Roll No.: | | | | | | | | | | | Date: | | | | | | |

NORTHWEST ACCREDITATION COMMISSION, USA
SR. SECONDARY/12TH
2017-2018

Subject- CHEMISTRY (PRACTICAL) | **Question Paper No. :** B P 3 3

Subject Code : PCH1205 | **Question Paper Code:** P B 7 1

Total Time: 01.30 Hours. | **Total Marks: 30**

GENERAL INSTRUCTIONS

1. OPENING AND CHECKING OF THE QUESTION-BOOKLET

Break open the seal of the Question-Booklet only when the announcement is made by the Invigilator. After breaking the seal and before attempting the questions, student should immediately check for:

a) The number of the printed page in the Question-Booklet is the same as mentioned on the cover page of the Booklet and

b) Any printing error in the Booklet pages, if any.

Any discrepancy or error should be brought to the notice of the Invigilator who will then replace the Booklet. No additional time will be given for this.

2. No student, without the permission of the Superintendent, or the Invigilator concerned, is to leave his/ her seat or the Examination Room.

3. FILLING UP THE REQUIRED INFORMATION ON QUESTION-BOOKLET AND ANSWER SHEET

After breaking open the seal and checking the Booklet, student should:

a) Fill up the **Question Paper No.** and **Question Paper Code** (mentioned on the cover of Question-Booklet) in the space provided on the First Answer Sheet.

b) Fill up his/her Roll Number on the First Answer Sheet and on each Supplementary Answer Sheet, if taken.

c) Student should mention the total number of **Supplementary Answer Sheet**, if taken, in the space provided on the First Answer Sheet and also fill up the Serial Number mentioned on each **Supplementary Answer Sheet** along with his/her Roll Number in the register maintained by the Invigilator. Student must tie all the Answer Sheets with the thread provided by the Invigilator.

4. INSTRUCTIONS ABOUT QUESTION PAPER

a) This Question Paper includes five questions. All questions are compulsory.

b) All questions are carrying six marks each in approximately 80-120 words.

5. Student found in possession of Cellular Phone / Mobile Phone / Pager or any other Communication Device and/or any Book/Note whether using or not, will be liable to be debarred for taking examination(s) either permanently or for specified period or/and dealt with as per law or/and ordinance of the School/SERI according to the nature of offence, or/and he/she may be proceeded against and shall be liable for prosecution under the relevant provision of the Statutory Law.

THE ANSWER SHEET IS TO BE RETURNED ON COMPLETION OF THE TEST

This Question Paper **MUST** be attached with Answer Sheet

P.T.O.

Total number of questions: 5	Marks allocated to each question: 6	Total marks: 30

Question 1. The elements of 3d transition series are given as:

Sc Ti V Cr Mn Fe Co

Answer the following:

(i) Write the element which shows maximum number of oxidation states.

Give reason.

(ii) Which element has the highest m.p?

(iii) Which element shows only +3 oxidation state?

(iv) Which element is a strong oxidizing agent in +3 oxidation state and why?

OR

(a) Account for the following:

(i) Mn shows the highest oxidation state of +7 with oxygen but with fluorine, it shows oxidation state of +4.

(ii) Cr^{+2} is a strong reducing agent.

(iii) Cu^{+2} salts are coloured, while Zn^{+2} salts are white.

(b) Complete the following equations:

(i) $2MnO_2 + 4KOH + O_2 \xrightarrow{\Delta}$

(ii) $Cr_2O_7^{2-} + 14H^+ + 6I^- \longrightarrow$

Question 2. (a) The conductivity of 0.001 mol L-1 solution of CH_3COOH is 3.905× 10-5 S cm-1. Calculate its molar conductivity and degree of dissociation (α) Given $\lambda°(H^+)$= 349.6 S cm2 mol^{-1} and $\lambda°(CH_3COO^-)$= 40.9S cm2mol^{-1}.

(b) Define electrochemical cell. What happens if external potential applied becomes greater than $E°_{cell}$ of electrochemical cell?

OR

(a) What are the light and the dark stages in photosynthesis in green plants? Give the basic equation of photosynthesis.

(b) (i) Which forces are responsible for the stability of ά-helix?

(ii) What is a denatured protein?

Question 3. (a) Illustrate the following reaction giving suitable example in each case:

(i) Hoffmann bromamide degradation reaction

(ii) Diazotisation

(iii) Gabriel phthalimide synthesis

(b) Distinguish between the following pairs of compounds:

(i) Aniline and N-methylaniline

(ii) $(CH_3)_2NH$ and $(CH_3)_3N$

OR

(a) Account for the following:

(i) Helium is used in diving apparatus.

(ii) Fluorine does not exhibit positive oxidation state.

(iii) Oxygen shows catenation behavior less than sulphur.

(b) Draw the structures of the following molecules:

(i)XeF_2 (ii)H_2S_2O8

Question 4. (a) Illustrate the following name reactions giving suitable example in each case:

(i) Clemmenson reduction

(ii) Hell-volhard-Zelinsky reaction

(b) How are the following conversions carried out?

(i) Ethylcyanide to ethanoic acid

(ii) Butan-1-ol to butanoic acid

(iii) Benzoic acid to m-bromobenzoic acid

OR

(a) A reaction is second order in A and first order in B.

(i) Write the differential rate equation.

(ii) How is the rate affected on increasing the concentration of A three times?

(iii) How is the rate affected when the concentrations of both A and B are doubled?

(b) A first order reaction takes 40 minutes for 30% decomposition. Calculate t1/2 for this reaction.

(Given log 1.428 = 0.1548)

Question 5. (a) Define the following terms:

(i) Ideal solution

(ii) Azeotrope

(iii) Osmotic pressure

(b) A solution of glucose ($C_6H_{12}O_6$) in water is labelled as 10% by weight. What would be the molality of the solution?

(Molar mass of glucose = 180 g mol^{-1})

OR

(a) Why do transition elements show variable oxidation states?

(i) Name the elements showing maximum number of oxidation states among the first series of transition metals from Sc (Z = 21) to Zn (Z=30)

(ii) Name the element which shows only +3 oxidation state

(b) What is lanthanide contraction ? Name an important alloy which contains some of the lanthanoid metals.

END OF THE QUESTION PAPER