KATHMANDU UNIVERSITY
End Semester Examination [C]
May/June, 2019

Marks scored:

Level : B. Pharm.
Year : III

Course : PHAR 301
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.

Date : 30 MAY 2019

SECTION "A"
[20 Q × 1 = 20 marks]

I. Check (√) the correct answer of the following multiple choice questions:

1. Pharmaceutical application of phase diagram of water is in .....
   a. Lyophilization b. crystallization c. distillation d. mixing

2. At the most probable state of a system the entropy of the system is.....
   a. Minimum b. Maximum c. Constant d. Variable

3. Electrolyte liquid may include .....
   a. solutions b. molten solids c. gases d. a & b

4. ..... statement about the term infinite dilution is correct?
   a. Infinite dilution refers to a real situation when the ions are infinitely far apart
   b. Infinite dilution refers to a hypothetical situation when the ions are infinitely far apart
   c. Infinite dilution is applicable only to strong electrolytes.
   d. The molar conductivity at infinite dilution of NaCl can be measured directly in solution.

5. Which statement is incorrect about a weak electrolyte?
   a. A weak electrolyte is partially dissociated in aqueous solution.
   b. The molar conductivity of a weak electrolyte remains approximately constant as the concentration increases.
   c. Acetic acid is an example of a weak electrolyte.
   d. At infinite dilution, a weak electrolyte is taken to be fully ionized.

6. Excessive addition of acid or alkalis cannot be handled by
   a. Saturated solution b. unsaturated solution
   c. buffer solution d. Super saturated solution

7. Degree of polarity of a molecule is measured as
   a. dipole moment b. dipole-dipole interaction
   c. dipole reaction d. Volt

8. The addition of hydrofluoric acid and _____ to water produces a buffer solution.
   a. $NaNO_3$ b. HCl c. NaCl d. NaF

9. How co-solvents increase the solubility of poorly soluble drugs?
   a. By reducing the interfacial tension between the predominant aqueous solution and hydro- phobic solute
   b. By reducing the interfacial tension between solute and solvent
   c. By increasing interaction between solute and solvent
   d. By increasing contact angle between solute and solvents.

10. The solubility of weak electrolytes & non-polar substances can be increased by adding water miscible solvents. This process is known a
a. Co-Solvency b. Complexation c. Hydrotrophy d. solubilization

11. In a zero-order reaction for every 10° rise of temperature, the rate is doubled. If the temperature is increased from 10°C to 100°C, the rate of the reaction will become ..... Times.
a. 64 b. 128 c. 256 d. 512

12. In the hydrolysis of an organic chloride in presence of large excess of water, RCl + H2O → ROH + HCl Which of the following statement is correct.
a. Molecularity and order of reaction both are 2
b. Molecularity is 2 but order of reaction is 1
c. Molecularity is 1 but order of reaction is 2
d. Molecularity is 1 and order of reaction is also 1

13. Which of these changes with time for a first-order reaction?
a. Rate of reaction b. Rate constant c. Half-life d. a and b

14. What is the main result of adding surfactants into a liquid composed of two immiscible phases such as oil and water?
a. Reduction in the interfacial tension between the phases
b. Increase in the interfacial tension between the phases
c. Catalysation of a chemical reaction between the phases
d. None Nothing happens

15. Colloids can .....
a. scatter light b. Not scatter light c. absorb heat d. Evolve heat

16. ..... Is the science and technology of small particles.
a. Nanotechnology b. Micromeritics
c. Molecular Chemistry d. Zeta sizer

17. Elastic deformation is described by;
a. Hook's law b. Newton's law
c. Empirical power law d. Stoke's law

18. Ligands which can form two coordinate bonds from each ion or molecule to transition metal ion are known as .....
a. ligands ions b. dentate ligands
c. monodentate ligands d. bidentate ligands

19. ..... is the plasma proteins with which acidic drugs bind with
a. Globulins b. Albulins c. Fibrinogen d. gamma globulins

20. Fragrance of a flower spreads because of.....
a. Pressure b. Effusion c. Diffusion d. Volume

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Time : 2 hrs. 30 mins

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Semester: I
F. M. : 55

Note: Check (√) the number of each question you have answered in the front page of main answer book (of Sections B, C and D).

SECTION "B"
[5 Q. × 3 = 15 Marks]

II. Answer *ANY FIVE* questions.

1. What do you mean by 'Phase'? Describe 'Water Phase system' with diagram.
2. Describe the properties of 'solution of electrolytes.
3. Describe the factors that affect pH of buffer solution.
4. Mention the importance of kinetics in pharmacy.
5. What do you mean by 'Ternary phase diagram' and when it is used?
6. What do you mean by chelates? Mention the importance and uses of them.
7. Mention how you measure 'Surface and Interfacial Tension'.

SECTION "C"
[5 Q. × 5 = 25 Marks]

III. Answer *ANY FIVE* questions.

8. Describe the general procedures for preparing pharmaceutical buffers.
9. What do you mean HLB value? Why it is important in pharmacy?
10. Describe Fick's laws of diffusion and their importance.
11. What are 'wetting agents'? How it works and mention the purposes of use of them.
12. What do you mean 'Colloidal dispersion'? What are their types? What are the properties of Colloids? What are the pharmaceutical applications of colloids?
13. What are the methods of determining particle size? How particle size distribution is monitor in batch to batch?
14. What are the types of 'Non- Newtonian flow'? Which type of flow you want in pharmaceutical product among Non-Newtonian flows? Justify with reasons.

SECTION "D"

[2 Q. × 7.5 = 15 Marks]

IV. Answer *ANY TWO* questions.

15. Describe the steps by which you will determine shelf life of the products.

16. How do you measure viscosity mention the equipments with their advantages and limitations? Why 'Rheogram' is preferred of pharma products rather than single point viscosity reading, justify it.

17. How do you determine 'order of reactions'? Explain the steps. What are the applications of different order of reactions in pharmacy?