

Exam Date & Time: 03-Dec-2018 (09:30 AM - 12:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

BPharm Semester III End Semester Examination December 2018

PCE-BP302T: Physical Pharmaceutics I (Theory)

Date:03-12-2018

Physical Pharmaceutics I [PCE-BP 302T]

Marks: 75

Duration: 180 mins.

### I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

- 1) Acidic drugs are more soluble in ----- (1)
  - 1) neutral pH      2) acidic pH      3) alkaline pH      4) distilled water
- 2) Micelles are formed in water, when the surfactant concentration is----- (1)
  - 1) less than cmc      2) equal to cmc      3) more than cmc      4) equal to and more than cmc
- 3) The magnitude of surface tension of given liquid indicates----- (1)
  - 1) cohesive force within the liquid      2) adhesive force of liquid with air      3) weight of a liquid drop      4) repulsive force within the liquid
- 4) Non-ionic surfactants usually are better solubilizing agents than ionic surfactants for hydrophobic drugs, because of their ----- (1)
  - 1) lower cmc values      2) compatibility with other excipients      3) resistance to pH change      4) lower irritancy
- 5) Molecules of gases are deposited on the surface of solid during physical adsorption by ----- (1)
  - 1) electrostatic forces      2) chemical forces      3) gravitational forces      4) Van der Waals' forces
- 6) Which of the following solutions does not show positive deviation? (1)
  - 1) Benzene and Ethanol      2) Acetone and Chloroform      3) Acetone and Benzene      4) Water and Ethanol
- 7) How many phases are there in the system which is made of benzene and water? (1)
  - 1) 3      2) 0      3) 1      4) 2

- 8) Solubility of sodium sulphate follows -----.
- 1) exothermic process      2) initially endothermic process followed by exothermic process      3) initially exothermic process followed by endothermic process      4) endothermic process      (1)
- 9) The 'critical solution temperature' for phenol-water system is ----- degree centigrade.      (1)
- 1) 66.8      2) 63.8      3) 60.8      4) 65.8
- 10) If one part of solute requires 100 to 1000 parts of solvent, then the solute is said to be -----      (1)
- 1) soluble      2) sparingly soluble      3) slightly soluble      4) freely soluble
- 11) Process in which solid changes directly in to vapours without changing in liquid state is called .....      (1)
- 1) condensation      2) evaporation      3) boiling      4) sublimation
- 12) The ice cubes taken in a beaker starts melting with the increase in temperature. This is an example of .....      (1)
- 1) condensation      2) vaporisation      3) freezing      4) heat of fusion
- 13) If the molecule is present in more than one crystalline form it is called as .....      (1)
- 1) solvates      2) hydrates      3) polymorphs      4) amorphous
- 14) Which of the following statements is correct:      (1)
- Dielectric constant is the ratio of capacitance of test material to the capacitance of reference material      1)      Dielectric constant affects the solubility of a substance      2)      Dielectric constant is measure of polarity of the solvent      3)      All of the above      4)      (1)
- 15) Which of the following statements is correct.      (1)
- Protein binding enhances the drug distribution      1)      Protein binding enhances the drug metabolism      2)      Protein binding decreases the drug excretion      3)      Protein binding reduces the half-life of drug      4)      (1)
- 16) Cisplatin is an example of .....      (1)
- 1) Inclusion complex      2) Chelate type      3) Olefin type      4) Organic molecular

complex

complex

complex

..... can be used for the analysis of complexes

- |                                  |                                  |                   |                          |     |
|----------------------------------|----------------------------------|-------------------|--------------------------|-----|
| 1) Spectrophotometric absorbance | 2) Henderson-Hasselbach equation | 3) Scatchard plot | 4) Klotz reciprocal plot | (1) |
|----------------------------------|----------------------------------|-------------------|--------------------------|-----|

18) Butesin-picrate complex is used as .....

- |                            |                 |                  |                   |     |
|----------------------------|-----------------|------------------|-------------------|-----|
| 1) Local anaesthetic agent | 2) Disinfectant | 3) CNS stimulant | 4) CNS depressant | (1) |
|----------------------------|-----------------|------------------|-------------------|-----|

19) Which one of the following is not an application of pH?

- |                                      |  |                                      |  |     |
|--------------------------------------|--|--------------------------------------|--|-----|
| 1) Enhancing the solubility of drugs | 2) Determining osmotic pressure of drug solution | 3) Increasing the stability of drugs | 4) Optimizing biological activity of drugs | (1) |
|--------------------------------------|--|--------------------------------------|--|-----|

20) ..... can be used for adjusting the tonicity of solution.

- |                         |                        |                      |                            |     |
|-------------------------|------------------------|----------------------|----------------------------|-----|
| 1) White-Vincent method | 2) Distribution method | 3) Solubility method | 4) Proton balance equation | (1) |
|-------------------------|------------------------|----------------------|----------------------------|-----|

### II Long Answers

Answer all the questions.

- 1) Deduce the Langmuir adsorption equation for the adsorption at gas-solid interface and explain it. (10)
- 2) Define aerosol. Describe in detail about pharmaceutical aerosols. (10)

### III Short Answers

Answer all the questions.

- 1) Explain electrometric method of pH determination. (5)
- 2) Explain Raoult's law for ideal solution. (5)
- 3) Mention the limitations of Nernst's distribution law. (5)
- 4) Describe any two methods for the determination of protein binding. (5)
- 5) What are chelates? Write pharmaceutical applications of chelating agents. (5)
- 6) What are buffered isotonic solutions? Explain the methods for adjusting tonicity. (5)
- 7) Describe distribution method for the analysis of complexes. (5)

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