Royal College of Arts Science and Commerce
S.Y.B.Sc.
Semester III Sample Questions
Chemistry II
USCH 302

Instructions:
1) Fill in the blanks with the most appropriate option
2) Each question is for 1m in Section I
3) Each question is for 2m in Sections II and III

Section I

1   When a chemical reaction obeys collision theory , probability factor is _____

a   > 1
b   1
c   < 1
d   0

2   For the study of distribution law the two solvents should be _____
a   miscible
b   Partially miscible
c   immiscible
d   Volatile

3   The hybridization undergone by Si in Silica is ----------------

a sp^2

b sp^2d

c sp^3

d   Sp

4   Aldehydes on treatment with HCN gives ………

a   Oxime

b   Schiffs base

c   Cyanohydrin

d   Nitroethane

5   Which of the following on oxidation gives acetaldehyde

a   Acetone

b   Acetic acid

c   Ethanol

d   Ethyl cyanide

Section II

6   The liquid mixtures which distill with a change in composition are called

a   Azeotropic mixture
b   Non-stoichiometric mixture
c   Zeotropic mixture
d   Equilibrium mixture

7   NO_2 is a ------------------ and ----------------------------molecule

a   Colored and diamagnetic

b   Colorless and diamagnetic

c   Colored and paramagnetic

d   Colorless and paramagnetic

8   The correct order of variation in Lewis acid strength is ----------------

a $BF_3 > BI3 > BCl_3 > BBr_3$

b $BF_3 > BCl_3 > BBr_3 > BI_3$

c $BF_3 < BCl_3 < BBr_3 < BI_3$

d $BF_3 = BCl_3 < BBr_3 < BI_3$

9   Active methyl group is not required in…….

a   Claisen-Schimdt Condensation

b   Knoevenagel reaction

c   Benzoin condensation

d   Cannizzaro's reaction

10   Carbonyl Carbon and oxygen are …………. & ………… Hybridised

a sp^2 & sp^2

b sp^3 & sp^3

c   sp & sp

d   sp2 & sp3

Section III

11   When two liquid A and B are mixed , their boiling points become
        greater than both of them. The mixture is _____

a   Ideal solution
b   Non-ideal solution with negative deviation from Raoult's law
c   Non-ideal solution with positive deviation from Raoult's law
d   Normal solution

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        According to Activated complex theory of reaction rates, the rate
        constant of a reaction is given by

a $$k = \frac{RT}{N\,h}.e^{-\Delta G^0 / RT}$$

b $$k = \frac{RT}{N\,h}.e^{-\Delta S^0 / RT}$$

c $$k = \frac{RT}{N\,h}.e^{-\Delta H^0 / RT}$$

d $$k = \frac{RT}{N\,h}.e^{E^0 / RT}$$

13   -------------------- is added to the Fe catalyst in the Haber's process as
        a -----------------

a   Mo, Promoter

b   Mo, Inhibitor

c   V, Promoter

d   Conc H_2SO_4, Promoter

14 Thallium prefers to exhibit the -----------oxidation state due to --------
    ----

   a +3, Inert Pair effect

   b +1, Inert Pair effect

   c +3, Oxidizing effect

   D +1 , Reducing effect

15 Statement A: Functional group present in acetal is ether

    Statement B: Sodium borohydride reduces acetic acid to ethyl alcohol easily

   a Statement A and B both are true

   b Statement A and B both are false

   c Statement A is true but statement B is false

   d Statement B is true but statement A is false