



**UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES**

**DEPARTMENT OF PHARMACY**

**FIRST BPHARM PART I EXAMINATION – NOVEMBER/DECEMBER 2019**

**PH 1132 PHARMACEUTICS IA (SEQ)**

**TIME: TWO HOURS**

*Galle*

### INSTRUCTIONS

- There are **four** questions in A, B and C parts of the SEQ paper.
- Answer **each** part in a separate booklet.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

### PART A

1.

1.1. Define the term “micrometrics”. **(10 marks)**

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1.2. List **two** methods which are used to determine the surface area of a particle.

**(10 marks)**

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1.3. Briefly explain the following methods used to determine the particle size.

1.3.1. Sieving **(25 marks)**

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*QUESTION PAPER*

*QUESTION NO. 1*

*Q1. Explain the effect of urinary pH on therapeutic efficacy of a medicine.*

*(30 marks)*

1.3.2. Particle volume measurement

*(25 marks)*

1.4. Briefly explain the effect of urinary pH on therapeutic efficacy of a medicine.

*(30 marks)*

2.

2.1. List **two** medical devices which are used to measure liquid dosage forms.

(10 marks)

2.2. Discuss **five** patient factors which affect for appropriate dose selection. (40 marks)

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2.3. A physician orders 2 mg of ampicillin to be added to each milliliter of a 250 ml bottle of 5% dextrose in water for intravenous infusion.

2.3.1. How many milligrams of ampicillin should be added to 250 ml bottle of 5% dextrose?

**(10 marks)**

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2.3.2. If the 250 ml of solution represents intravenous dose and if the strength of ampicillin to be given is 25 mg/kg of body weight, determine the patient body weight in pounds.

**(10 marks)**

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- 2.4. Prior to hip replacement surgery, a patient receives an injection of an anticoagulant drug at a dose of 30 mg. Following the patient's surgery, the drug is injected at 1 mg/kg. Determine the pre and post-surgical doses for a patient weighing 140 lb.

(15 marks)

