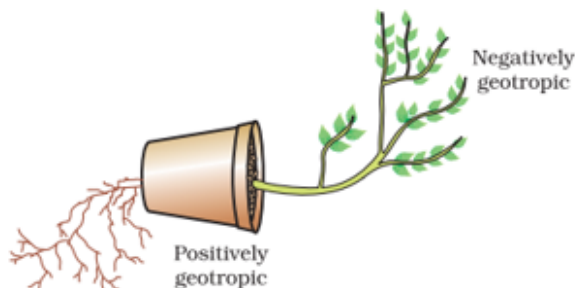
OR

If the pH of soil X is 7.5 while that of soil Y is 4.5, then which soil should be treated with powdered chalk to adjust its pH?

38. **Read the text carefully and answer the questions:**

[4]

Environmental triggers such as light, or gravity will change the directions that plant parts grow in. These directional, or tropic, movements can be either towards the stimulus or away from it. So, in two different kinds of phototropic movement, shoots respond by bending towards light while roots respond by bending away from it. How does this help the plant? Plants show tropism in response to other stimuli as well. The roots of a plant always grow downwards while the shoots usually grow upwards and away from the earth. This upward and downward growth of shoots and roots, respectively, in response to the pull of earth or gravity, is, obviously, geotropism. If 'hydro' means water and 'chemo' refers to chemicals, what would 'hydrotropism' and 'chemotropism' mean? Can we think of examples of these kinds of directional growth movements? One example of chemotropism is the growth of pollen tubes towards ovules, about which we will learn more when we examine the reproductive processes of living organisms.



- (i) Where does negative phototropism occur in plants?
- (ii) Phototropism in shoots is attributed due to which plant hormone?
- (iii) Tendrils exhibit/ twining of tendrils show which type of tropic movement?

OR

If the stem grows towards sunlight and the root grows just opposite to it, then what type of movement of the stem is it?

39. **Read the text carefully and answer the questions:**

[4]

A student fixes a sheet of white paper on a drawing board using some adhesive materials. She places a bar magnet in the centre of it and sprinkles some iron filings uniformly around the bar magnet using a salt-sprinkler. On tapping the board gently, she observes that the iron filings have arranged themselves in a particular pattern.

- (i) Draw a diagram to show this pattern of iron filings.
- (ii) Draw the magnetic field lines of a bar magnet showing the poles of the bar magnet as well as the direction of the magnetic field lines.
- (iii) How is the direction of magnetic field at a point determined using the field lines? Why do two magnetic field lines not cross each other?

OR

How are the magnetic field lines of a bar magnet drawn using a small compass needle? Draw one magnetic field line each on both sides of the magnet.