Science and Technology
Class X (Theory)

Sample Question Paper - I
Time : 3 Hours **Max Marks : 75**

General Instructions

1. The question paper comprises of two sections, A and B. You are to attempt both the sections.

2. The candidates are advised to attempt all the questions of Section A separately and Section B separately.

3. All questions are compulsory.

4. There is no overall choice. However, internal choice has been provided in some questions. You are to attempt only one option in such questions.

5. Marks allocated to every question are indicated against it.

6. Question numbers 1-5 in Section A and 21-23 in Section B are very short answer questions. These are to be answered in one word or one sentence.

7. Question numbers 6-10 in Section A and 24,25 in Section B are short answer questions. These are to be answered in 30-40 words each.

8. Question numbers 11-17 in Section A and 26-29 in Section B are also short answer questions. These are to be answered in 40-50 words each.

9. Question numbers 18-20 in Section A and 30 in Section B are long answer questions. These are to be answered in 70 words each.

SECTION A

Q1. What is the effect of an increase in concentration on rate of a chemical reaction?

Q2. Name the two elements commonly used in making solar cells these days.
1

Q3. Name the functional groups present in :
(a) CH_3CHO
(b) $CH_3COO\ CH_3CH_2$
1

Q4. Give any one difference between the sun and a white dwarf star.
1

Q5. Why is alumina dissolved in cryolite?
1

Q6. Rate of reaction in the gaseous state
2

Q7. A current carrying straight conductor is placed in east-west direction. What will be the direction of the force experienced by this conductor due to earth's magnetic field? How will this force get affected on :
(a) reversing the direction of flow of current?
(b) doubling the magnitude of current? 2

Q8. What is the resistance of a lamp which uses 20 A current when connected to the 220 V batteries?
2

OR

When Uranium undergoes fission, 0.15% of the total mass is converted into energy.
Calculate the total amount of energy released in Joules during an explosion of an atom
bomb which contains 12 kg of Uranium.

Q9. Which of the following is a slow and which is a fast reaction?
a) Setting of cement
b) Formation of coal in the earth's crust. 2

Q10. State Right Hand Thumb rule to find the direction of the magnetic field around a current carrying straight conductor. How will this magnetic field be affected on ?
(a) Decreasing the current through the conductor?
(b) Changing the direction of flow of current in the conductor?
2

Q11. An aqueous solution has hydrogen ion concentration,
$[H^+] = 1.0 \times 10^{-8}$ mol L^{-1}
(a) Determine the pH of this solution.
(b) Is the solution acidic, basic or neutral ?
(c) Will the pH of the above solution increase or decrease on adding a drop of 1M HCL to it ? Justify your answer.
3

Q12. Two identical resistors, each of resistance 20 ohms, are connected (i) in series (ii) in parallel, in turn, to a battery of 12 volts. Calculate the ratio of currents consumed in the

combination of resistors in two cases.

3

Q13. (a) Name the product formed when ethanol undergoes controlled oxidation.
(b) Describe with necessary chemical equations the test you would perform to identify
the above product.
(c) Name the compound formed when ethanoic acid reacts with ethanol in the presence of concentrated sulphuric acid.

3

OR

(a) Silver mirror is an identifying test of methanal. Write the corresponding chemical
equation.
(b) Name the compound formed when butanone is reduced. Which reducing agent is
generally used in this process?
(c) How is ethanol converted to ethanoic acid?

Q14. Distinguish between polar and equatorial orbits of artificial satellites. Which of the above two orbits is suitable for a
(i) geostationary satellite
(ii) satellite used for weather forecasting?

3

OR

How do we locate the position of the pole star in the sky? Why is the pole star so special? 3

Q15. 21. What is an alloy ? Write the composition of an alloy called bronze. Give two uses of bronze. 3

Q16. (a) Draw a flow diagram illustrating the principle used in the manufacture of ammonia by Haber process.

(b) Describe an activity to show that ammonia is basic and is highly soluble in water.

3

OR

(a) Explain the preparation of washing soda by Solvay process ?

Q16. An organic compound ‘A’ is a constituent of wine and beer. This compound, on heating with potassium dichromate forms another organic compound ‘B’. Identify the compound ‘A’. Write the chemical equation of the reaction that takes place to form the compound ‘B’. Name the compound ‘B’.

3

Q17. Why are the images obtained from the Hubbles telescope is better than the telescopes from the ground?
3

Q18. Explain the structure of eye & briefly mention about it's different diseases ?
OR
What is meant by the term 'refining of petroleum'? Draw a labeled diagram of petroleum
distillation tower. Why is CNG considered an environment friendly fuel?
5

Q19. Name the lightest element. Why is its presence in the free state in the earth's atmosphere negligible? With a labelled diagram, describe how this element can be prepared in the laboratory. How is this element used in:
a) Space programmes
b) Oil industry?
OR
a) Name the chief ore of iron. How is it concentrated?
b) Describe the extraction of iron from the concentrated ore with the help of
(i) a labelled diagram of the furnace used.
(ii) necessary chemical equations representing the chemical changes occurring during the process.
c) How is the conversion of iron into iron oxide prevented during the extraction of iron?
5

Q20. Explain Myopia with the help of suitable ray diagrams. How can this defect of vision be corrected ?
A boy uses spectacles of focal length –50 cm. Name the defect of vision he is suffering
from. Compute the power of this lens. 5

SECTION B
Q.21.How many pairs of autosomes are there in human being.
1
Q22. What are occupational diseases? 1
Q23. What is meant by 'homologous organs'? 1
Q24. from where do the following take in oxygen:
a) prawn
b) rat 2

Q25. Name any two organs that are homologous to human hand. To which category of organs would you place wings of birds and wings of insects?
2

Q26. Nervous and the hormonal system together perform the function of the control and coordination in the humans. Justify the statement.
3

Q27. Write the effect of sympathetic nervous system on the following :
i. Heart
ii. Blood vessels 3
iii. Bronchi

Q28. Name the types of sex chromosomes present in
(i) Human male and
(ii) Human female
What will be the sex of the child produced if a sperm carrying 'Y' chromosome fertilizes the egg? Name an insect in which similar type of sex determination takes place. 3

Q29. Explain the digestion in humans.

OR

Explain the double fertilization with the diagrams
3

Q30. What are two vital functions of the human kidney? Draw labeled diagram of human urinary system. Name the procedure used in the working of an artificial kidney. 5

For further contact, write an email regarding ur queries to me…….