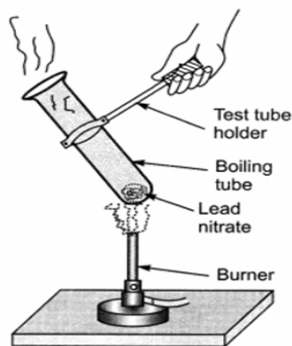


Section-A(Each 1 mark)

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

1. Observe the following activity and identify the following:

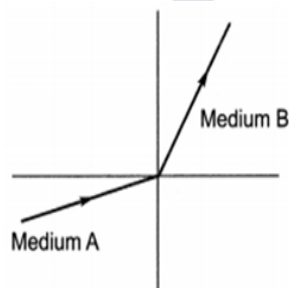


Lead oxide which is ———coloured.

- a) Yellow b) Pink
c) Red d) Green
2. The arrangement for Copper, Tin, Lead and Mercury according to reactivity series is:
- a) Tin > Lead > Copper > Mercury
b) Lead > Copper > Mercury > Tin
c) Copper > Mercury > Tin > Lead
d) Mercury > Tin > Lead > Copper
3. Which of the following statements is incorrect about an aqueous solution of an acid and of a base?
- i) Higher the pH, stronger the acid
ii) Higher the pH, weaker the acid
iii) Lower the pH, stronger the base
iv) Lower the pH, weaker the base
- a) (i) and (iii) b) (ii) and (iii)
c) (i) and (iv) d) (ii) and (iv)

4. The electronic configurations of three elements X, Y and Z are X – 2, 8; Y – 2, 8, 7 and Z – 2, 8, 2. Which of the following is correct?
- a) X is a metal b) Y is a metal.
c) Z is a non-metal.
d) Y is a non-metal and Z is a metal.
5. Non-metals form covalent chlorides because
- a) they can give electrons to chlorine
b) they can share electrons with chlorine
c) they can give electrons to chlorine atoms to form chloride ions
d) they cannot share electrons with chlorine atoms
6. Chemical formula of washing soda is
- a) $\text{Na}_2\text{CO}_3 \cdot 7\text{H}_2\text{O}$
b) $\text{Na}_2\text{CO}_3 \cdot 5\text{H}_2\text{O}$
c) $\text{Na}_2\text{CO}_3 \cdot 2\text{H}_2\text{O}$
d) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
7. The number of isomers of pentane is
- a) 2 b) 3
c) 4 d) 5
8. Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva?
- a) Starch breaking down into sugars.
b) Proteins breaking down into amino acids.
c) Absorption of vitamins.
d) Fats breaking down into fatty acids and glycerol.
9. A part of the body which responds to the instructions sent from nervous system is called
- a) receptor b) effector
c) nerves d) muscles

10. A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that
- they reproduce asexually
 - they are all unicellular
 - they reproduce only sexually
 - they are all multicellular
11. Which plant hormone promotes cell division?
- Auxin
 - Gibberellin
 - Cytokinin
 - Abscisic acid
12. What are the products obtained by anaerobic respiration in plants?
- Lactic acid + energy
 - Carbon dioxide + water + energy
 - Ethanol + carbon dioxide + energy
 - Pyruvate
13. A light ray enters from medium A to medium B as shown in figure. The refractive index of medium B relative to A will be



- greater than unity
 - less than unity
 - equal to unity
 - zero
14. A ray of light is travelling from a rarer medium to a denser medium. While entering the denser medium at the point of incidence, it
- goes straight into the second medium
 - bends towards the normal
 - bends away from the normal
 - does not enter at all
15. Which statement shows the interaction of an abiotic component with a biotic component in an ecosystem?
- A grasshopper feeding on a leaf
 - Rainwater running down into the lake
 - An earthworm making a burrow in the soil

- A mouse fighting with another mouse for food
16. The manufacturing of Chlorofluorocarbons free refrigerators is mandatory throughout the world. How does this help prevent ozone depletion?
- This will help convert oxygen molecules into ozone
 - This will help convert the CFCs into ozone molecules
 - This will reduce the production of CFCs from oxygen molecules
 - This will reduce the release of CFCs that reacts with ozone molecules

Question No. 17 to 20 consist of two statements – Assertion (A) and Reason(R). Answer these questions selecting the appropriate option given below:

