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reviewer4@nptel.iitm.ac.in ▾

 [NPTEL \(https://swayam.gov.in/explorer?ncCode=NPTEL\)](https://swayam.gov.in/explorer?ncCode=NPTEL)  »  [Quantitative Methods in Chemistry \(course\)](#) 
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## Unit 12 - Week 9

### Course outline

How does an NPTEL online course work?

Week 0

MATLAB

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

- Analytical Separations - Multistage extractions -

## Assignment 9

The due date for submitting this assignment has passed. **Due on 2020-04-01, 23:59 IST.**  
As per our records you have not submitted this assignment.

1) For separating phenol and imidazole that are mixed together, which of the following holds true? **1 point**

- We can utilize fractional distillation
- Solvent-solvent extraction can be employed since phenol is basic and imidazole is acidic
- Solvent-solvent extraction can be employed since phenol is acidic and imidazole is basic
- Size exclusion chromatography can be employed
- Solid-Liquid chromatography can be employed

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*Solvent-solvent extraction can be employed since phenol is acidic and imidazole is basic*  
*Solid-Liquid chromatography can be employed*

2) Two compounds A and B have the partition coefficients of 2 and 20, respectively. The following is/are likely to be true: **1 point**

- Both A and B are likely to be equally good drug candidates
- A is likely to be a better drug candidate than B
- B is likely to be a better drug candidate than A
- A partitions significantly more in the organic layer
- B partitions significantly more in the organic layer

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*Both A and B are likely to be equally good drug candidates*  
*B partitions significantly more in the organic layer*

Part 01 (unit?  
unit=90&lesson=92)

Analytical Separations - Multistage extractions - Part 02 (unit?  
unit=90&lesson=93)

Analytical Separations - Chromatography - Part 01 (unit?  
unit=90&lesson=94)

Analytical Separations - Chromatography - Part 02 (unit?  
unit=90&lesson=95)

Analytical Separations - Electrophoresis, Capillary electrophoresis, Isoelectric Focusing (unit?  
unit=90&lesson=96)

Quiz : **Assignment 9 (assessment? name=91)**

Quantitative Methods in Chemistry : Week 9 Feedback Form (unit?  
unit=90&lesson=103)

Lecture materials (unit?  
unit=90&lesson=126)

Assignment 9 solutions (unit?  
unit=90&lesson=131)

**Week 10**

**Week 11**

**Week 12**

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3) The logP values for paracetamol and aspirin are 0.49 and 1.45, respectively. Based on this information we can deduce that: **1 point**

- Paracetamol will be extracted more efficiently into the organic solvent
- Aspirin will be extracted more efficiently into the organic solvent
- Both Paracetamol and Aspirin will be extracted equally efficiently into the organic layer
- All the paracetamol will remain in aqueous phase
- All the aspirin will remain in the aqueous phase

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Aspirin will be extracted more efficiently into the organic solvent*

4) A potential drug with logP value of 4.5 is likely to be: **1 point**

- Not absorbed by the body
- Dissolved well in the aqueous medium
- Absorbed by the body and remain soluble in the serum
- Absorbed by the body and get partitioned into the adipocytes
- Degraded rapidly in aqueous medium

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Absorbed by the body and get partitioned into the adipocytes*

5) 0.2 g of a drug (MW = 150 g/mol) with logP value of 0.49 dissolved in 20 ml water is extracted once with 50 ml 1-octanol. The concentration of drug in octanol after the equilibration is: **1 point**

- 33 mM
- 3.3 mM
- 5.0 mM
- 20.0 mM
- 23.6 mM

No, the answer is incorrect.

Score: 0

Accepted Answers:

*23.6 mM*

6) Which of the following solids can be used as a stationary phase during chromatography? **1 point**

- Paper
- Silica
- Alumina
- Celite
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

*All of the above*

7) Which of the following is/are true when employing small particles as stationary phase in the chromatographic separations? **1 point**

- Their use improves the efficiency of separation

- Their use increases durability of column
- They result in greater pressure drop across the column
- They reduce the back pressure on the pump
- They require higher pumping pressures

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Their use improves the efficiency of separation*

*They result in greater pressure drop across the column*

*They require higher pumping pressures*

8) If a polymer sample containing 5 kDa and 50 kDa polymethylmethacrylate (PMMA) is put through size exclusion chromatography then: **1 point**

- Polymers cannot elute out of the column since they are uncharged
- The 50 kDa polymer will elute out before the 5 kDa polymer
- The 5 kDa polymer will elute out before the 50 kDa polymer
- Size exclusion chromatography is only for separating proteins
- Both the polymers will elute out of the column at the same time

No, the answer is incorrect.

Score: 0

Accepted Answers:

*The 50 kDa polymer will elute out before the 5 kDa polymer*

9) The equation that is employed in Electrophoresis is: **1 point**

- Bernoulli's equation
- Karplus equation
- Helmholtz equation
- Einstein-Maxwell equation
- Stoke-Einstein equation

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Stoke-Einstein equation*

10) Which of the following is/are true for the solvent flow through a capillary? **1 point**

- During laminar flow, a parabolic solvent front is formed
- During laminar flow, a flat solvent front is formed
- In both laminar and electroosmotic flow, the solvent front is parabolic
- During electroosmotic flow, a flat solvent front is formed
- During electroosmotic flow, a concave solvent front is formed

No, the answer is incorrect.

Score: 0

Accepted Answers:

*During laminar flow, a parabolic solvent front is formed*

*During electroosmotic flow, a flat solvent front is formed*

