



TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN PHARMACEUTICAL TECHNOLOGY

APM2302: PHRMACEUTICS V

END OF SEMESTER EXAMINATION

**SERIES:** AUGUST 2019

**TIME:** 2 HOURS

**Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **THREE SECTION(s)**. Attempt All questions in section A and B and any two questions in section C.

**Circle the correct answer in section A.**

**SECTION A: ANSWER ALL QUESTIONS (40MARKS)**

1. The sedimentation of particles in a suspension can be minimized by:
  - a. Increasing the particle size of the active ingredient
  - b. Decreasing the particle size of the active ingredient
  - c. Increasing the viscosity of the suspension
  - d. Both (b) and (c)
2. Cake formation is the characteristic feature of
  - a. Flocculated suspensions
  - b. Deflocculated suspensions
  - c. Thixotropic suspensions
  - d. Structured suspensions
3. Surfactants are characterized by the presence of:
  - a. Hydrophobic groups in the molecule

- b. Hydrophilic groups in the molecule
  - c. Both hydrophobic and hydrophilic groups in the same molecule
  - d. Negative charges in the molecule
4. Which one of the following is characteristic of flocculated suspensions?
- A. Loosely packed sediment
  - B. Slow sedimentation rate
  - C. Close packing of the sediment to form a cake
  - D. Slow clearance of supernatant
5. A pharmaceutical suspension containing in-diffusible particles is unsuitable for oral administration. Which formulation additive must be added to such a suspension so as to make it suitable for use?
- A. A preservative
  - B. A thickening agent
  - C. A flavouring agent
  - D. A chelating agent
6. Identify one factor that is not important in solubility determination of a solute in a particular solvent.
- A. Size of determination vessel
  - B. Temperature of solution
  - C. Saturation
  - D. Purity of solute
7. Which one of the following is characteristic of flocculated suspensions?
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8. Which of the following is not an instability problem of emulsion?
- A. caking
  - B. creaming
  - C. cracking
  - D. phase inversion
9. Which of the following measures has an effect of increasing the flowability of powder materials?

- A. Reducing the size of the particles
  - B. Adding binding agents to the formulation
  - C. Granulating the powders
  - D. Increasing the humidity of powder materials
10. With reference to sedimentation of particles in suspensions which statement is true?
- A. Sedimentation is influenced by gravitational forces alone
  - B. If suspended particles are very small, Brownian motion dominates
  - C. When particles are sufficiently large; there is random motion due to molecular bombardment
  - D. Sedimentation does not influence dosage
11. Which of the following is **not** a component of a Total Parenteral Nutrition (TPN) formulation?
- A. Amino acids
  - B. Starch
  - C. Glucose
  - D. Electrolytes
12. Which of the following statements **best** describes an ophthalmic insert?
- A. An aqueous solution
  - B. A slow release solid dosage form
  - C. An oily semisolid preparation
  - D. A contact lens preparation
13. Which of the following formulation additive is unnecessary in a single dose parenteral product?
- A. Wetting agents
  - B. Solubilizing agents
  - C. Anti-microbial agents
  - D. A suitable vehicle
14. Which of the ones below is not a test for identification of emulsion type?
- A. Dilution test
  - B. Degree of flocculation test
  - C. Conductivity test
  - D. Dye solubility test
15. A solid powder dosage form of medicament in fine state of sub-division meant for topical application is known as
- A. Dentifrices
  - B. Dusting powders
  - C. Snuffs
  - D. Aerosols

16. Suspensions may be classified according to the route of administration into the following classes except one. Which one?
- A. Oral suspensions
  - B. Coarse and colloidal suspensions
  - C. Parenteral suspensions
  - D. Lotions/topical suspensions
17. The following are properties of a well formulated suspension for use as a lotion. Which one is not?
- A. It should have aesthetic appeal
  - B. It should dry quickly and remain on the skin providing an elastic protective film containing the drug
  - C. It should run off
  - D. It should have therapeutic efficacy
18. Ideal pharmaceutical suspensions should exhibit the following characteristics except?
- A. Exhibit high apparent viscosity at high rates of shear.
  - B. With moderate shaking the apparent viscosity should fall to sufficiently allow the product to be poured easily.
  - C. Suspensions for external use should spread easily.
  - D. Suspensions for parenteral use should pass easily through hypodermic needle.
19. Pharmaceutical suspensions are basically unstable systems. The following are some instability experienced in suspensions except which one?
- A. Settling
  - B. Caking
  - C. Cracking
  - D. Adsorption
20. The following are types of emulsifying agents of vegetable origin except one. Which one?
- A. Gelatin
  - B. Acacia
  - C. Tragacanth
  - D. Cellulose
21. Instability of pharmaceutical emulsions is exhibited in the following ways except?
- A. Flocculation
  - B. Breaking
  - C. Phase inversion
  - D. Caking
22. Ways of minimizing creaming in emulsions include all the following except?
- A. Homogenization
  - B. Increasing viscosity of external phase
  - C. Storing emulsion in a cool place
  - D. Increasing the volume of the disperse phase in the emulsion

