



# Technical University of Mombasa

*Faculty of Applied and Health Sciences*

DEPARTMENT OF **MEDICAL SCIENCES**  
DIPLOMA IN PHARMACEUTICAL TECHNOLOGY  
(DPT 11M)

## **APM 2211: PHARMACEUTICS II**

**SPECIAL/SUPPLEMENTARY: EXAMINATIONS**

**SERIES: JULY 2013**

**TIME: 2 HOURS**

### **INSTRUCTIONS:**

You should have the following for this examination

- *Answer booklet*

This paper consists of **THREE sections A, B and C.**

Answer all questions in section **A** and **B** and choose **THREE** out of **FIVE** questions in section **C.**

This paper consists of **6 PRINTED** pages

**SECTION A (40MARKS)**

1. Which statement is not true of lyophobic colloids?
  - a) High degree of salvation of dispersed particles
  - b) Thermodynamically unstable
  - c) Disperse phase consist of inorganic particles
  - d) Dispersion method may be used in its preparation
  
2. Which of the following is not a kinetic property of colloidal sol?
  - a) Brownian motion
  - b) Diffusion
  - c) Faraday Tindal effect
  - d) Osmosis
  
3. Which one of the following statements is false about materials that exhibit pseudo-plastic flow behavior?
  - a) The material begins to flow as soon as shearing stress is applied .
  - b) Materials exhibit shear thinning characteristics
  - c) The material has a yield value
  - d) Fluidity increases with increase in shear rate
  
4. What are association colloids?
  - a) Are also called amphipillic colloids
  - b) Are formed by naturally occurring emulsifying
  - c) Are emulsion
  - d) Are gels
  
5. The following statements are true about solutions except
  - a) The balance between hydrophilic and lipophillic groups within a molecule determines its overall polarity
  - b) In general compounds with similar polarities are mutually soluble
  - c) Compounds that are predominantly non polar tend to be insoluble in non solvents
  - d) Polar solvents tend to be more soluble in polar solvents
  
6. The solubility profile of a solvent is determined by all the factors named below except
  - a) Isoelectric point
  - b) Dielectric constraint
  - c) Hydrogen bonding
  - d) Degree of ionization
  
7. The addition of a third substance that is capable of forming inter molecular complexes with a solute may increase the apparent solubility of the solute. This process has been described as
  - a) Hydrotropism
  - b) Complexation
  - c) Azeotropism

- d) Solvation
8. Stress in rheology may be applied in all the following forms except
- Elongation
  - Compression
  - Bending
  - Mass increase
9. According to Young's rule, the dose of drug to be given to a child can be estimated using the following equation:
- $$\text{Child's dose} = \frac{\text{Child's age in years}}{\text{Child's age in years} + 12} \times \text{Adult dose}$$
- Calculate the dose for a 4 year old child given that an 8 years old child takes 40mg
- 100mg
  - 20mg
  - 25mg
  - 15mg
10. Which of the following statements is false about hydrophilic solutions?
- Exhibit low degree of hydration in water
  - They are thermodynamically stable
  - They are of high viscosity
  - They are easy to prepare
11. An ideal filter media should have the following properties except
- Absorb negligible amounts of dissolved substances
  - Should be chemically inert
  - Should have low retention power for solids
  - Resistant to the corrosive action of the liquid
12. Which of the following statements is false about fluidized bed dryer?
- Drying takes place only on the surface of the bed
  - Drying is fast and efficient
  - The temperature of a fluidized bed is uniform
  - A free flowing product is produced
13. Calculate the amount of base to be added to 250g of a 10% w/w ointment so as to reduce its strength to 4% w/w ointment
- 625g
  - 875g
  - 375g
  - 100g
14. In purification of colloids, if electric current is used to aid movement of ionic impurities across a dialyzing membrane, the process is termed as
- Electrodialysis
  - Ultrafiltration

- c) Filtration
  - d) None of the above
15. Lyophillic colloids are stabilized by
- a) Electrical double layer interation
  - b) Solvation
  - c) Electrical double layer interation and salvation
  - d) Raising the primary maximum
16. A system consisting two immiscible liquid phases, one of which is dispersed throughout the other inform of droplets is termed:-
- a) Suspension
  - b) Emulsion
  - c) Colloids
  - d) Gel
17. Which of the following is false about Elastic solid
- a) Made of deformation include flexure, compression & shear
  - b) Deformation is expressed by Flook's law
  - c) Modulus values are important in packaging materials
  - d) Materials behave elastically beyond yield stress
18. Which dosage form contains a potent drug mixed with lactose and other inert diluents packed in sachets
- a) Powders and granules
  - b) Individual powders
  - c) Dusting powders
  - d) Insufflations
19. Which of the following information should not appear on the label of dispensed medicines?
- a) Instructions for the patient
  - b) The patients name
  - c) The date of prescription
  - d) The name of preparation
20. Which of the following is not a mill?
- a) Fluid energy mill
  - b) Colloid mill
  - c) Autoclave
  - d) Ball Mill

**SECTION B (Answer ALL questions)**

- 1. Derive the Handerson Hasselbach equation for a weak base BOH **(4marks)**
- 2. State FOUR disadvantages of powders as a dosage form **(4marks)**

3. State FOUR applications of colloids in pharmacy. **(4marks)**
4. State FOUR advantages of drying granules in an FBD **(4marks)**
5. Give FOUR characteristics of an ideal filter media. **(4marks)**
6. Briefly explain dialysis as a method of purification of colloids. **(4marks)**
7. Calculate the amount of drug which when dissolved in 1L of solution produces a solution such that when 1ml is diluted to 100ml, the concentration of the solution produced is 100mg /5ml.

**(4marks)**

8. Write a short note on Newtonian system? **(4marks)**
9. State briefly relevance of rheology in pharmacy **(4marks)**
10. State the factors that affect the rate of filtration **(4marks)**
11. Define the following types of topical preparations **(4marks)**
  - a) Creams
  - b) Ointments
  - c) Liniments
  - d) Colloidons
12. Give examples of the following **(4marks)**
  - a) Pseudoplastic fluid
  - b) Dilatants fluid
  - c) Association colloid
  - d) Aromatic Water
13. Define the following terms **(4marks)**
  - a) Syrup BP
  - b) Thixotropy
14. List FOUR types of driers and their advantages **(4marks)**
15. Differentiate between loss on drying and moisture content **(4marks)**

### SECTION C

1. Explain the process of micelle formation **(20marks)**
2. Explain the principles involved in each of the following processes **(20marks)**
  - i) Hot air drying
  - ii) Fluidized bed drying
  - iii) Spray drying
3. Define Rheology and describe Newtonian and non Newtonian fluids **(20marks)**
4. a) State the factors that affect the rate of filtration **(10marks)**  
 b) Explain FOUR methods by which ionic impurities in colloidal solutions may be removed **(10marks)**