

Quiz 1

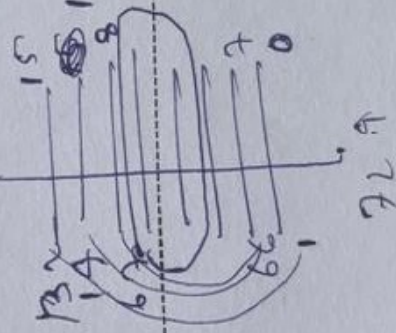
BT 601

Time: 45 min

Total Marks: 10

[Show all steps and No part marking for numerical problems]

- Calculate the number of theoretical pallets (N) and the plate height (H), when the retention time is 10.50 min and the half-base width is 1.2 min and the column length is 25 cm.
- a) Show the relation (expression) of K_D and K_P .
b) Calculate the K_P of a compound, when 10 gm of the compound present in 300 ml water was shaken with 20 ml of acetone and 8 gm of the compound was transferred to acetone layer only.
- Write the distribution of 1000 molecules of a compound in 5 theoretical plates with $K_P=0.1$ [Consider whole number for distribution].
- a) Write the expression related to K_D and V_e based on the column parameters.
b) Modify the above expression for totally "exclude" and "Include" conditions.
- a) Show the chromatogram of different M_w proteins in a gel filtration chromatography?
b) Show the plot to determine unknown M_w of a protein.



[Marks: 2+2+2+2=10]

$$\begin{array}{r} 738 \\ - 24 \\ \hline 664 \end{array}$$

598

$$\begin{array}{r} 16 \\ - 1.2 \\ \hline 15 \end{array}$$

15 — 0

$$\begin{array}{r} 82 \\ - 2.2 \\ \hline 79.8 \end{array}$$

$$\begin{array}{r} 24 \\ - 7 \\ \hline 17 \end{array}$$

$$\begin{array}{r} 82 \\ - 8.2 \\ \hline 73.8 \end{array}$$

73 — 80

8

82

$$\begin{array}{r} 665 \\ - 66 \\ \hline 599 \end{array}$$

664

24 — 8

73 — 87

$$\begin{array}{r} 598 \\ - 80 \\ \hline 518 \end{array}$$

(518)