- Both A and R are true, and R is the correct explanation of A.
 - Both A and R are true, and R is not the correct explanation of A.
 - A is true but R is false.
 - A is false but R is true.
17. **Assertion (A) :** Calcium carbonate when heated gives calcium oxide and water.
Reason (R) : On heating calcium carbonate, decomposition reaction takes place.
18. **Assertion(A):** Asexual reproduction is a primitive type of reproduction.
Reason(R): Asexual reproduction involves only mitotic cell division
19. **Assertion(A) :** On freely suspending a current-carrying solenoid, it comes to rest in N-S direction just like a bar magnet.
Reason (R) : One end of current carrying straight solenoid behaves as a North pole and the other end as a South pole.
20. **Assertion(A):** Biodegradable substances result in the formation of compost and natural replenishment.
Reason(R): It is due to breakdown of complex inorganic substances into simple organic substances

Section-B (Each 2 marks)

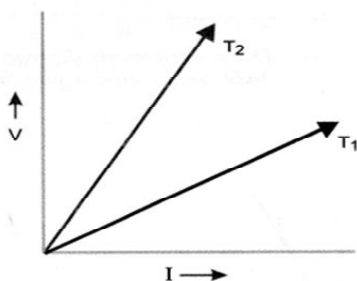
Question No. 21 to 26 are very short answer questions

21. What will be the action of the following substances on litmus paper?
i) Dry HCl gas ii) Moistened NH_3 gas
22. Name the following:
i) Thread like non-reproductive structures present in Rhizopus.
ii) 'Blobs' that develop at the tips of the non-reproductive threads in Rhizopus.
23. a) What is peristaltic movement?
b) 'Stomata remain closed in desert plants during daytime'. How do they do photosynthesis?

OR

Describe "blood circulation" in human beings.

24. A convex lens of focal length 20 cm can produce a magnified virtual as well as real image. Is this a correct statement? If yes, where shall the object be placed in each case for obtaining these images?
25. The voltage – current (V-I) graph of a metallic circuit at two different temperature T_1 and T_2 is shown. Which of the two temperatures is higher and why?



OR

A current carrying conductor is placed perpendicular to the uniform magnetic field. What happens to displacement of the conductor if

- i) strength of current increases
 - ii) If horse shoe magnet is replaced by a weak horse shoe magnet.
26. What is overloading? How can you avoid overloading?

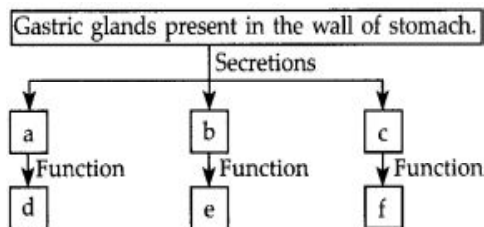
Section-C (Each 3 Marks)

Question No. 27 to 33 are short answer questions

27. Iqbal treated a lustrous, divalent element M with sodium hydroxide. He observed the formation of bubbles in the reaction mixture. He made the same observations when this element was treated with hydrochloric acid. Suggest how can he identify the produced gas. Write chemical equations for both reactions.
28. a) A substance X, an oxide of a metal, is used extensively in the cement industry. This element is found in our bones also. On treatment with water it forms a solution which turns red litmus blue. Identity X and also write the chemical reaction involved.
b) Choose a metal from the following metals which reacts only with hot water: Sodium, magnesium, iron. Mention the products formed during the reaction.

OR

- i) Draw a labelled diagram to show the preparation of hydrogen chloride gas in laboratory.
 - ii) Test the gas evolved first with dry and then with wet litmus paper. In which of the two cases, does the litmus paper show change in colour?
29. Complete the following flow chart as per the given instructions.



30. State the importance of chromosomal difference between sperms and eggs of humans.
31. The linear magnification produced by a spherical mirror is -1. Analysing this value state the (i) type of mirror and (ii) position of the object with respect to the pole of the mirror.

- Draw any diagram to justify your answer.
32. A copper wire has diameter 0.5 mm and resistivity $1.6 \times 10^{-8} \Omega \text{ m}$. Calculate the length of this wire to make it resistance 100Ω . How much does the resistance change if the diameter is doubled without changing its length?
33. List the advantages of connecting electrical devices in parallel with an electrical source instead of connecting them in series.

Section-D(Each 5 Marks)

Question No. 34 to 36 are long answer questions.

