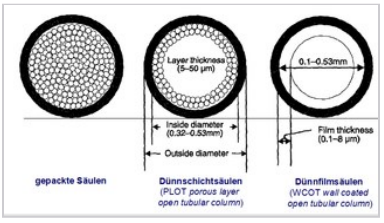
socrative

Chromatograpy I

8 Questions

1. Which separation columns are most often used in GC?

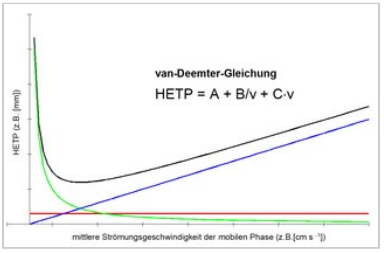


4/5 **A** Wall coated open tubular columns (WCOT)

1/5 **B** Porous layer open tubular columns (PLOT)

0/5 **C** Packed columns

2. Which of the individual graphs describe the Eddy Diffusion (A), longitudinal diffusion (B) and mass transfer (C)?



0/5 **A** A = green, B = blue, C = red

1/5 **B** A = red, B = blue, C = green

4/5 **C** A = red, B = green, C = blue

3. What are the smallest possible values for the selectivity (Alpha) and the chromatographic resolution (R) ?

0/5 **A** Alpha = 0; R = 0

1/5 **B** Alpha = 0, R = 1

4/5 **C** Alpha = 1; R = 0

0/5 **D** no idea

4. What is the relationship between k' ("capacity factor", "capacity ratio" or sometimes also "retention factor"), t' ("net retention time") and t0 ("dead time")?

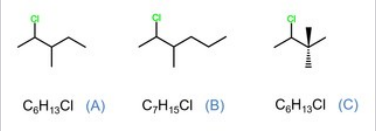
0/5 **A** k' = t0 / t'

5/5 **B** k' = t' / t0

0/5 **C** k' = t' x t0

0/5 **D** no idea

5. 2-chloro-3-methylpentane (A), 2-chloro-3-methylhexane (B) and 2-chloro-3,3-dimethylbutane (C) are separated by GC using a non-polar stationary phase. What is order of retention (shortest retention time first)



1/5 **A** C - A - B

3/5 **B** A - C - B

0/5 **C** B - A - C

1/5 **D** no idea

6. What do you expect to happen when the temperature of an isothermal GC separation of A,B and C (the chloro compounds) is incresead?

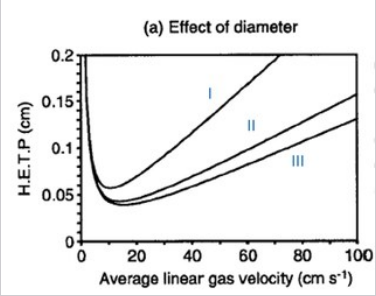
4/5 **A** net retention times of A,B & C are decreasing, dead time is decreasing

0/5 **B** net retention times of A,B & C are increasing, dead time is decreasing

1/5 **C** net retention times of A,B & C are decreasing, dead time is increasing

0/5 **D** net retention times of A,B & C are increasing, dead time is increasing

7. The figure shows the effect of column inner diameter (wall coated open tubular columns, WCOT) on HETP. Assign the diameter of three often used columns (0,25 mm; 0,32 mm; 0,53 mm) to the individual graphs.



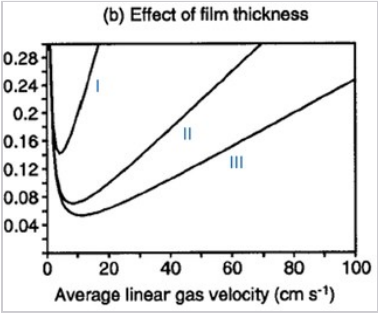
5/5 **A** I = 0,53 mm; II = 0,32 mm; III = 0,25 mm

0/5 **B** I = 0,25 mm; II = 0,32 mm; III = 0,53 mm

0/5 **C** I = 0,53 mm; II = 0,25 mm; III = 0,32 mm

0/5 **D** no idea

8. The figure shows the effect of film thickness (WCOT columns) on HETP. Assign the three film thicknesses (1 um; 2 um; 5 um) to the individual graphs.



1/5 **A** I = 1 um; II = 2 um; III = 5 um

4/5 **B** I = 5 um; II = 2 um; III = 1 um

0/5 **C** I = 5 um; II = 1 um; III = 2 um

0/5 **D** no idea