# ജില്ലാപഞ്ചായത്ത് -കണ്ണൂർ
# Mukulam Model Examination-2018

SSLC | CHEMISTRY | Marks 40, Time 1½ Hrs

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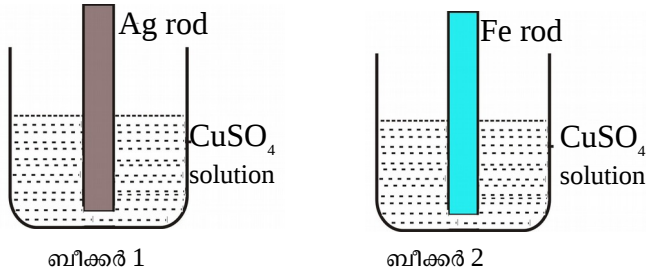
Common instructions
* 15 minutes is given as cool-off time.
* This time is to spent for reading question paper.
* Attempt questions according to the instructions.

**Questions 1 to 5 carry 1 score each. Answer any four(4) of them.**

1. A dense white fume is obtained when a glass road,dipped in hydrochloric acid,shown above ammonia jar.
   What is the chemical present in the white fume?
2. What is the number of moles present in 90g water? [Molecular mass of water - 18]
3. How many carbon atoms are present in one molecule of Propanal?
4. $SO_{2\,(g)} + Cl_{2\,(g)} \xrightarrow{\text{sunlight}} SO_2Cl_{2(g)}$
   Choose the factor that influence rate of the above reaction?
   [ temperature , light , surface area , concentration ]
5. Benzene is the simplest aromatic compound. Write molecular formula of benzene.

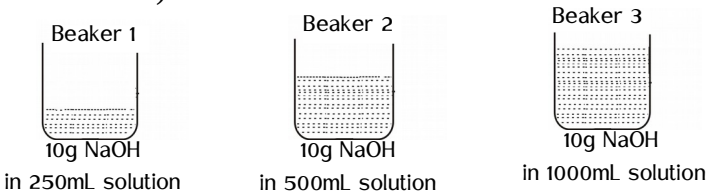
**Questions 5 to 10 carry 2 score each. Answer any four(4) of them.**

6. Figures of two beaker are given. Observe the figure carefully and answer the the question.




ബീക്കർ 1 ബീക്കർ 2

   a) In which beaker displacement reaction takesplace?
   b) Write the chemical equation for this reaction.
7. Chemical formula of some organic compounds are given.
   [ **$CH_3$-OH , $CH_4$ , $CH_3$-COOH , $CH_3$-CHO**]
   i) Select the compounds required for the preparation of an ester.
   ii) Write the chemical equation for the preparation of an ester.
8. 10g of NaOH is present in the each solution taken the in beakers. (Molecular mass of NaOH=40)

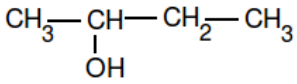



   a) Which is the one molar (1M) NaOH solution among this?
   b) What is the molarity of solution which contains 20g NaOH in one litre?
9. Aluminium is extracted by the electrolysis of molten alumina.(Hall-Heroult process)
   a) Write the chemical equation for the reaction takes place at cathode.
   b) During the process carbon anodes are replaced time to time. Why?
10. Coal is a fossil fuel obtained from the depths of the earth.
    a) Name the process by which the remains of plants are transformed in to coal.

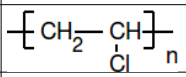
b) Which form of coal has the highest carbon content?

**Questions 11 to 15 carry 3 score each. Answer any four(4) of them.**

11. Below given is sub shell electronic configaration of the element 'X' ( symbol is not real)
    **$1s^2$ $2s^2$ $2p^6$ $3s^2$ $3p^6$ $3d^3$ $4s^2$**
    a) What is the group number of this element?
    b) Write the sub shell electronic configuration of $X^{3+}$ ion.
    c) Write any two characteristics of the block elements which contains this element.
12. Structure of an organic compound is given.



