KATHMANDU UNIVERSITY
End Semester Examination
21 January 2024

Marks Scored:

Level : B.Pharm.
Year : IV
Course : PHAR 404
Semester : I

Exam Roll No. :
Time: 30 mins.
F. M. : 20

Registration No.:
Date :

SECTION "A"
[20Q. × 1 = 20 marks]

Choose and encircle the most appropriate option from each set of choices.

1. Rapid mixer and granulator is used for .....
   a. Drying
   b. Granulation
   c. Drying and granulation
   d. Mixing and granulation

2. Sodium starch glycolate is an example of .....
   a. Binder
   b. Disintegrant
   c. Enteric coating
   d. Lubricant

3. Tablet thickness is adjusted in a tablet compression machine by adjusting
   a. Upper pressure roller
   b. Lower pressure roller
   c. Weight adjustment knob
   d. Hopper to feed frame distance

4. A cellulose acetate phthalate coated tablet disintegrates at .....
   a. Buccal cavity
   b. Oesophagus
   c. Stomach
   d. Intestine

5. After film coating an individual tablet weight is increase by .....
   a. 1-5%
   b. 2-3%
   c. 3-10%
   d. 5-15%

6. Moisture content of empty capsule shell below 10% can render the capsule .....
   a. Brittle
   b. Flexible
   c. Sticky
   d. Color loss

7. Bloom film defects is also known as .....
   a. Color variation
   b. Hazing
   c. Roughness
   d. Sticking and Picking

8. Which among the following packaging material is with most inertness?
   a. HDPE
   b. LDPE
   c. PP
   d. PVC

9. Which among the following packaging material shows the highest water vapor transmission rate?
   a. HDPE
   b. LDPE
   c. PP
   d. PVC

10. Function of valve body in assembly valve is to .....
   a. hold mounting cup
   b. prevent leakage
   c. hold stem
   d. hold dip tube

11. 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.

12. 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.

13. 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.

14. 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.

15. With respect to ointments, which of the following is **TRUE**?
    a. The bases of hydrocarbon ointments are typically derived from petroleum.
    b. Hydrophobic ointment bases are suitable for exuding lesions.
    c. An ointment cannot be formed by fusion of silicone oil and a wax.
    d. Drug solubility in an ointment base cannot be modified by the inclusion of a co-solvent such as propylene glycol.

16. With respect to ointment formulations, which of the following is **TRUE**?
    a. Ointment formulations cannot be water-miscible.
    b. Ointments prepared using hydrocarbon bases require the inclusion of preservatives.
    c. Ointments cannot be formulated as emulsions.
    d. Ointments may require the addition of antioxidants to enhance the stability of the therapeutic agent.

17. ..... is/are more precise methods of determining melting points that measure phase changes such as crystalline transitions, evaporation, sublimation, heats of fusion etc. into quantifiable data.
    a. HPLC
    b. Differential Scanning calorimetry and Differential Thermal Analysis
    c. Sedimentation technique
    d. Equilibrium solubility method

18. Compatibility with excipients is performed in ..... stage.
    a. Early discovery
    b. Late discovery
    c. Early development
    d. Full development

19. ..... stage molecule will be in liquid state only.
    a. Early discovery
    b. Lead optimization
    c. Late discovery
    d. Early development

20. ..... 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

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Indicate by checking (√) of each question you have answered in the cover page of main answer book.

SECTION "B"
[5Q × 3 = 15 marks]

Attempt *ANY FIVE* questions.

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1. Write about "Mechanisms of solid mixing".

2. Write down the differences between sugar and film tablet coatings.

3. Mention the functions of propellant used in pharmaceutical aerosol.

4. How preformulations support to achieve three key goals of drug development (product stability, bioavailability and manufacturability)?

5. What are the major differences between dosage forms for human and veterinary dosage forms that becomes challenges for formulation pharmacists?

6. List out excipients used in pharmaceutical solutions for oral administration with an example of each.

7. Mention 3 selection criteria of bases of semisolids.

SECTION "C"
[5 Q. × 5 = 25 Marks]

Attempt *ANY FIVE* questions

8. Write about the common formulation ingredients that are required during manufacturing of tablet preparation by wet granulation method.

9. What problems one might face during coating process. What are the possible remedies?

10. Explain working mechanism of continuous spray valve.

11. What are the various "Drug-Plastic considerations" that one should make during packaging material selections.

12. Explain any 5 dosage forms that are used in veterinary but not in human.

13. Define Preformulation. What is the aim of it. What is the first parameter to be measured in preformulation?

14. Describe Stokes' law and its application in the stabilization of suspensions.

SECTION "D"

[2 Q. × 7.5 = 15 Marks]

Attempt *ANY TWO* questions.

15. List the principal components of tablet compression machine. Explain tablet compression cycle using a well labeled diagram.

16. What are the differences between hard gelatin capsule and soft gelatin capsules? Explain the capsulation process of soft gelatin capsules by using rotary die process.

17. Explain stability problems of oral liquids, their causes and remedies.