



W1-2-60-1-6  
JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

UNIVERSITY EXAMINATION 2015/2016

BACHELOR OF PHARMACY

THIRD YEAR, SECOND SEMESTER MAIN EXAMINATION

PHA 2307: PHARMACEUTICS II

DATE: APRIL 2016

TIME: THREE HOURS

INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A (60 MARKS) AND ANY OTHER TWO QUESTIONS FROM SECTION B (40 MARKS).

ILLUSTRATE YOUR ANSWERS WITH DIAGRAMS/ STRUCTURES WHERE APPROPRIATE.

SECTION A

1. Describe the process of micelle formation (5marks) *CU NH<sub>2</sub> COOH<sub>2</sub>*
2. *a.* Define surface tension (1mark)
- b.* Describe one method for measuring surface tension (4marks)
3. Illustrate the different types of adsorption isotherms that are observed when adsorption occurs at solid / vapour systems (5marks)
4. Explain two factors affecting the adsorption of a solute onto a solid in a solution (5marks) *Temp, Concentration*
5. Describe types of surfactants based on their ionisation properties in water (5marks)
6. Explain detergency (5marks) *E*
7. *a)* Define the term rheology (2marks) *F''*
- b)* Differentiate between Newtonian and non Newtonian flow (3marks) *E*

*ethylene*



8.

a) Define the term viscosity.

$\eta = \frac{F}{A \cdot \frac{dv}{dy}}$

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(1 mark)

b) An Ostwald viscometer was used to measure the viscosity of acetone which was found to be 0.313cp at 25°C. The density of acetone at 25°C is 0.788 g/cm<sup>3</sup>. What is the kinematic viscosity of acetone at 25°C

(4 marks)

9. Differentiate between laminar flow and transitional flow

(5 marks)

10. Using examples differentiate between shear thinning and shear thickening behaviour in formulations

(5 marks)



11. State the pharmaceutical processes where interfacial phenomenon is applied

(5 marks)

12.

a) Describe monolayers

(2 marks)

b) Explain instances where gas adsorption is made use of in pharmacy

(3 marks)

Solid to gas

SECTION B

13. Discuss solubilisation under the following headings

a. The solubilisation process

(8 marks)

b. Pharmaceutical application of solubilisation

(5 marks)

c. Solubilisation and drug stability

(7 marks)

14. Discuss complexation under the following headings

a. Definition

(2 marks)

b. Types of complexes

(8 marks)

c. Effects of complexation in pharmacy

(5 marks)

d. Two methods of analysis of complexes

(5 marks)

Metal ionophore → chelate

Megacathars -  
Cathars

15. Discuss surface tension under the following headings

a) The definition

(2 marks)

b) One method of measurement of surface tension

(8 marks)

c) The effects of adsorption at the interface and the changes observed at different interfaces due to adsorption

(5 marks)

d) The pharmaceutical processes where interfacial phenomenon is applied

(5 marks)

END

Viscometers  
1. Ostwald  
2. Suspended level  
3. Cannon-Ubbelohde  
Falling sphere

1. Wilkoy  
2. Rayleigh method  
3. D. weight release