

Sample Question Paper 2020 – 4  
Science - Class – X

Time allowed: 03 Hours

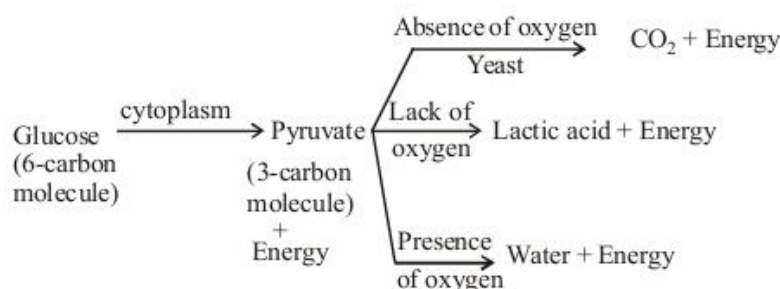
Maximum Marks: 80

**General Instructions:**

- I. The Question paper comprises of three Sections A, B and C. You have to attempt all the sections.
- II. All Questions are compulsory but some questions have internal choice.
- III. Question number 1 to 20 in Section - A are one - mark questions. Question number 1 to 10 are multiple choice questions. Each has four choices (a), (b), (c) and (d) out of which only one is correct. Question number 11 to 20 are very short answers (VSA) and Assertion-Reasoning. These are to be answered in brief.
- IV. Question number 21 to 30 in Section - B are three marks questions. These are to be answered in about 50 words each.

**SECTION - A**

1.



In the above reaction, which of the following end products are not correctly mentioned?

- (a) Absence of O<sub>2</sub> and lack of O<sub>2</sub>
  - (b) Presence of O<sub>2</sub> and lack of O<sub>2</sub>
  - (c) Absence of O<sub>2</sub> and presence of O<sub>2</sub>
  - (d) All of the above
2. The major problem in harnessing nuclear energy is to:
- (a) Split nuclei
  - (b) Sustain the reaction
  - (c) Dispose off spent fuel safely
  - (d) Convert nuclear energy into electrical energy

3. Match column-I with column-II and select the correct answer using the codes given below.

Column-I (Name of element)	Column-II (Group of element)
A. Nitrogen	P. 15
B. Aluminium	Q. 16
C. Chlorine	R. 36
D. Oxygen	S. 26
E. Copper	T. 64

- (a) A-P ; B-S ; C-R ; D-Q ; E-T  
 (b) A-S ; B-P ; C-R ; D-Q ; E-T  
 (c) A-P ; B-S ; C-Q ; D-R ; E-T  
 (d) A-P ; B-S ; C-R ; D-T ; E-Q
4. The number of chromosomes in parents and offsprings of a particular species remains constant due to  
 (a) doubling of chromosomes after zygote formation.  
 (b) halving of chromosomes during gamete formation.  
 (c) doubling of chromosomes after gamete formation.  
 (d) halving of chromosomes after gamete formation.
5. Which of the following can produce a magnetic field?  
 (a) Electric charges at rest  
 (b) Electric charges in motion  
 (c) Only by permanent magnets  
 (d) Electric charges whether at rest or in motion
6. The conversion of  $Fe^{++}$  to  $Fe^{+++}$  is:  
 (a) Oxidation (b) Reduction  
 (c) Ionisation (d) Nuclear reaction
7. Consider the following statements:  
 A. Herbivore is an animal that feeds on both plants and animals.  
 B. Egestion is the process of passing out undigested components of food.  
 Which of these statement(s) is/are correct?  
 (a) A only (b) B only  
 (c) Both A and B (d) Neither A nor B
8. Magnetic field lines caused by a solenoid:  
 (a) are curves.  
 (b) start at north and end at south.  
 (c) form closed loops.  
 (d) is uniform everywhere.
9. During the preparation of hydrogen chloride gas on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to:  
 (a) absorb the evolved gas.  
 (b) moisten the gas.  
 (c) absorb moisture from the gas.  
 (d) absorb  $Cl^-$  ions from the evolved gas.
10. Which of the following is a biodegradable waste?  
 (a) Radioactive wastes (b) Aluminium cans  
 (c) DDT (d) Cattle dung
11. Write the molecular formula of first two members of homologous series having functional group - Cl.
12. List four specific characteristics of the images of the objects formed by convex mirrors.

13. Why is oxytocin called as 'birth hormone'?

OR

An alcoholic person when drunk, generally walk clumsily. Why?

14. pH of a solution changes from 4 to 3. What changes in hydrogen ion concentration do you expect?

OR

Name the products formed from chlor-alkali process.

15. List any two factors that could lead to speciation.

16. Write S.I. unit of resistivity.

OR

Name the devices that helps to maintain a potential difference across a conductor.

17. What is the near point of a man at the age of 60?

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**DIRECTIONS :** Each of these questions contains an Assertion followed by Reason. Read them carefully and answer the question on the basis of following options. You have to select the one that best describes the two statements.

