※ 考生請注意：本試題 ☑可 ☐不可 使用計算機

I. Select the ONE lettered answer that is BEST in each case. (20%)

1. Which of the following is true regarding transdermal delivery systems?
   A. Products from different manufacturers require identical amounts of active ingredient to yield equivalent responses.
   B. Skin thickness is not a factor in drug absorption.
   C. The transdermal unit should always be placed at the same site.
   D. The transdermal unit contains more drug than is intended for delivery into the body over the prescribed period of use.
   E. The transdermal uint may remain attached to the skin after the labeled delivery period because drug absorption ceases.

2. Membrane filters with 0.22 micron pores can remove which of the following when used to filter solutions?
   A. bacteria
   B. pyrogens
   C. viruses
   D. fungi
   E. A and D

3. Two formulations of different active ingredients that have been judged to produce similar effects are called
   A. generic equivalence
   B. therapeutic equivalence
   C. pharmaceutical equivalence
   D. both generic and pharmaceutical equivalence
   E. generic, therapeutic, and pharmaceutical equivalence

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4. Which of the following factors is (are) important in the delivery of drug to the intended site of absorption with a metered dose inhaler?
   I. particle size and shape
   II. physiochemical properties of the active ingredient
   III. use of an oral adaptor

   A. I only
   B. III only
   C. I and II only
   D. II and III only
   E. I, II, and III

5. The HLB system is used to classify
   A. flavors
   B. colors
   C. surfactants
   D. organic ring structures
   E. perfumes

6. GMP regulations primarily apply to
   A. pharmaceutical manufacturers
   B. wholesalers
   C. hospital pharmacy
   D. community pharmacy
   E. controlled drugs

7. Which of the following is (are) true for buccal and sublingual tablets?
   I. They are useful for drugs destroyed by gastric fluid.
   II. They are readily soluble.
   III. They are useful for drugs that are poorly absorbed in the intestinal tract.

   A. I and II only
   B. II and III only
   C. II only
   D. III only
   E. I, II, and III

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8. Ophthalmic solutions should be formulated to include which of the following?
   I. sterility
   II. isotonicity
   III. buffering

   A. I only
   B. II only
   C. I and II only
   D. II and III only
   E. I, II, and III

9. Which of the following factors affect the distribution of a drug?
   A. lipid solubility
   B. plasma protein binding
   C. polarity
   D. molecular size
   E. all of the above

10. Radioactive decay follows a
   A. zero-order rate
   B. first-order rate
   C. second-order rate
   D. fractional-order rate
   E. mixed-order rate

(背面仍有題目,請繼續作答)

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II. For each numbered word or phrase, select the ONE lettered heading that is most closely associated with it. (10%)

A. hydrocarbon (oleaginous)
B. absorption (anhydrous)
C. emulsion (W/O type)
D. emulsion (O/W type)
E. water-soluble

1. hydrophilic petrolatum
2. lanolin
3. petrolatum
4. polyethylene glycol
5. hydrophilic ointment

III. A physician prescribes propranolol hydrochloride 1 mg t.i.d, 28 days for a pediatric patient. The pharmacist has 10-mg and 40-mg propranolol hydrochloride tablets, a mortar, and an analytical balance available. Describe the dispensing procedures to fill the prescription, including the type and amount of the tablets and the diluent, and the steps for trituration and dividing. (10%)

IV. Describe five pharmaceutical mechanisms employed to provide controlled release dosage forms. Give examples of drug product for each release mechanism. (10%)

V. In switching a drug from IV to oral dosing, what is the most important consideration? (5%):

VI. If a drug is administered orally as a solution, does it mean that all of the drug will be systemically absorbed? (5%)

VII. Why does the FDA require a food effect study for some generic drug products before granting approval? For which drug products are food effect studies required? (10%)

VIII. How do drug efflux transporters affect the rate and extent of drug absorption and the bioavailability of a drug? (10%)

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IX. Volume of distribution is: (4%)

A. equal to the volume of total body water
B. the volume of extracellular fluid
C. the total volume of the body
D. the constant relating amount of drug in the body to plasma drug concentration

X. Clearance is: (4%)

A. the time taken to reduce the plasma concentration by half
B. the amount of drug metabolized per unit time
C. the volume of blood or plasma irreversibly cleared of drug per unit time
D. the amount of drug excreted in urine per unit time

XI. For a high extraction ratio drug, a halving of hepatic blood flow will approximately: (4%)

A. halve hepatic clearance
B. halve hepatic intrinsic clearance
C. double hepatic extraction ratio
D. double plasma protein binding

XII. After a single dose of a drug which has a half-life of 12 hours, what percentage of the dose is still in the body after 2 days: (4%)

A. 75%
B. 50%
C. 25%
D. 12.5%
E. 6.25%

XIII. A drug has a hepatic extraction ratio of 0.4 and is 60% absorbed from the gut. The bioavailability is: (4%)

A. 0.16
B. 0.24
C. 0.36
D. 0.4
E. 0.6