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Family Name					
Given Name/s					
Student Number					
Teaching Period	Semester 2, 2017				

PHA211 – Fundamentals of Pharmaceutics	DURATION	
	Reading Time:	10 minutes
	Writing Time:	180 minutes
INSTRUCTIONS TO CANDIDATES		
<p>Please ensure that your Name and Student Number are indicated clearly on your Answer Booklets and at the top of the multiple choice answer sheet provided.</p> <p>There are 2 (TWO) sections (A and B) for this paper:</p> <p>Section A contains Forty (40) Multiple Choice Questions. Answer all questions on the Faculty/School Multiple Choice Answer Sheet supplied. Total marks allocated: Forty (40). Suggested time allocation: ONE hour (60 minutes).</p> <p>Section B contains Six (6) Short Answer and Calculation Questions. Answer all questions in the 20-page Booklet provided. Show all relevant steps in your calculations and include all relevant units in your answers. Total marks allocated: Sixty (60). Suggested time allocation: TWO hours (120 minutes).</p> <p>Total marks for this exam paper: 100</p>		
EXAM CONDITIONS		
<p><u>You may begin writing from the commencement of the examination session.</u> The reading time indicated above is provided as a guide only.</p>		
This is a CLOSED BOOK examination		
Any non-programmable calculator is permitted		
No handwritten notes are permitted		
No dictionaries are permitted		
ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED	
No additional printed material is permitted.	1 x 20 Page Book 1 x Scrap Paper Faculty/School Multiple Choice Answer Sheet	

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DOUBLE-SIDED.**

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LEFT BLANK.**

Section A
Multiple Choice Questions
Total No of Marks for this section: 40
Answer ALL Forty (40) questions

This section should be answered on the Faculty/School Multiple Choice Answer Sheet provided.
Please ensure that your name and student number have been written on the examination paper
and on the answer sheet.

Suggested Time allocation for Section A: **60 mins**

END of Section A

Section B
Short Answer and Calculation Questions
Total Marks for this section: 60
Answer ALL Six (6) questions

This section should be answered in the 20-page Answer Booklet provided.

Marks for each question are indicated.

Show all relevant steps in your calculations and include all relevant units in your answers.

Suggested Time allocation for Section B: **120 minutes**

Question 1 (10 marks)

- a What are the important information you should include in the label for paracetamol liquid preparation?
(3 marks)
- b “Grinding is the only way to promote solubility of solids in liquids”. Justify your answers.
Outline the other steps that can promote the solubility of solid particles.
(5 marks)
- c Define the following terms with examples.
- i. Intermolecular forces
 - ii. Polymorphism
- (2 marks)

Question 2 (10 marks)

- a Briefly describe the mechanism of dissolution of drug in a suitable solvent.
(3 marks)
- b What approaches can be used to increase the solubility of a drug for formulation purpose?
(4 marks)
- c The pKa of the weakly acidic drug is about 8.0 and the pH of the drug solution is about 6.0.
What percentage of this drug will be in un-ionized form?
(3 marks)

Question 3 (10 marks)

- a Classify solution preparations, with examples, according to the solvent system. (3 marks)
- b What are the advantages and disadvantages of solution dosage forms? (5 marks)
- c If 250mg of Cefazolin powder are diluted with water for injection up to the 500mL mark, what is the % of drug in the final solution? (2 marks)

Question 4 (10 marks)

- a A patient visited your pharmacy with a bottle of medicine in translucent liquid form. He was not sure about the type of dosage form recently dispensed for his seven years old child. After careful observation you identified the dosage form as an emulsion. How do you identify different types of emulsions? (2 marks)
- b Illustrate how emulsifying agents stabilize emulsion formulations. (4 marks)
- c What is meant by HLB value? Calculate the total required HLB (RHLB) value for the following formula (total amount 100g).
- | | |
|---------------------------------|-------|
| Liquid paraffin (RHLB 10) | – 8g |
| Peanut oil (RHLB 9) | – 12g |
| Light liquid paraffin (RHLB 10) | – 80g |
- (4 marks)

Question 5 (10 marks)

- a Compare between emulsion and suspension. (2 marks)
- b Describe the quality of an ideal suspension. (3 marks)
- c Discuss briefly, with examples, various additives used in the formulation of a suspension. (3 marks)
- d Differentiate between flocculated and deflocculated suspensions. (2 marks)

Question 6 (10 marks)

- a What are meant by surface tension, interfacial tension and surface free energy? (3 marks)
- b Define adsorption and contact angle. Illustrate their pharmaceutical applications. (4 marks)
- c Calculate, using the following formula, the amounts of ingredients needed to produce 50g of product:
- | | |
|----------------------|-----------|
| Calcium carbonate | – 5 parts |
| Sodium bicarbonate | – 5 parts |
| Bismuth subcarbonate | – 3 parts |
- (3 marks)

END of Section B

END of Exam Paper