

Course No: PHRM 2216
Course Title: Physical Pharmacy (2)
Date: 18/01/2018
No. of Questions: (4)
Time: 2 hours
Using Calculator (No)

University of Palestine

Final Exam
2017/2018
Total Grade: 50 Marks

Instructor Name: Nahed Hegazy, PhD
Student No.: _____
Student Name: _____
College Name: Pharmacy
Dep. / Specialist: ____ - _____
Using Dictionary (No)

Question One: (15M)

Put True or False and Correct the false answer if any:

- 1. Liposomes can be multilamellar, composed of several bimolecular lipid lamellae separated by non-aqueous layers.
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- 2. Important properties of hydrophobic polymers which affect their suitability for use in pharmacy are their permeability to drugs and gases and their tendency to adsorb drugs.
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- 3. The surface activity of a particular surfactant depends on the hydrophilic properties.
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- 4. Surfactants used to wet the suspension particle will exist in an equilibrium between surfactant adsorbed on the particle surface, monomers in solution, and surfactant in micelles.
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- 5. Oil-soluble surfactants have high HLB values and can be used as emulsifiers to produce water-in-oil (W/O) emulsions.
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- 6. In general, for simple molecules adsorption decreases as the ionisation of the drug is suppressed, the extent of adsorption reaching a minimum when the drug is completely unionised.
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- 7. Flocculation occurs when the particles either repel each other or have no reason to aggregate.
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- 8. Amphipathic compounds have two distinct regions in their chemical structure, one of which is water-liking or hydrophilic and the other of which is water-hating or hydrophobic.
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- 9. An emulsion is said to cream when the oil or fat rises to the surface, but remains in the form of globules, which may be redistributed throughout the dispersion medium by shaking.
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10. When the surfactant concentration is increased above the CMC, the number of micelles decreases but the free surfactant concentration stays constant at the CMC value.

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11. Micelles formed in aqueous solution have a core composed of the hydrophilic groups surrounded by a shell of the hydrocarbon chains.

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12. Surfactants are generally classified according to the nature of the hydrophobic group.

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13. Adsorption is generally an endothermic process; an increase in temperature normally leads to a decrease in the amount adsorbed.

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14. The non-ionic surfactants possess both positively and negatively charged groups and can exist as either an anionic or a cationic surfactant depending on the pH of the solution.

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15. Stabilisation of oil-in-water (O/W) emulsions by surfactants arises because of an increasing of the oil-water interfacial tension and these emulsions are usually more effective when more than one surfactant is used.

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16. The incorporation of insoluble compounds within micelles of the surfactant can lead to the production of turbid solutions.

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17. Slow sedimentation rate and close packing of the sediment to form a cake are characteristics of flocculated suspensions.

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18. In the solubilisation of poorly soluble drugs by aqueous surfactant solutions, polar drugs are usually solubilised in the micelle core.

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19. Chemical degradation leads to a loss of potency of the drug and in some cases, cause changes in the physical appearance of the dosage forms.
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20. Multiple emulsions are thermodynamically stable clear isotropic solution of oil, water and amphiphile (Emulsifying agent).
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Question Two: **(15M)**

Complete the followings:

1. Criteria followed in polymer selection include;

2. Factors influencing drug stability of solid dosage forms include;

3. The ideal emulsifying agent should;

4. In the case of drug products, 'significant change' at the accelerated condition is defined as;

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5. Factors affecting the CMC and micellar size are;

6. Drugs in suspension are prepared mainly for;

7. Emulsions are more complex than suspensions, because;

8. In pharmaceutical emulsions, the factors that contribute to creaming are;

9. The problems that arise when a drug is dispersed in a liquid (in dispersion system) include;

10. The factors affecting solubilisation capacity are;

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Question Three:

(10M)

1. What are the differences between:

- A. Wetting agents and Protective colloids.
- B. Zero order reaction and first order reaction.
- C. Flocculation and deflocculation in pharmaceutical suspensions.
- D. Sodium Lauryl Sulphate and Sorbitan esters.

