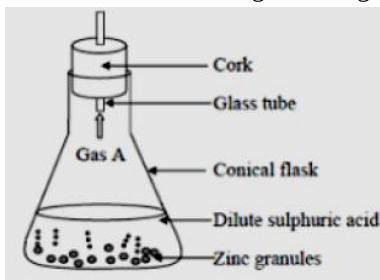


SAMPLE QUESTION PAPER - 1
Subject - Science
Class X
Time Allowed: 3 hours
Maximum Marks: 80
General Instructions:
Read the following instructions very carefully and strictly follow them:

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. Which characteristic is observed by the reaction shown in the given image? [1]



- (A) Formation of a precipitate
 - (B) Change in temperature
 - (C) Evolution of a gas
 - (D) Both change in temperature and evolution of gas
2. $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$. It is type of: [1]
 - (A) Both Precipitation reaction and Double displacement reaction
 - (B) Double displacement reaction
 - (C) Decomposition reaction
 - (D) Precipitation reaction
 3. Acid present in tomato is: [1]

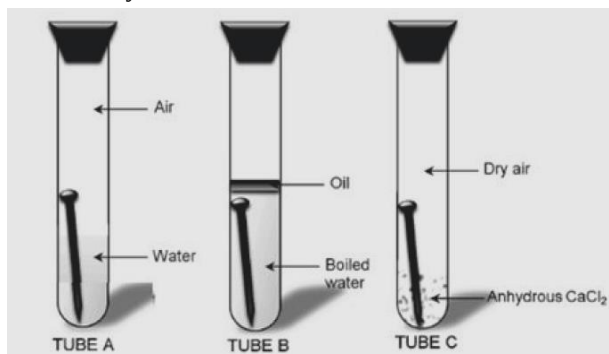
(A) Acetic acid	(B) Methanoic acid
(C) Lactic acid	(D) Oxalic acid
 4. Which of the following are called soft soaps? [1]

(A) Potassium salts	(B) Calcium salts
(C) Magnesium salts	(D) Sodium salts

Take three boiling tubes A, B and C. Pour some water in test tube A Put iron nails in it and cork it. Pour boiled distilled water in another test tube B and put iron nails in it. Add 1 ml of oil over it such that oil floats over it and prevents the air from entering. Take some iron nails in test tube C and put some anhydrous calcium chloride in it and cork it.

[1]

Leave all the three test tubes for one day and then observe.



5. In which test tube nail is rusted?

(A) Tube B and C	(B) Tube B
(C) Tube A	(D) Tube A and C
6. Which oxide will turn blue litmus solution to red?

(A) SO ₂	(B) MgO
(C) Na ₂ O	(D) NO ₂
(A) A and D	(B) B and C
(C) A and C	(D) All of these
7. Butanone is a four carbon compound with the functional group:

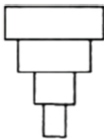
(A) - COOH	(B) - CHO
(C) - CO -	(D) - OH
8. In the excretory system of human beings, some substances in the initial filtrate such as glucose, amino acids, salts and water are selectively reabsorbed in

(A) Ureter	(B) Urethra
(C) Urinary bladder	(D) Nephron
9. The genotype for the height of an organism is Tt. What conclusion may be drawn from this?

(A) The allele for height has at least two different genes.	
(B) There are at least two different alleles for the gene for height.	
(C) There is one allele for height with two different forms.	
(D) There are two different genes for height, each having a single allele.	
10. At what stage of the menstrual cycle is a woman said to be fertile?

(A) Ovulation	(B) All of these
(C) Secretory phase	(D) Proliferative phase
11. Select the correct statement among the following.

i. Human female possesses homomorphic sex chromosomes.	
ii. Males possess homogametic sex chromosomes in humans.	
iii. Human females possess heterogametic sex chromosomes.	
iv. Human male possesses homomorphic sex chromosomes.	
(A) Statement (iii) is correct.	(B) Statement (i) is correct.
(C) Statement (ii) is correct.	(D) Statement (iv) is correct.

