

PRE - MODEL EVALUATION - 2017

Std. X

CHEMISTRY

Time : 1½ hrs

Total Score:40

Instructions:

- First 15 minute duration is cool off time.
- Cool of time is given to read and understand the questions well.
- Score assigned for each question is shown against the question.

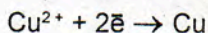
1. Choose the right answer.

The total number of shells in the atom of an inner transition element is 'n'. If so, the shell in which the electron with the highest energy in their atom is

[n^{th} , $(n-1)^{\text{th}}$, $(n-2)^{\text{nd}}$, $(n+1)^{\text{th}}$]

1

2. The reaction that occurs at the cathode of a galvanic cell is shown below.



From the following list, identify the cell in which the given reaction would occur.

[Mg-Cu cell, Cu-Ag cell, Cu-Ag cell, Zn-Pb cell]

1

3. By following the relationship seen in the first pair, fill up the missing item in the second pair.

1

To lower body temperature : Antipyretics; To relieve pain :

4. Green Chemistry has some important goals to be full filled. Mention any two such goals.

1

5. The equation $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$ represents the formation of Ammonia. How many litres of N_2 are required to combine with 24 litres of H_2 ? How many litres of NH_3 will be formed in this case?

1

6. Suggest a method to refine a crude piece of lead. On what basis, is this method more suitable?

1

7. One litre of an 1M solution of a salt contains 63g of the salt in the dissolved form.

What is the molecular mass of the salt? 63g

1

8. Reactions involving gaseous reactants occur more faster if the reaction is carried out at high pressures. Give reason.

2

9. Galvanic cells and Electrolytic cells form two types of electro chemical cells.

i) Compare the energy conversion that may take place in the two cells.

1

ii) In which cell, the anode is positive and in which cell, the cathode is positive?

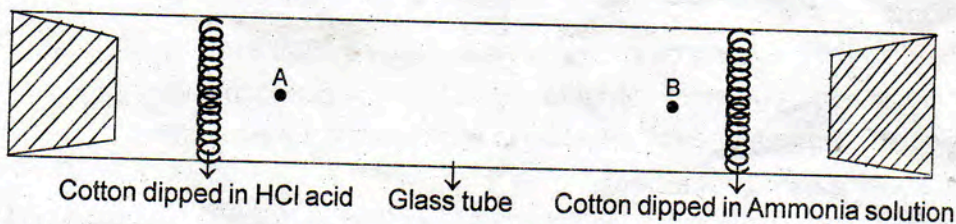
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10. To separate a metal from its ore, it becomes necessary to treat the ore with a reducing agent.

Why? $\frac{1}{2}$

2

11.



It is observed that thick white fumes are formed inside the tube.

a) Name the chemical substance which appears as white fumes. $\frac{1}{2}$

b) Where is the right location at which the white fumes have been formed? Is it near to the point 'A' or 'B'? Give reason. $\frac{1}{2}$

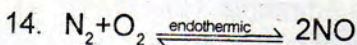
12 a) Cement is now widely used as a construction material, by making use of its setting property. What do you mean by 'setting' of cement? 1

b) Why is gypsum used as an ingredient in cement? 1

13. Give the detailed structure of the functional group present in the following organic compounds.

i) Propanoic acid 1

ii) Propanal 1



i) How does pressure influence on the equilibrium of the given reversible reaction system? 1

ii) Give reason. 1

15. When molten sodium chloride is electrolysed, you may obtain sodium as the product at the negative electrode. But, if you replace the electrolyte, molten sodium chloride by an aqueous solution of NaCl, the main product that would obtain at the negative electrode will not be sodium. Then What will be obtained instead? Give reason. 2

16. Relating to the electrolytic production of aluminium from purified bauxite (Alumina), answer the following questions.

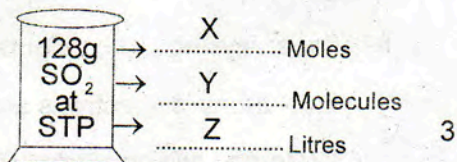
i) Why is Alumina kept dissolved in molten cryolite, as it is subjected to electrolysis? 1

ii) Give an equation to show the reaction that may occur at the negative electrode. 1

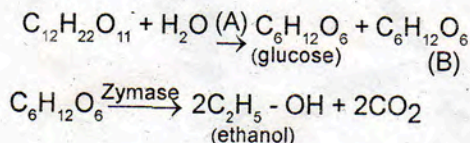
17. Toluene is a typical aromatic compound. Draw its structure. 2

18. Given that the GMM of SO_2 is 64g.

Based on this information, mention the values represented by the letters X, Y and Z.



19.A. Ethanol is often prepared by the fermentation of diluted molasses in presence of yeast. Fermentation leads to the formation of ethanol through the following reactions.



i) Mention the items indicated by the letters 'A' and 'B.' 2

ii) Ethanol obtained in the reaction is known by the name 'Wash'. How is this wash converted into rectified spirit? 1

OR

B. Some reactants and products related to certain types of reactions are listed below; but not in a proper order. Match the items suitably. 3

A. Reactants	B. Products	C. Type of reaction
$\text{CH}_3-\text{CH}_2-\text{CH}_3$	$\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{Cl}$	Combustion
$\text{CH}_3-\text{CH}_2-\text{CH}_3 + \text{O}_2$	$\text{CH}_2 = \text{CH}_2 + \text{CH}_4$	Substitution
$\text{CH}_3-\text{CH}_2-\text{CH}_3 + \text{Cl}_2$	$\text{CO}_2 + \text{H}_2\text{O}$	thermal cracking

20. $\text{CH}_3-\underset{\text{OH}}{\text{CH}}-\text{CH}_3$ The structural formula of an organic compound is shown here.

a) Suggest the IUPAC name of this compound. 1

b) i) Write down the structural formula of a compound which can be a position isomer of the given compound. 1

ii) Write down the structural formula of a compound which can be a functional isomer of the given compound. 1

21. a) Write down the subshell wise electron configuration of an element 'M' (the given symbol is not real) with atomic number 26. 1
- b) After analysing the configuration, answer the related questions.
- i) How many 's' electrons are there in the atom of 'M'? 1
- ii) Write any two characteristics that the element 'M' may exhibit. 1
- iii) Identify the group in the periodic table, in which 'M' is being included. 1