- (a) If both Assertion and Reason are correct and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
- (c) If Assertion is correct but Reason is incorrect.
- (d) If Assertion is incorrect but Reason is correct.

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18. **Assertion:** A virtual image cannot be photographed.

**Reason:** Only real objects are photographed.

19. **Assertion:** Leaching is a process of reduction.

**Reason:** Leaching involves treatment of the ore with a suitable reagent so as to make it soluble while impurities remains insoluble.

20. **Assertion:** Glomerulus acts as a dialysis bag.

**Reason:** Bowman's capsule is found in heart.

### **SECTION - B**

21. (a) How can you obtain pure metal from metals of high reactivity?

(b) Magnesium when reacts with hot water starts floating. Explain.

22. State reason for the following:

(a) Non-metals cannot displace hydrogen from the acids.

(b) Hydrogen is not a metal, yet it is placed in the activity series of metals.

(c) Aluminium is more reactive than iron, yet its corrosion is less than that of iron.

23. Explain the cleansing action of soap?

OR

Give the name of the byproduct of soap industry? How is it formed?

24. Explain laws of refraction of light.

OR

Write sign convention used in spherical mirror.

25. Find the direction of magnetic field due to a current carrying circular coil held:

(a) Vertically in North-South plane and an observer looking it from east sees the current to flow in anticlockwise direction.

(b) Vertically in East-West plane and an observe looking it from south sees the current to flow in anticlockwise direction.

(c) Horizontally and an observer looking at it from below sees current to flow in clockwise direction.

26. What is meant by analogous organs? Taking a suitable example, explain how they support the theory of organic evolution.

OR

Differentiate between homozygous and heterozygous alleles.

27. What are trophic levels? Give an example of food chain and state the different trophic level in it.
28. Two compounds 'A' and 'B' have the same molecular formula  $C_4H_8O_2$ . Compound 'A' is an acid and compound 'B' has a fruity smell. Suggest (a) chemical formulae and (b) the structural formulae of compounds A and B. Name the functional group of compound B. What name would you give to the relationship between the compounds A and B?
29. (a) Name the organ that produces sperms as well as secretes a hormone in human males. Name the hormone secreted and write its functions.  
 (b) Name the parts of the human female reproductive system where fertilisation occurs.  
 (c) How the developing embryo gets nourishment inside the mother's body?
30. There are 5 rooms in a house. Each room has a 100W bulb and a 40W tube light. If every day the bulb is used for 1 hour and tube light is used for 5 hours in each room then what will be the cost of total electric energy consumed in 30 days when 1 unit of electric energy costs ₹ 2.5?

### SECTION - C

31. What are the components of the transport system in human beings. What are the functions of these components?
32. How do the guard cells regulate opening and closing of stomatal pores?
33. (a) A metal carbonate  $X$  on reacting with an acid gives a gas which when passed through a solution  $Y$  gives the carbonate back. On the other hand, a gas  $G$  that is obtained at anode during electrolysis of brine is passed on dry  $Y$ , it gives a compound  $Z$ , used for disinfecting drinking water. Identity  $X$ ,  $Y$ ,  $G$  and  $Z$ .  
 (b) Write the chemical formula of plaster of paris.

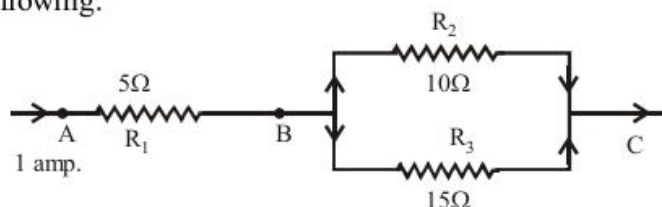
**OR**

- (a) What will be the action of the following substances on litmus paper?  
 Dry HCl gas, moistened  $NH_3$  gas, lemon juice, carbonated soft drink, curd, soap solution.
- (b) A milkman adds a very small amount of baking soda to fresh milk.  
 (i) Why does he shift the pH of the fresh milk from 6 to slightly alkaline?  
 (ii) Why does this milk take a long time to set as curd?
34. Differentiate between the following :
- (a) Pollen tube and style  
 (b) Fission in *Amoeba* and *Plasmodium*  
 (c) Fragmentation and regeneration  
 (d) Bud of *Hydra* and bud of *Bryophyllum*  
 (e) Vegetative propagation and spore formation

**OR**

Draw a well labelled diagram of male reproductive system and explain its various parts.

35. (a) State Ohm's law.  
 (b) Three resistors are connected as shown in the following figure. Through the resistor 5 ohm, a current of 1 A is flowing.



- (i) What is the total resistance?  
 (ii) What is the potential difference across AB and AC?  
 (iii) What is the current through other two resistors?
36. Explain with the help of diagram myopia and hypermetropia, their causes and how can they be corrected?