KATHMANDU UNIVERSITY
End Semester Examination
June/July, 2023

Marks Scored:

Level : B.Pharm.
Year : III

Course : PHAR 327
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : 07 JUL 2023

SECTION "A"
[20Q. × 1 = 20 marks]

Encircle the correct option of the following multiple choice questions.

1. ..... injection is directly given into a joint.
   a. Intra-arterial b. Intra-thecal c. Intra-articular d. Intra-epidural

2. Maximum volume that can be given via subcutaneous route is .....
   a. 0.2 ml b. 2 ml c. 0.5 ml d. 5 ml

3. ..... separates aqueous humor into anterior and posterior chamber.
   a. Sclera b. Lens c. Iris d. Endothelium

4. Paracellular route of conjunctiva allows passage of molecules of upto .....
   a. 10 Da b. 500 Da c. 10 kDa d. 500 kDa

5. The maximum amount of fluid that can be held in conjunctival sac is .....
   a. 10 µl b. 30 µl c. 5 µl d. 7 µl

6. TAG OPEN CUP apparatus is used to determine.....
   a. Moisture content b. Vapor pressure
   c. Flash point d. Flame extension

7. Function of actuator in assembly valve is to .....
   a. allow opening of valve b. prevent leakage
   c. hold stem d. hold gasket

8. Which of the following propellant shows highest vapor pressure?
   a. Trichloromonofluromethane (P-11) b. Dichlordifluromethane (P-12)
   c. Butane (A-17) d. Propane (A -108)

9. Which plastic polymer among the following is **NOT** suitable for moisture sensitive drugs.
   a. Low Density Polyethylene b. High Density Polyethylene
   c. Polystyrene d. Polyvinyl chloride

10. Movement of gum form label of plastic container to the content product is .....
    a. Sorption b. Leaching c. Permeation d. Disintegration

11. Diluents added to a formulation to increase the bulk volume of API is .....
    a. Filler b. Glidant c. Lubricant d. Binder

12. Colloidal suspensions contain particles less than ..... micrometer.
    a. 1 b. 100 c. 10 d. 5

13. ..... is a large volume of aqueous suspension or solution containing the API that is pumped into the animal's rumen.
    a. Tubing b. Drenches c. Rumen bolus d. Medicated drinking water

14. Regarding weakly acidic drug molecules, which of the following statements is **TRUE**?
    a. The solubility of weak acids increases as the pH is decreased.
    b. The solubility of weak acids decreases as the pH is increased.
    c. The solubility of weak acids in pharmaceutical formulations may be affected by the presence of counter ions.
    d. All weakly acidic therapeutic agents exhibit an isoelectric point.

15. Regarding the use of co-solvents for the formulation of pharmaceutical solutions for oral administration, which of the following statements is **TRUE**?
    a. Co-solvents are required in all pharmaceutical solution formulations.
    b. Alcohols are commonly used as co-solvents in pharmaceutical solutions.
    c. Glycerol may directly affect the pH of the formulation.
    d. Co-solvents does not affect the viscosity of the solution formulation.

16. Regarding the rate of sedimentation of pharmaceutical suspensions designed for oral administration, which of the following statement is **TRUE**?
    a. The rate of sedimentation is increased as the diameter of the dispersed drug particles is increased.
    b. The rate of sedimentation is increased as the viscosity of the continuous phase is increased.
    c. The rate of sedimentation is not affected by the concentration of buffer salts.
    d. The rate of sedimentation may be decreased by centrifugation.

17. Regarding the DLVO theory, which of the following statement is **TRUE**?
    a. The zeta potential acts as a repulsion barrier.
    b. Particles residing within the primary minimum produce pharmaceutically acceptable suspensions.
    c. Alteration of the magnitude of the secondary minimum may not be performed by increasing the concentration of electrolyte.
    d. Increasing the concentration of hydrophilic polymer in a suspension increases the stability of the suspension by increasing the magnitude of the primary maximum.

18. Regarding the stability of pharmaceutical emulsions, which of the following statement is **TRUE**?
    a. Emulsions are inherently pharmaceutically stable.
    b. The stability of pharmaceutical emulsions is not affected by the size of the dispersed phase.
    c. The stability of pharmaceutical suspensions is not affected by the concentration of dispersed phase.
    d. Phase volume of the internal phase directly affects the stability of pharmaceutical emulsions.

19. Regarding emulsions, which of the following statement is **TRUE**?
    a. Multiple emulsions are more stable than primary emulsions.
    b. Water in oil emulsions are commonly administered orally.
    c. Oil in water emulsions are stable following dilution with water.
    d. Dispersed globules of the internal phase do not possess a zeta potential.

20. ..... is the problem of pharmaceutical solution.
    a. cake formation b. creaming c. cracking d. crystal growth

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Semester : II
F. M. : 55

SECTION "B"

[5Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. Describe any three approaches to enhance dissolution of solids in liquid while making solution.
2. What kind of mixing force you want dominant during mixing of emulsion? Why?
3. What differences you found in dosage form formulation for human and veterinary consumption?
4. Write short note on "Intradermal route of drug administration".
5. Why ophthalmic preparations are made sterile?
6. What are the advantages of mixing propellant?
7. Write down the difference between Blister and Strip packs.

SECTION "C"

[5Q. × 5 = 25 marks]

Attempt *ANY FIVE* questions.

8. Describe Double layer theory between two particles in suspension. Describe their interaction with figure. Why this is important for colloid and suspension?
9. Describe the roles and importance of Stoke`s equation in emulsion.
10. What are the key differences between "Coalescence" and "Ostwald ripening"? Describe the phase separation problem in emulsion.
11. Write short note on "Vehicles used in preparation of injectables".
12. What formulation consideration should one take while formulating intracameral injection?
13. What are the different types of packaging materials used for packaging of ophthalmic preparations.
14. Explain the working mechanism of metering valve using suitable diagrams.
15. Write short note on "Low-density polyethylene as pharmaceutical packaging material".

SECTION "D"

[2Q. × 7.5 = 15 marks]

Attempt *ANY TWO* questions.

16. What is "Zeta potential"? Describe with figure. Why interaction between two particles in suspension is important? Explain with diagram.
17. Write about the anatomical, physiological and physiochemical factors that affects ocular absorption of drug in ophthalmic solution. How formulation can improve the absorption?
18. Write down a general formula for a three-phase aerosol system. How is it manufactured, packed and evaluated for its quality?