

**FBISE PRACTICAL BASED ASSESMENT (PBA)**  
**CHEMISTRY HSSC-I**

**Guidelines/instructions for teachers/paper setters:**

- i. There will be two Sections in PBA paper. In Section-A there will be one question having parts in it. Similarly, in Section-B there will be one question having parts in it.
- ii. In Section-A, Question No. 1 will be based only on one experiment taken from Part-I of the list of practicals.
- iii. In Section-B, Question No. 2 will be based on multiple experiments taken from Part-II of the list of practicals.
- iv. Ratio of Part-I practicals is 60% while ratio of Part-II practicals is 40% in the PBA paper.
- v. Draw diagram(s) if asked for.
- vi. In the new pattern of practicals i.e. Practical Based Assessment (PBA), there will be no marks for practical note books and viva voce. However, students may record procedures, observations, apparatus and calculation etc on any type of plain papers/work sheets / practical folder for their future memory of all aspects of practical performance in order to attempt the PBA Examination amicably.
- vii. It may be noted that performance of all the prescribed practicals is mandatory in the laboratories during the whole academic year and only those students will be able to attempt the PBA who will have performed the practicals in the laboratories as per requirement of each practical.

## List of Practicals HSSC-I

### Chemistry

<b>Part-I (60% of practical marks ---- 9 Marks)</b>	
1.	The given solution contains 6gms of $\text{Na}_2\text{CO}_3$ dissolved per $\text{dm}^3$ . Determine the Percentage Purity of the Sample Solution by Volumetric Method
2.	Determine the Value of X by Volumetric Method in the Given Sample of 6.3g of $(\text{COOH})_2 \cdot \text{XH}_2\text{O}$ Dissolved per $\text{dm}^3$ .
3.	Standardize the Given Solution of $\text{KMnO}_4$ and Calculate the Volume of $\text{KMnO}_4$ Required for Preparing 1 $\text{dm}^3$ of 0.01M $\text{KMnO}_4$ Solution Volumetrically.
4.	Determine the Percentage Composition Volumetrically of a Solution Mixture of $\text{K}_2\text{C}_2\text{O}_4$ and $\text{K}_2\text{SO}_4$ .

<b>Part-II (40% of practical marks ---- 6 Marks)</b>	
1	Separate the Given Mixture of Inks by Paper Chromatography
2	Separate Lead and Cadmium in a mixture solution by Paper Chromatography.
3	Purify a Given Sample of Sodium Chloride by Passing HCl Gas. (Application of common ion effect)
4	Determine the Heat of Neutralization of NaOH and HCl

**FEDERAL BOARD OF INTERMEDIATE  
AND SECONDARY EDUCATION  
ISLAMABAD**

**Subject: Chemistry HSSC-I  
Paper: Practical Based Assessment (PBA)**

Total Marks: 15

Time: 60 minutes

Roll Number						
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

Name of Examination: \_\_\_\_\_

Centre Code: \_\_\_\_\_

Date: \_\_\_\_\_

Sig. of Dy. Supdt. \_\_\_\_\_

**Instructions for students:**

1. Carefully read all the questions and then answer them at the specified spaces.
2. Use black or blue ball point.
3. Marks are mentioned against all questions in the brackets [ ].
4. Students may use the last page for rough work (if required).
5. Answer the questions as per given instructions.

## MODEL PAPER HSSC-I CHEMISTRY

**Note: Attempt all questions and answer the questions within the provided spaces.**

### SECTION-A

**Q 1:** Purpose of this experiment is to determine the percentage purity of the sample solution by volumetric method when the given solution contains 6 gms of  $\text{Na}_2\text{CO}_3$  dissolved per  $\text{dm}^3$ .

**Apparatus used:**

Burette, pipette, funnel, conical, flask, beakers, iron stand.

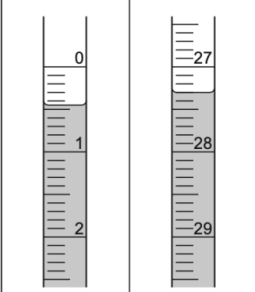
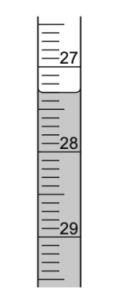
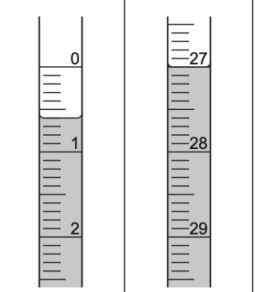
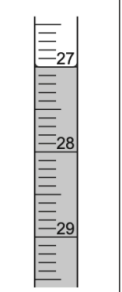
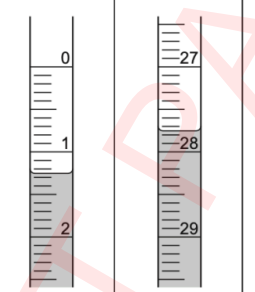
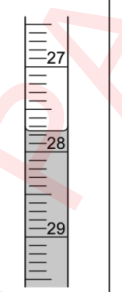
**Chemical used:**

Methyl orange,  $\text{Na}_2\text{CO}_3$ , 0.1M HCl,

Distilled water, solution of 6g of  $\text{Na}_2\text{CO}_3$  in  $1\text{dm}^3$

$10\text{cm}^3$  of  $\text{Na}_2\text{CO}_3$  is added to conical flask and HCl in the burette.

See on the figure given below and record the observations in table.