12. The autotrophic mode of nutrition requires: [1]
 (A) sunlight (B) All of these
 (C) carbon dioxide and water (D) chlorophyll
13. Which of the following describes the common domestic power supplied in India? [1]
 (A) 110 v, 100 Hz (B) 220 v, 100 Hz
 (C) 110 v, 50 Hz (D) 220 v, 50 Hz
14. What is the minimum resistance which can be made using five resistors each of $1/5 \Omega$? [1]
 (A) $\frac{1}{25} \Omega$ (B) 25Ω
 (C) $\frac{1}{10} \Omega$ (D) $\frac{1}{5} \Omega$
15. The pyramid shown here can be the pyramid of _____. [1]
- 
- (A) Biomass in a forest (B) Energy in a Grassland
 (C) Number in a pond (D) Biomass in a pond ecosystem
16. In a given food chain, suppose the amount of energy available at the third trophic level is 50 KJ. What will be the energy available at the producer level? [1]
 (A) 5000 KJ (B) 50 KJ
 (C) 5 KJ (D) 500 KJ
17. **Assertion (A):** Stannous chloride is a powerful oxidising agent which oxidises mercuric chloride to mercury. [1]
Reason (R): Stannous chloride gives a grey precipitate with mercuric chloride, but stannic chloride does not do so.
 (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):** Vaginal pills contain spermicides. [1]
Reason (R): Spermicides kill the 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):** The magnetic field intensity at the centre of a circular coil carrying current changes, if the current through the coil is doubled. [1]
Reason (R): The magnetic field intensity is dependent on current in conductor.
 (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):** In an ecosystem, the function of producers is to convert organic compounds into inorganic compounds
Reason (R): Green plants, the producers, transduce solar energy. [1]
 (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. Why does micelle formation take place when soap is added to water? Will a micelle be formed in other solvents such as ethanol also. [2]
22. Define the term pollination. Differentiate between self-pollination and cross-pollination. What is the significance of pollination? [2]
23. What are the components of the transport system in highly organized plants? [2]

OR

What are the two phases of photosynthesis reactions?

24. A concave lens has a focal length of 10 cm. An object 2.5 cm high is placed 30 cm from the lens. Determine the position and size of the image. [2]
25. Give some examples along with reasons of insecticides that are banned due to their fatal effects. [2]

OR

What is ozone and how does it affect any ecosystem?

26. What type of lens we wear if we are suffering from myopia ? [2]

SECTION C

27. Nikita took Zn, Al, Cu, Fe, Mg and Na metal and put each metal in cold water and then hot water. She reacted the metal with steam [3]
- Name the metal which reacts with cold water.
 - Which of the above metals react with steam?
 - Name the metal which reacts with hot water.
 - Arrange these metals in order of increasing reactivity.
28. Name a metal/non-metal: [3]
- Which makes iron hard and strong?
 - Which is alloyed with any other metal to make an amalgam?
 - Which is used to galvanize iron articles?
 - Whose articles when exposed to air form a black coating?

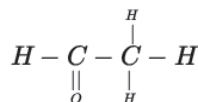
OR

Give reasons:

- Platinum, gold and silver are used to make jewellery.
 - Sodium, potassium and lithium are stored under oil.
 - Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.
 - Carbonate and sulphide ores are usually converted into oxides during the process of extraction.
 - Lemon or tamarind juice are effective in cleaning tarnished copper vessels.
29. Draw the diagram of part of leaf from which transpiration takes place. Explain stomatal or foliar transpiration. [3]
30. In pea plant, round seed is dominant over the wrinkled. If a cross is carried out between these two plants, give answer to the following questions. [3]
- Mention the genes for the traits of parents.
 - State the trait of F_1 hybrids.
 - Write the ratio of F_2 progeny obtained from this cross. What is the name of the cross?
31. What is atmospheric refraction? Explain with the help of a labelled diagram that the position of a star as seen by us is not its true position. [3]
32. a. Calculate the resistance of a metal wire of length 2 m and area of cross-section $1.55 \times 10^{-6} \text{ m}^2$. (Resistivity of the metal is $2.8 \times 10^{-8} \Omega\text{m}$) [3]
- b. Why are alloys preferred over pure metals to make the heating elements of electrical heating devices?
33. i. An electric lamp of 100 ohms, a toaster of resistance 50 ohms and a water filter of resistance 500 ohms are connected in parallel to a 220V source. what is the resistance of the electric iron connected to the same source that takes as much current as all the three appliances and what is the current through it? [3]
- ii. Which uses more energy, a 250 W TV set for 1 hour or a 1,200 W toaster for 10 minutes?

