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Unit 12 - Week 9

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

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