23. Physical Stability in emulsion is affected by all the following factors except?
- Globule size
  - Densities of the two phases
  - Viscosity of the external phase
  - Nature of the internal phase
24. Which one is true about phase inversion?
- It comes about due to chemical degradation
  - Change of phase volume ratio is insignificant in its occurrence
  - Microorganisms have no effect
  - A preservative if used will not avert phase inversion
25. The following are methods of increasing aqueous solubility of a compound which is partially soluble in water. Which one is not?
- Use of surfactants
  - Use of co-solvents
  - Complex formation
  - Use of viscosity modifiers
26. Identify the odd one out among the following;
- Syrup
  - Elixirs
  - Linctuses
  - Liniment
27. Rectal suppositories for systemic use contain the following effects except?
- Analgesics
  - Antispasmodics
  - Sedatives
  - Tranquilizers
28. The following are Ideal properties of a suppository base except?
- Should melt at body temp, dissolve or disperse in the body cavity fluids.
  - Should retain its shape when being handled.
  - Should be stable on storage
  - Non- toxic and non-irritant to the mucous membranes.
  - None of the above.
29. Which of the following quality control tests is carried out on cocoa butter suppositories?
- sterility test
  - friability
  - assay of level of active ingredient
  - pyrogen test
30. Which statements is **not true** about polyethylene glycol suppository bases?

- a. do not support bacterial growth
  - b. Chemically stable
  - c. Physiologically inert
  - d. polymers of average molecular weight 850 are usually waxy solids
31. Which of the following statements is true of oleaginous bases for topical preparations?
- a. they are non greasy
  - b. medicament release is uncertain
  - c. consist of water soluble oils and fats
  - d. they are easy to remove from the skin
32. Which of the following statements about eye ointments is false?
- a. ocular contact time is greater than for eye drops
  - b. are sterile homogenous semisolid preparations.
  - c. Packed in weights of about 6 to 10g.
  - d. may produce blurred vision on application
33. Cocoa butter suppository base have the following advantages except
- a. Physical properties change on overheating.
  - b. When solidified they adhere to the sides of the mould
  - c. May leak out of body cavities
  - d. The melt at body temperature
34. The following are disadvantages of Glycerol-Gelatin suppository bases except.
- a. Solution time doesn't depend on content and quality of gelatin used.
  - b. Are hygroscopic- must be stored in well closed container
  - c. Gelatin is incompatible with many drugs e.g. tannic acid, ferric chloride and gallic acid
  - d. They support bacteria and mould growth
35. Which of the following is not a stabilizing agent for ophthalmic preparations?
- a. Sodium metabisulphite
  - b. Sodium sulphite
  - c. Ascorbic acid
  - d. Polyvinyl alcohol
36. Calculate the weight of the medicated suppository containing 20% w/w of active ingredient given the mold calibrated with Thebroma oil weighs 1.5g and the displacement value (DV) of the drug is 4.0
- a. 1.964g
  - b. 1.765g

- c. 1.805g
- d. 1.644g

37. One of the statements about suppositories is **false**. Which one?

- a. Vaginal suppositories are generally larger than rectal suppositories
- b. Vaginal suppositories may produce systemic actions
- c. Rectal suppositories may be formulated for local or systemic actions
- d. Disposable suppository molds are preferred for use to permanent molds

38. Chemical drug incompatibility is manifested by any of the following **except**.

- a. Immiscibility
- b. Oxidation
- c. Effervescence
- d. Hydrolysis

39. Which of the following excipient may be used to limit the presence of microorganisms in a liquid formulation?

- a) Purified water
- b) Methyl cellulose
- c) Benzalkonium chloride
- d) Ascorbic acid

40. When treating a skin condition, all of the following are suitable criteria for selecting an ointment base for drug delivery EXCEPT:

- a) Therapeutic systemic blood levels of the drug
- b) Degree of occlusion provided
- c) Stability of the drug in the ointment base
- d) Characteristics of the skin that will be treated

**SECTION B: ANSWER ALL QUESTIONS IN THIS SECTION. (40 MARKS)**

41. Differentiate between Macro and Multiple Emulsions (4 marks)

42. List any four ideal characteristics of Emulsifying agents (4marks)

43. Highlight any four advantages of suspensions over solid dosage forms (4 marks)

44. State four reasons for formulating drugs as ophthalmic suspensions rather than as solutions (4 marks)

45. Name **four** quality control tests carried out on parenteral products. (4 marks)

46. Differentiate between soft and hard gelatin capsules (4 marks)

47. Differentiate between flocculated and deflocculated suspensions. (4 marks)

48. Briefly discuss the various stages involved in Tablet Sugar Coating (4 marks)

49. What are the setbacks of using Theobroma oil as a base for suppository formulation (4 marks)
50. outline any four advantages of using gelatin in manufacture of capsules (4 marks)

**SECTION C: ANSWER TWO QUESTIONS IN THIS SECTION (40 MKS)**

50. A) Discuss the physical instability of pharmaceutical emulsions (16 marks)  
B) Outline the various mechanisms employed to reduce creaming/settling of emulsions (4marks)
51. Describe the following types of dosage forms (20marks)
- a) Pastes
  - b) Jellies
  - c) Ocular inserts
  - d) Contact lens solutions
  - e) Eye lotions
53. A) Using relevant examples explain the process of Sugar Coating of Tablets (16marks)  
B) Outline the reasons for Enteric Film coating of Tablets (4 marks)