KATHMANDU UNIVERSITY
End Semester Examination
March/April, 2017

Marks scored:

Level : B. Pharm.
Year : III

Course : PHAR 301
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :MAR 2 9 20

SECTION "A"
[20 Q × 1=20 marks]

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

1. Base solution should be ..... for stabilization against precipitation.
   [a] Buffered at high pH
   [b] Buffered at low pH
   [c] Neutral
   [d] Not be buffered

2. If the difference between pH for stabilization and pH for physiologic action of drug is huge, buffer capacity of its solution:
   [a] Should be low
   [b] Should be high
   [c] Should be 0.2
   [d] Becomes irrelevant.

3. SGFsp indicates.....
   [a] Simulated Gastric Fluid
   [b] Simulated Gastic fluid without pepsin
   [c] Simulated Gastric Fluid with pepsin
   [d] Simulated Gastric FLiud with pancreatin

4. Basket apparatus is referred as.....
   [a] USP method II
   [b] BP method I
   [c] USP method I
   [d] Both a. and b.

5. Scatchard plot gives straight line only when.....binding site is present.
   [a] Multiple
   [b] Three
   [c] Single
   [d] No

6. .....belongs to class of organic molecular complexes.
   [a] Polymer complexes
   [b] Clathrates
   [c] Chelates
   [d] None of the above

7. Slope of the graph of ..... order of reaction do not indicate the rate constant.
   [a] Zero
   [b] First
   [c] Second
   [d] Both b. and c.

8. The BPC defines a light resistant container as one that does not transmit more than 15% of incident radiation between.....nm.
   [a] 450 and 520
   [b] 290 and 450
   [c] 200 and 290
   [d] 340 and 260

9. Partition coefficient is a ratio of ..... concentration of a compund in a mixture of two immiscible phases.
   [a] Sum of ionized and unionized
   [b] Ionized
   [c] Unionized
   [d] hydrophilic

10. Compounds with higher log P value shows:
   [a] Poor lipid solubility
   [b] Poor absorption
   [c] Poor distribution
   [d] Slow excretion

11. Which of the following statement is not ***TRUE***?
[a] Degree of freedom increases with increase in the number of components.
[b] Tie line is always parallel to the base line.
[c] Nicotine and water shows lower consolute temperature
[d] Degree of freedom for 3 component system containing only one phase is 4.

12. Surfactant blends with HLB value of ..... is preferred for making O/W emulsions
[a] 1 to 3
[b] 4 to 6
[c] 7 to 9
[d] 8 to16

13. Porosity of powder bed having polydispersed spherical particle is .....
[a] 26%
[b] 48%
[c] between 26 to 48%
[d] less than 26%

14. The total porosity of tablet with 0.3439 g weight, 0.0963 cm^3 bulk volume and 3.667 g/cm^3 true density is
[a] 2.6%
[b] 0.026%
[c] 4.8%
[d] None

15. The attractive interaction between a permanent dipole and an induced dipole of another molecule is
[a] London Dispersion force
[b] Keesom force
[c] Debye force
[d] Interfacial tension

16. Liquid tends to wet the surface when the forces of adhesion are.....the forces of cohesion.
[a] Equal to
[b] Slightly less than
[c] Less than
[d] Greater than

17. ..... property is desired in intramuscular depot preparation.
[a] Newtonian flow
[b] Non-newtonian plastic
[c] Dilatancy
[d] None of the above

18. In Searle type of viscometer.....is rotated while..... is held stationary.
[a] Plate, cone
[b] Bob, cup
[c] Cup, bob
[d] Cone, plate

19. Which of the following statement is **TRUE** about the Eutectic point on a two component (Compound A and B) phase diagram)
[a] Both compound remains in solid phase.
[b] Any one compound is in liquid phase whilst the other is in the solid phase.
[c] Both compound remains in liquid phase
[d] It occurs at a single fixed temperature and ratio of compound A and B.

20. Plastic flow is observed in system containing
[a] High concentration of flocculated particles
[b] Low concentration of flocculated particles
[c] High concentration of deflocculated particles
[d] Low concentration of deflocculated particles

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F. M. : 55

SECTION "B"
[5 Q. × 3=15 marks]

Answer *ANY FIVE* questions of the following:

1. Define the term isotonicity. Explain about Class II method of adjusting tonicity.
2. Explain the mechanism of dialysis.
3. How does protein binding affect the action of drug? Define Scatchard r value.
4. A certain reaction proceeds through the first order kinetics. The half-life of reaction is 180 sec. What percent of the initial concentration remains after 900 sec?
5. Draw a well-labeled phase diagram of phenol-water system. Explain what conjugated phases are.
6. Write short note on 'Pharmaceutical applications of surfactants'.
7. Write about the applications and limitations of Cup-Bob viscometer.

SECTION "C"
[5 Q. × 5 = 25 marks]

Answer *ANY FIVE* questions of the following:

8. Explain how buffers exert their action? If buffer has both salt and acid in the molar concentration of 0.5 what will be the maximum buffer capacity?
9. Write in detail about Hixon-crowell cube root method and Higuchi model of dissolution.
10. Explain the determination of stability constant of charge-trasfer complex by spectroscopy method. Plot the theoritical phase solubility diagram with all the possible plots that might result due to complexation.
11. Discuss about types of solvents and their mechanism of action.
12. A 800 g mixture of partially miscible compound X and water has a total composition of 25% w/w of compound X at 45°C. At that temperature the two conjugate phases has the respective composition of 80% and 40% w/w of water. Calculate the weight of the aqueous and the compound X layer in the mixture and the weight of compound X in each layer.
13. Explain critical micelle concentration with the help of an appropriate plot. Write about the pharmaceutical application of micelle.

14. What is Thixotropy? Discuss about the benefits of thixotropy property in some pharmaceuticals preparation. Give appropriate examples.

SECTION "D"

[7.5 Q. × 2 =15 marks]

Answer *ANY TWO* questions of the following:

15. Write a note on the affects of solvent on the rate of reaction. How can one determine shelf-life by accelerated stability testing?

16. What are lyophobic colloids and how are they prepared? Discuss on the approaches that you can use to improve physical stability of lyophobic colloids?

17. Discuss why different types of equivalent spherical diameters are used to express particle size of asymmetric particles? Write in detail about a method that is used to determine stokes diameter.