Original.

Index No:.....

UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE

ALLIED HEALTH SCIENCES DEGREE PROGRAMME

SECOND B. PHARM PART I EXAMINATION – NOVEMBER 2015

PH 2114: PHARMACE-UTICS IIA (SEQ)

TIME: THREE HOURS

INSTRUCTIONS

- Answer all questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

1. TDDS is a simplified medication regimen with improved patient compliance and reduced the side effects.

1.1. Define the term "**TDDS**" and give your opinion to **justify** the above statement. (**20** ***marks***)

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

1.2. Discuss basic properties to be included for following components of TDDS to achieve the desired therapeutic effect. ***(40 marks)***

1.2.1. Drug/ active ingredient

.....
.....
.....
.....
.....
.....
.....

1.2.2. Polymer

.....
.....
.....
.....
.....
.....
.....

1.2.3. Adhesive layer

.....
.....
.....
.....
.....
.....
.....

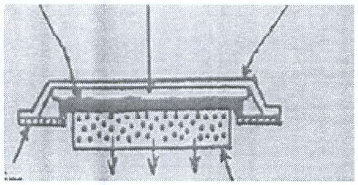
1.2.4. Backing membrane

.....
.....
.....
.....
.....
.....
.....

1.3. Permeation enhancers are used to increase the penetration of the drug through the skin. Describe briefly the three deferent approaches of these enhancers? ***(20 marks)***

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

1.4. Identify the type of TDDS given below. Name different components available in the diagram. Explain the reason for effectiveness of this type of TDDS. ***(20 marks)***



.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

.....
.....
.....
.....

2. A Pharmaceutical suspension is a coarse dispersion in which the internal phase is dispersed uniformly throughout the external phase.

2.1. What are the physical characteristics that should be present in an ideal suspension? (***10 marks***)

.....
.....
.....
.....
.....
.....
.....
.....
.....

2.2. The relationship between distance of separation and the interaction among suspended particles leads to following conditions in the suspension. Discuss the outcome of following conditions. ***(30 marks)***

2.2.1. No interaction.

.....
.....
.....
.....
.....

2.2.2. Coagulation

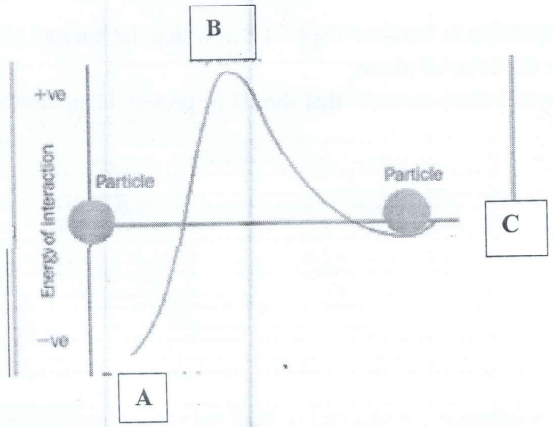
.....
.....
.....
.....
.....
.....

2.2.3. Flocculation.

.....
.....
.....
.....
.....
.....
.....

Index No:.....

2.3. When particles are dispersed in a liquid medium, they will experience (electrical) repulsive forces and attractive (van der Waals) forces. Different energy states obtained by particles are shown in the diagram given below.



2.3.1. Identify A, B, C, energy states. ***(15 marks)***

.....

.....

.....

.....

.....

2.3.2. What is the suitable energy stage/level to be maintained in particles for an ideal suspension? ***(10 marks)***

.....

.....

.....

.....

2.3.3 Discuss strategies to be taken to maintain the above energy level within particles. ***(15 marks)***

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Index No:.....

2.4. Formation of crystallization interferes with stability of a suspension.

2.4.1. Briefly discuss reasons for crystal formation in a suspension. ***(10 marks)***

.....

.....

.....

.....

.....

.....

.....

2.4.2. Explain how you overcome this situation. ***(10 marks)***

.....

.....

.....

.....

.....

.....

.....