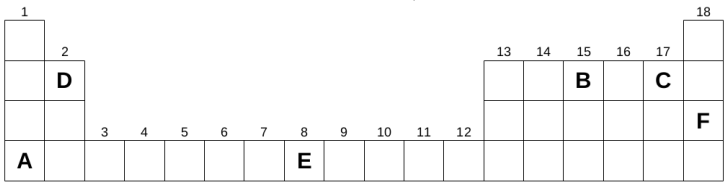
    a) Write the chemical formula of the above compound.
    b) Write its IUPAC name.
    c) Give structure of position isomer of this compound.
13. 85 g of ammonia ($NH_3$) gas is taken. [atomic mass N-14 H-3]
    a) Calculate the number of moles present in this sample.
    b) What is the volume of this sample at STP?
    c) Calculate the number of atoms present in this sample?
14. Match the following suitable

| Reactants | Products | Name of the reaction |
|---|---|---|
| $CH_4 + Cl_2$ |  | Addition reaction |
| $CH_2=CH_2 + HCl$ | $CH_3Cl + HCl$ | Substitution reaction |
| $nCH_2=CHCl$ | $CH_3\text{-}CH_2Cl$ | Polymerisation |

15. Cement is a complex mixture of silicates and aluminates of calcium
    a) What is the compound added to cement to control the setting time?
    b) What are the environment problems created by concrete.

**Questions 16 to 20 carry 4 score each. Answer any four(4) of them.**

16. A part incomplete periodic table is given. Analyse the table and answer the questions that follow (Symbols are not real)



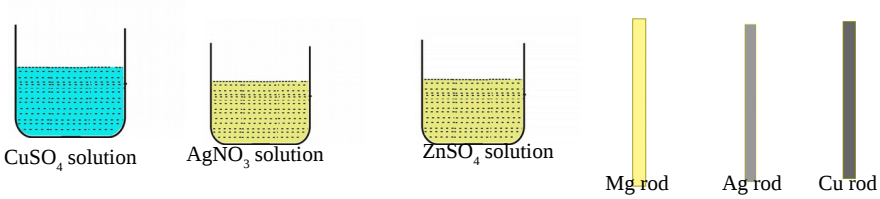

    i) Which element has the least ionisation energy?
    ii) Which element has the highest electro negativity?
    Iii) Write the chemical formula of the oxide of element 'D'
    iv) Write the sub shell electronic configuration of element 'F' in its valence shell.

17. Given below is the chemical equation showing the reaction between ferric nitrate and potassium thiocyanate.

    $Fe(NO_3)_{3\,(aq)} + 3KCNS_{\,(aq)} \rightleftharpoons Fe(CNS)_{3\,(aq)} + 3KNO_{3\,(aq)}$

    a) Name the red coloured compound formed here?
    b) After diluting the solution,a little potassium thiocyanate is added to it .What is the change observed? Explain the reson on the basis of Le-Chatelier's principle
    c) Pressure has no effect in this reaction. Why?

18. Three solutions and metal rods are given.




a) Draw a Galvanic cell by selecting suitable solutions and electrodes
b) Which is the anode here?
c) Write the chemical equation for the reaction which takes at anode.

19. The chemical equations for the reactions that take place in the blast furnace are given below.

i) $C + O_2 \rightarrow CO2 + heat$
ii) $CO_2 + C + heat \rightarrow 2CO$
iii) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$
iv) $CaCO_3 + heat \rightarrow CaO + CO_2$
v) $CaO + SiO_2 \rightarrow CaSiO_3$

a) Which is the reducing agent used hear?
b) Why is the calcium carbonate($CaCO_3$) mixed along with the ore?
c) Select the chemical equation showing the formation of slag.
d) Name the iron obtained from the blast furnace.

20. Given below are the chemical formulae of some hydrocarbons .

i)**$C_6H_{14}$** ii) **$C_6H_{12}$**
**1.** iii) **$C_6H_{10}$** iv) **$C_5H_{12}$**

a) Which among these is an alkene?
b) Write the structural formula of alkene having double bond in between in the first and second carbon atoms.
c) Write the IUPAC name of this compound.
d) draw the structure of cyclic isomer of this alkene.

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