Titration 1		Titration 2		Titration 3	
Initial reading	Final reading	Initial reading	Final reading	Initial reading	Final reading
					

**i. Observation Table:**

[02]

Exp No.	Initial Reading	Final Reading	Volume of HCl used
1			
2			
3			

Mean volume of HCl used=       $\text{cm}^3$

ii.) When acid is added to  $\text{Na}_2\text{CO}_3$ , the colour changed from \_\_\_\_\_ to \_\_\_\_\_ at the end point. [01]

iii.      What is the purpose of using methyl orange : [01]

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**iv.) Chemical Equations:**



Write Overall Reaction:

[01]

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**v.) Calculations:**

Find  $n_1$  of  $\text{Na}_2\text{CO}_3$  and  $n_2$  of  $\text{HCl}$  from chemical equation

$n_1 = \dots\dots\dots$

$n_2 = \dots\dots\dots$

[01]

- You are advised to show full working in all parts of calculations.

a. Calculate the molarity of  $\text{Na}_2\text{CO}_3$  by using formula:

$$\frac{M_1V_1}{n_1} = \frac{M_2V_2}{n_2}$$

[01]

b. By using your answer from part "a" Calculate the strength in  $\text{gdm}^{-3}$  of  $\text{Na}_2\text{CO}_3$ .

[01]

c. Using your answer from part "b" calculate percentage purity of  $\text{Na}_2\text{CO}_3$ .

[01]

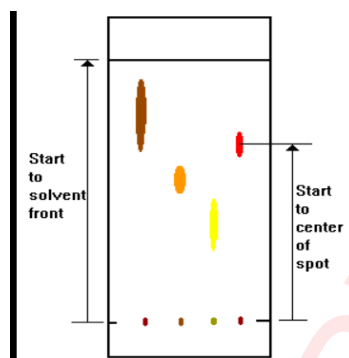
**Result:**

Percentage purity of  $\text{Na}_2\text{CO}_3 =$

## SECTION-B

**Q 2: Encircle the correct option.**

Chromatogram of a mixture of ink is shown below:



Height of the solvent front is 10cm, distance covered by yellow ink is 4.7cm. Rf value of yellow ink is: **[01]**

- A. 4.7cm
- B. 0.47cm
- C. 47cm
- D. 10cm

i.) Rock salt can be purified by common ion effect which one of the following will give precipitates. **[01]**

- A. Rock salt solution +HNO<sub>3</sub>
- B. Rock salt solution +HCl
- C. Rock salt solution +H<sub>2</sub>SO<sub>4</sub>
- D. Rock salt solution +KCl

iii.) Lead and Cadmium compounds form colorless solution. They can be separated by paper chromatography, which one of the following locating agent can be used to identify the presence of Lead and Cadmium? **[01]**

- A. Ninhydrin solution
- B. HCl solution
- C. H<sub>2</sub>S solution
- D. HBr solution

iv.) When we add aqueous solution of NaCl to a solution of AgCl, solubility of AgCl decrease. This is due to: **[01]**

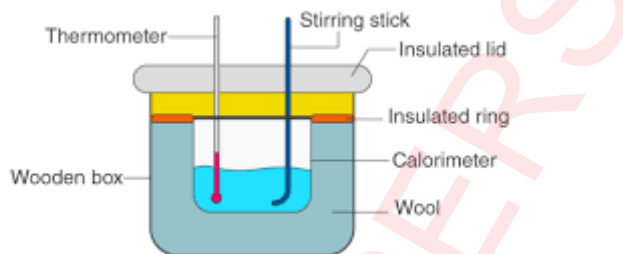
- A. Solubility product
- B. Common ion effect
- C. Leveling effect
- D. Electro lighting effect

v.) Heat of Neutralization of NaOH and H<sub>2</sub>SO<sub>4</sub> can be determined by experiment: Heat of Neutralization of this reaction will be: **[01]**

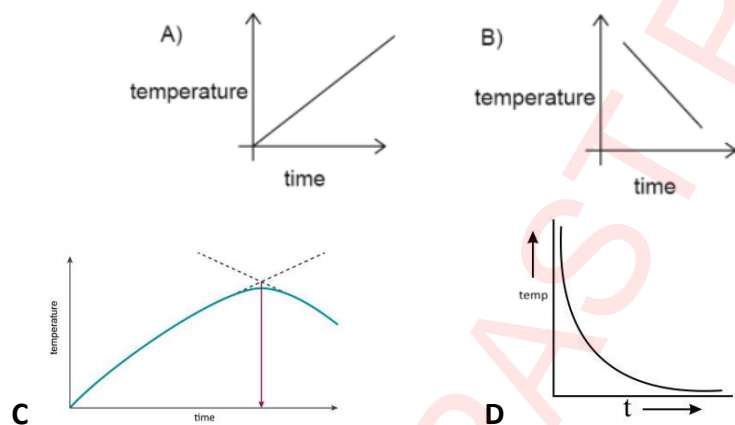
- A. -57.3 KJ mol<sup>-1</sup>

- B.  $-114.6 \text{ KJ mol}^{-1}$
- C.  $57.3 \text{ KJ mol}^{-1}$
- D.  $114.6 \text{ KJ mol}^{-1}$

vi.)



Heat of Neutralization of NaOH and HCl can be determined by the apparatus shown, which one of the following graph can be used to calculate heat of neutralization. [01]



ROUGH WORK

FBISE PAST PAPERS