34. a) What is meant by corrosion? Name any two methods used for the prevention of corrosion.
- b) Suppose you have to extract metal M from its enriched sulphide ore. If M is in the middle of the reactivity series, write various steps used in extracting this metal.

OR

When ethanol reacts with ethanoic acid in the presence of conc. H_2SO_4 , a substance with fruity smell is produced.

Answer the following:

- i) State the class of compounds to which the fruity smelling compounds belong. Write the chemical equation for the reaction and write the chemical name of the product formed
- ii) State the role of conc. H_2SO_4 in this reaction.
35. Draw the diagram of sectional view of human heart and on it name and label the following parts :
- a) The chamber of the heart that pumps out deoxygenated blood.
- b) The blood vessel that carries away oxygenated blood from the heart.
- c) The blood vessel that receives deoxygenated blood from the lower part of our body.

OR

On the notice board of ultrasound clinics it is generally stated. "Here prenatal sex

determination and disclosure of sex (boy or girl before birth) of fetus is not done. It is prohibited and punishable under law."

- a) List two advantages of imposing ban on prenatal sex determination.
- b) What can students do to educate the society about the following?
- i) The ill-effects of indiscriminate female feticide.
- ii) Adopting small family norms.

36. A student wants to project the image of a candle flame on the walls of school laboratory by using a mirror.

- a) Which type of mirror should he use and why?
- b) At what distance in terms of focal length 'f' of the mirror should he place the candle flame so as to get the magnified image on the wall?
- c) Draw a ray diagram to show the formation of image in this case.
- d) Can he use this mirror to project a diminished image of the candle flame on the same wall? State 'how' if your answer is 'yes' and 'why not' if your answer is 'no'

OR

Rishi went to a palmist to show his palm. The palmist used a special lens for this purpose.

- i) State the nature of the lens and reason for its use.
- ii) Where should the palmist place/ hold the lens so as to have a real and magnified image of an object?
- iii) If the focal length of this lens is 10 cm, the lens is held at a distance of 5 cm from the palm, use lens formula to find the position and size of the image.

SECTION - E (Each 4 marks)

Question No. 37 to 39 are case-based/ data - based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. Read the following paragraph and answer the following question

The reaction between carbon dioxide and calcium hydroxide (lime water), Calcium hydroxide, which is a base, reacts with carbon dioxide to produce a salt and water. Since this is similar to the reaction between a base and an acid, we can conclude that nonmetallic oxides are acidic in nature.

- i) What is the nature of Carbon dioxide? 1
- ii) Give another reaction of non-metallic oxide and a base? 1
- iii) Arrange the following bases in increasing order: NaOH, Ca(OH)₂ & Mg(OH)₂. 2

OR

Write the complete reaction between calcium hydroxide and carbon dioxide with physical states?

38. Read the following paragraph and answer the following question

We also think about our actions. Writing, talking, moving a chair, clapping at the end of a programme are examples of voluntary actions which are based on deciding what to do next. So, the brain also has to send messages to muscles. This is the second way in which the nervous system communicates with the muscles. The communication between the central nervous system and the other parts of the body is facilitated by the peripheral nervous system consisting of cranial nerves arising from the brain and spinal nerves arising from the spinal cord. The brain thus allows us to think and take actions based on that thinking.

- i) What are the three major parts of the brain? 1
- ii) Which fluid is present in our brain? 1
- iii) What are the function of medulla? 2

OR

What is the function of hypothalamus?

39. Read the following paragraph and answer the following question

The domestic electric circuit consist of red insulated cover called as live wire, wire with black insulation called as neutral wire and the wire with green insulation is called as Earth wire. We know that fuse is connected in series with the circuit to prevent the damaging of electrical appliances and circuit from overloading. Overloading occurs when live wire and the neutral wire comes in direct contact with each other. Because of which current through the circuit increases suddenly. Also, overloading may occurs because of connecting many appliances to a single socket. The Earth wire which is green in colour is connected to a metal plate deep in the earth near the house. This type of safety measure is used in appliances like electric press, toaster, table fan, refrigerator etc. The Earth wire is gives low resistance conducting path for the electric current. In this way it protects us from severe electric shock.

All the appliances are connected in parallel circuit so that the potential difference across each appliance will be same.

- i) What are the signs of live wire and neutral wire? 1
- ii) In our country what is the potential difference between live wire and neutral wire? 1
- iii) What is short circuiting? 2

OR

What is the main purpose of using fuse in electric circuit?

* * *