KATHMANDU UNIVERSITY
End Semester Examination
February/March, 2018

Mark scored:

Level : B. Pharm.
Year : IV

Course : PHAR 404
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date : MAR 1 2 2018

SECTION "A"
[20 Q × 1 = 20 marks]

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

1. Regarding weakly acidic drug molecules, which of the following statements are 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.

2. Regarding buffers for pharmaceutical solutions for oral administration, which of the following statements are true?
   a) Citrate buffer is commonly used as a buffer for pharmaceutical solutions.
   b) Buffers are required solely to control the stability of therapeutic agents.
   c) Buffer salts does not affect the solubility of therapeutic agents.
   d) The buffer capacity of a buffer system is increased as the concentration of buffer components is increased.

3. Regarding the use of co-solvents for the formulation of pharmaceutical solutions for oral administration, which of the following statements are 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.

4. Regarding the rate of sedimentation of pharmaceutical suspensions designed for oral administration, which of the following statements are 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.

5. Regarding the DLVO theory, which of the following statements are 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.

6. Regarding emulsions, which of the following statements are 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.

7. Regarding the role of adsorbed particles in the stabilization of pharmaceutical emulsions, which of the following statements are true?
   a) Adsorbed particles promote the formation of oil in water emulsions.
   b) Examples of adsorbed particles that are employed pharmaceutically include kaolin.
   c) The elastic properties of the adsorbed layer are not primarily responsible for the stabilisation of emulsions.
   d) The particle size of the adsorbed particles directly does not affects emulsion stability.

8. With respect to ointments, which of the following are 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.

9. With respect to ointment formulations, which of the following are 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.

10. This results in solvates that may form when a compound crystallizes using a solvent.
   a) Polymorphism
   b) Amorphous form
   c) Cosolvent Effect
   d) Pseudopolymorphism

11. Which of these 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) Organoleptic properties
   b) Differential Scanning calorimetry and Differential Thermal Analysis
   c) Sedimentation technique
   d) Equilibrium Solubility method

12. Which of the following is an example(s) of disintegrant
   a) Veegum HV
   b) Bentonite
   c) crossed-linked polyvinylpyrrolidone
   d) all of the above

13. ..... is an indication of poor flow of powder
   a) Low angle of repose value
   b) Rat-holing
   c) Sticking of tablet
   d) Motttling

14. At constant compression force (fixed distance between upper and lower punches,) hardness of tablet ..... with..... in die fill.
    a) increase, increase
    b) increase, decrease
    c) decrease, increase
    d) remains same, increase

15. Inadequate spreading of the coating solution before drying causes..... in coated tablet
    a) Roughness
    b) Blistering
    c) Orange-Peel effect
    d) Cracking

16. ..... is NOT an example of enteric film former.
    a) Shellac
    b) Cellulose acetate phthalate
    c) Cellulose acetate trimellitate
    d) Polyvinyl phthalate

17. Moisture content in finished hard gelatin capsules is maintained between:
    a) 6-10 %
    b) 9-12 %
    c) 13-16 %.
    d) 15-20 %

18. Filling of deliquescent drugs in hard gelatin capsules produces
    a) soft capsules
    b) moist capsules
    c) dry capsules
    d) gastro intestinal irritation

19. Container used in pharmaceutical aerosol must withstand pressure of 140 to 180 pisg at
    a) 130 °F
    b) 70 °F
    c) 130 °C
    d) 70 °C

20. Term 'sorption' is used to describe removal of ..... packing materials
    a) gases from
    b) drug by
    c) gas by
    d) plasticizer from

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SECTION "B"
[5 Q. × 3 = 15 marks]

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

Answer *ANY FIVE* questions:

1. Mention advantages and disadvantages of Pharmaceutical solutions for oral administration.
2. Describe excipients used in pharmaceutical solutions for oral administration.
3. What are the excipients to enhance the physical stability of suspensions?
4. Describe emulsion instability and theories of emulsification.
5. Write about the qualities of bulk tablets that are necessary to maintain for its coating.
6. Mention advantages and disadvantages of soft gelatin capsules.
7. Write short note on quick-breaking foams type of aerosol packs.

SECTION "C"
[5 Q. × 5 = 25 marks]

Answer *ANY FIVE* questions:

8. What are the advantages and disadvantages of pharmaceutical semi-solids.
9. Describe excipients used in the formulation of ointments and pastes.
10. How do you correlate Biological classification system (BCS) and formulation approach?
11. Mention the process variables of pan-spray film coating. Discuss how the pan variable changes the final quality of the coated tablets.
12. Write about operational steps of semi-automatic hard gelatin capsule filling machine.
13. Draw a well labeled diagram of continuous spray valve showing its components. Write about the function of each components.
14. Describe drug-plastic considerations that are made during selection of plastic as a primary packaging material.

SECTION "D"

[2 Q. × 7.5 = 15 marks]

Answer *ANY TWO* questions:

15. Describe factors affecting the solubility of therapeutic agents.

16. Describe the similarities and differences in dosage forms regimens between human and veterinary.

17. What are the different types of tablets processing problems one might face during manufacturing of tablets? Write about the source(s) of the problems and approach(s) to solve the problems.