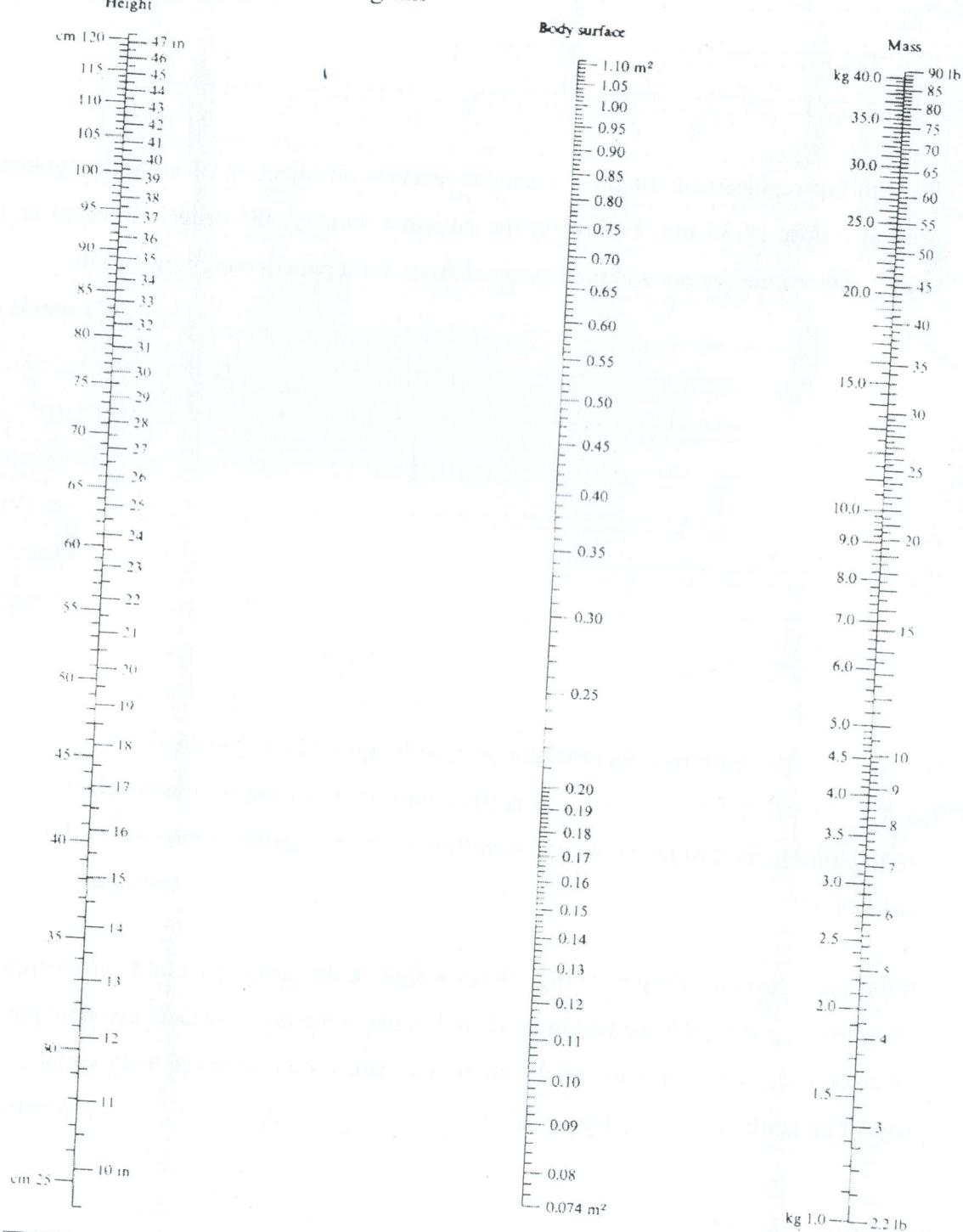
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- 2.5. If the adult dose of a drug is 75 mg. What would be the dose for a child with weight of 40 lb ( $1 \text{ kg} \geq 2.2 \text{ lb}$ ) and height in 32 inches using the body surface area nomogram given below? Note: Drawing on the nomogram is essential, average body surface area of an adult is  $1.73 \text{ m}^2$ ,  $1 \text{ kg} = 2.2 \text{ lb}$ .

(15 marks)

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# The body surface area nomogram



From the formula of DuBois and DuBois, *Arch. intern. Med.*, 17, 863 (1916).  $S = M^{0.425} \times H^{0.725} \times 71.84$ ,  
or  $\log S = \log M + 0.425 + \log H + 0.725 + 1.8564$  ( $S$ : body surface in  $m^2$ ;  $M$ : mass in kg;  $H$ : height in cm).

**PART B**

**3.**

3.1. Define the term "pharmacist". **(10 marks)**

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3.2. Nisal is a 4-years-old baby and he is prescribed 5 ml paracetamol syrup (strength is 120 mg/5 ml) every 6 hours for three days to treat his fever. Calculate the maximum dose of paracetamol will consume during the course of the treatment? Express the answer in grams. **(30 marks)**

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3.3. According to the Avoirdupois System calculate how much grains (gr) contains in 2 pounds (lb)? The relationship between grains and ponds is, 1 pound = 7000 grains.

(10 marks)

3.4. Briefly describe **three** responsibilities of community pharmacists. (30 marks)

3.5. Briefly explain **two** importances of information sources in pharmacy practices.

(20 marks)

**PART C**

4.

4.1. Loratadine is an oral drug. According to its chemical nature it is a weak base and  $pK_a$  is 5. Answer the followings questions.

4.1.1. Calculate the % ionization in stomach ( $pH = 2$ ). **(20 marks)**

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4.1.2. Calculate the % ionization in intestine ( $pH = 8$ ). **(20 marks)**

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4.1.3. Based on your calculation, from where do you think the most of the loratadine will be absorbed? **(10 marks)**

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4.2. Define following terms.

4.2.1. A supersaturated solution. **(15 marks)**

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4.2.2. Tonicity. **(15 marks)**

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4.3. Differentiate between “adsorption” and “absorption” processes. **(20 marks)**  
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