SECTION D

34. i. Compare soaps and detergents on the basis of their composition and cleansing action in hard water. [5]
 ii. What happens when ethanol is treated with sodium metal? State the behaviour of ethanol in this reaction.
 iii. Draw the structure of cyclohexane.
 iv. Name the following compound.

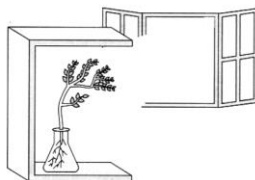


OR

Draw the possible isomers of the compound with molecular formula $\text{C}_3\text{H}_6\text{O}$ and also give their electron dot structures.

35. Why are budding, fragmentation and regeneration all considered as asexual types of reproduction? With neat diagrams explain the process of regeneration in Planaria. [5]

OR



Observe the above figure carefully and answer the following:

- i. Which phenomenon does the figure represent?
 ii. Which plant hormone is involved?
 iii. How this plant hormone brings this movement?
36. What is lens formula ? Give its sign conventions and assumptions. [5]

OR

Differentiate between a concave mirror and a convex mirror.

SECTION E

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

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.

Group A - Lemon juice, vinegar, colourless aerated drink

Group B - Tomato juice, coffee, ginger juice

Group C - Sodium hydroxide, sodium chloride, lime water

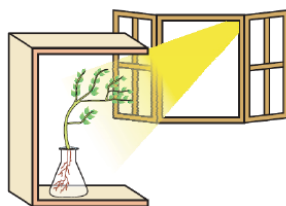
- (a) For the solutions provided, which group is/are likely to have pH value (i) less than 7, and (ii) greater than 7?
 (b) List two ways of determining pH of a solution.

OR

Explain, why the sour substances such as lemon juice are effective in cleaning the tarnished copper vessels.

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

Fill a conical flask with water. Cover the neck of the flask with a wire mesh. keep two or three freshly germinated bean seeds on the wire mesh. Take a cardboard box which is open from one side. Keep the flask a wire mesh. Kin the box in such a manner that the open side of the box faces light coming from a window as shown in the given figure. After two or three days, you will notice that the shoots bend towards light and roots away from light. Now turn the flask so that the shoots are away from light and the roots towards the light. Leave it undisturbed in this condition for a few days. 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. [4]



- What has represented by the given activities?
- Do old parts of the shoot and root change direction? Is there any difference in the direction of the new growth?
- What can we conclude from this activity?

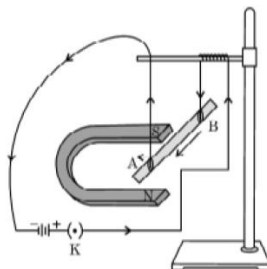
OR

What is geotropism?

39. Read the text carefully and answer the questions:

[4]

A student was asked to perform an experiment to study the force on a current carrying conductor in a magnetic field. He took a small aluminum rod AB, a strong horse shoe magnet, some connecting wires, a battery and a switch and connected them as shown. He observed that on passing current, the rod gets displaced. On reversing the direction of current, the direction of displacement also gets reversed. On the basis of your understanding of this phenomenon, answer the following questions :



- State the condition under which the displacement of the rod is largest for the same magnitude of current flowing through it.
- State the rule that determines the direction of the force on the conductor AB.
 - If the U shaped magnet is held vertically and the aluminum rod is suspended horizontally with its end B towards due north, then on passing current through the rod from B to A as shown, in which direction will the rod be displaced?
 - Name any two devices that use current carrying conductors and magnetic field.

OR

Draw the pattern of magnetic field lines produced around a current-carrying straight conductor held vertically on horizontal cardboard. Indicate the direction of the field lines as well as the direction of the current flowing through the conductor.

***** End *****

For Solution
Scan
the code

