**King Saud University**

**College Of Pharmacy**

**PHC 427 ( April 2011)**

| **Name :** | **ID:** |
|---|---|

**Q1:** The following data has been calculated from the chromatogram. The column is 100 cm long and the unretained marker take 2 minutes to be detected.

a) Calculate the resolution for the peaks (A-B)
b) Calculate capacity factor for compound C
c) Calculate selectivity factor for ( B-C)

| Compound | Plate number | Retention factor |
|---|---|---|
| A | 2450 | 6.4 |
| B | 2500 | 7.8 |
| C | 2850 | 8.8 |

**Q2**: **choose the correct answer:**

1- **It is defined as the observed angle of optical rotation $\alpha$ when plane-polarized light is passed through a sample with a path length of 1 decimeter and a sample concentration of 1 gram per 1 millilitre.**

**A-** Area under the peak. B- Specific rotation.

C-Refractive index. D- Chromatogram.

2- **Use to ensure the purity of a sample:**

**A-** HPLC B- Gas chromatography.

C-Refractometer. D-Polarometer.

3- **It is measured in number of theoretical plates:**

A- Efficiency. B- Resolution

C-Capacity factor C- Tailing factor

4- **The main role of Guard column is:**

A-In case of high pH mobile phase, to saturate mobile phase. B- To remove impurities.

C-To separate analyte. D- To provide constant , continues flow.

5- **The main cause of No peaks or very small peaks in HPLC chromatogram is:**

A-Bubble in pump. B- Detector off.

C-Contamination of column. D- Poor column efficiency.

**6- Separation of analyte by Gas chromatography based on :**

A- Affinity to stationary phase. B- Affinity to carrier gas.

C-Both A and C. D- Boiling point.

**7- Selection of Internal standard in HPLC is based on the <u>Correct</u> following requirements:**

**B-** Must be unstable. B- Interact with mobile phase.

C-Similar to analyte in structure. D- Has longer retention time.

**8- Time from injection point to maximum detector response for corresponding compound:**

A-Retention time B- Capacity factor

C-Void time D- Selectivity

**Q3: Put the suitable number between brackets :**

1- Solid-Phase Microextraction (SPME) ( ) equal 65% of empty column volume

2- Physical separation ( ) equal B/A

3- Dead volume ( ) Provides the analyte transport

4- Mobile phase ( ) Technique used in GC

5- Tailing factor ( ) equal W 0.05/ 2f

( ) HPLC

**Q5: Calculate the concentration and Molecular rotation for a penicillin solution with α = +125 in a 1dm polarometer cell knowing that penicillin $[\alpha]^{20}_{D}$ =+223°and its is molecular weight= 350.391.**