3. Emulsions are termed as thermodynamically unstable systems.

3.1. Explain why emulsions are thermodynamically unstable. ***(20 marks)***

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

3.2. Briefly discuss functions of three types of substances that can be incorporated as emulsifying agents to make emulsions stable. Give one example for each type. ***(40 marks)***

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Index No:.....

3.3. Give a short description on following deferent surface active agents. Give one example for each. ***(40 marks)***

3.2.1. Anionic Surface active agent

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

3.2.2. Cationic Surface active agent

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

3.2.3. Nonionic surface active agent.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

4.

4.1. Define the term Pharmaceutical Powders. ***(10 marks)***

.....

.....

.....

.....

.....

.....

4.2. State **three** advantages & disadvantages of powders as a dosage form. ***(20 marks)***

4.3. Describe characteristics of following types of powders in brief. ***(30 marks)***

4.3.1. Insufflations

4.3.2. Douch powders

4.3.3. Effervescent powders

4.3.4. Granules and much better dosage form than powders, explain briefly the importance of granulation process. ***(20 marks)***

.....

.....

.....

.....

.....

.....

.....

.....

4.4. Compare & Contrast Wet & Dry granulation processes. ***(20 marks)***

Wet granulation	Dry Granulation

Index No:.....

5. Answer **all** parts.

5.1.

5.1.1 Classify coloring agents used in the monophasic dosage forms based on the origin. Give an example for each category.

(***08 marks***)

.....

.....

.....

.....

.....

.....

5.1.2 Explain briefly the favorable properties of coloring agents found in monophasic liquid dosage forms.

(***15 marks***)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

5.2

5.2.1 Describe briefly the different types of sweetening agents found in monophasic liquid dosage forms.

(***12 marks***)

.....

.....

.....

.....

.....

.....

.....

.....

Index No:.....

5.2.2. A solution containing a pharmaceutical agent "P" is required to be flavoured in order to mask the unfavorable taste. There are two flavouring agents (X, Y) available to obtain the required taste. As a pharmacist working in the research and development section of a manufacturing industry you are asked to select the most suitable agent to incorporate in to the formulation. The origin of X and Y is as follows.

X- Extracted from seeds of plant x which is grown extensively in the area

Y- Synthesized using substances called a and b

You have decided to select X over Y by considering the given details.

Discuss the possible reasons for the above decision.

(15 marks)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

5.3 Following table gives important details of liquid dosage forms.

Preparation	Features	Use	Example
A	Usually relieve soreness in mild throat infections / relieve or treat pharynx and nasopharynx (is it pharyngitis?)/ have a deodorant effect	To treat symptoms/signs of pharyngitis or pharyngeal inflammation? pharynx and nasopharynx	.....
B	viscous oral liquids /vehicle contains a high proportion of sucrose or a suitable polyhydric alcohol or alcohols	.....	.....
C	dilute solutions containing the readily soluble constituents of crude drug/ microbial contamination is present	.....	.....
D	clear solutions/ sweetened, hydro-alcoholic liquids /brilliantly coloured	As antibiotics, antihistamines and sedatives	.....

5.3.1 Identify A, B, C and D. (***12 marks***)

.....

.....

.....

.....

5.3.2 State one use each of B and C. (***10 marks***)

.....

.....

.....

.....

5.3.3 Give one example for each preparation labeled as A, B, C and D. (***8 marks***)

.....

.....

.....

.....

5.3.4 Describe briefly the preparation method of C. (*20 marks*)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

6. 6). Answer **all** parts.

6.1

6.1.1. What types of preparations are referred as ophthalmic dosage forms? (*10 marks*)

.....

.....

.....

.....

6.1.2 List four important parameters that should be considered in the manufacturing ophthalmic preparations. (*10 marks*)

.....

.....

.....

.....

.....

6.1.3. Describe briefly one parameter you have mentioned in 6.1.2. (***25 marks***)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

6.2

6.2.1. What types of preparations are referred as nasal preparations? (***15 marks***)

.....

.....

.....

6.2.2. State four nasal preparations. (***10 marks***)

.....

.....

.....

.....

6.2.3. Describe briefly the important advices you should give to a patient on proper administration of a nasal drop, as a community pharmacist. (***30 marks***)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....