MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: INDUSTRIAL PHARMACY (PCE 601)

(SPECIALIZATION: PHARMACEUTICS)

Monday, May 27, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 100

✍ **Answer ALL the questions.**

1A. Explain the equipment validation for Tablets.

1B. Discuss the pilot plant scale up technique for semisolids.

(10+10 = 20 marks)

2A. Explain preformulation studies for new dosage form.

2B. Explain the types of raw materials used in chewable tablets and its formulation in detail.

(10+10 = 20 marks)

3A. Explain different inventory techniques used in Pharmaceutical Industry.

3B. Explain the causes and prevention of fire hazards in Pharmaceutical Industry.

(10+10 = 20 marks)

4A. Explain the principles and structure of an organization in a Pharmaceutical Industry.

4B. Explain tertiary effluent treatment in Pharmaceutical Industry.

(10+10 = 20 marks)

5A. Briefly explain different types of applied optimization methods through a flow chart.

5B. Explain the cost control in Pharmaceutical Industry.

(10+10 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: BIOPHARMACEUTICS AND PHARMACOKINETICS (PCE 602)

(SPECIALIZATION: PHARMACEUTICS/ PHARM. QUALITY ASSURANCE)

Wednesday, May 29, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 100

✍   **Answer ALL the questions.**

1A.   Write the importance of physical forms in drug absorption. Explain with suitable examples.

1B.   Describe various rate limiting steps involved in oral drug absorption with suitable examples.

1C.   Explain the pH partition theory in drug absorption. How does the altered gastric pH influence the absorption of acidic and basic drugs?

1D.   Calculate the percent ionization of aspirin (pKa = 3.5) at pH 1.5 and 7.5. Describe the absorption characteristics.

(4+4+10+2 = 20 marks)

2A.   Dissolution is considered as the rate controlling step in the absorption of drugs. Why?

2B.   What is meant by compendial methods for dissolution? List them. Explain one dissolution apparatus that can provide sink condition. Explain it with the help of labeled diagram.

2C.   How is the drug absorption limited by dissolution rate? Explain with the help of an example.

2D.   State and explain Noyes-Whitney equation.

(3+10+4+3 = 20 marks)

3A.   What are the parameters obtained to understand the therapeutic activity of a drug from blood level curves? Explain.

3B.   Explain the biopharmaceutical classification system. What are its applications?

3C.   Explain the physicochemical factors influencing the bioavailability of drugs with suitable examples.

(5+5+10 = 20 marks)

4A.   What is the significance of plasma elimination rate constant? How is it estimated for a drug administered by *i.v.* bolus injection and exhibiting one compartment disposition?

4B.   Compare and contrast one- and two-compartment open model systems of drug disposition.

4C.   The plasma concentration of vincomycin after *i.v.* bolus administration (300 mg) was found to be 10.0 and 5.5 µg/ml at 2 and 4 hours, respectively. Assuming the one compartment kinetics, calculate the half-life of drug.

4D.   Write briefly on the role of physiologic barriers for distribution of drugs in the body.

(4+8+4+4 = 20 marks)

5A. Describe phase II reactions of drug metabolism with examples. What are its consequences?

5B. Explain the tubular reabsorption process (excretion) with specific emphasis on urine pH, pKa and lipophilicity.

5C. Explain the concept of organ clearance. Explain the factors influencing the same.

5D. Enumerate the characteristics of drugs with relevant graphs that show non-linear pharmacokinetics.

$$(5+5+5+5 = 20 \text{ marks})$$

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: ADVANCES IN DRUG DELIVERY SYSTEMS (PCE 603)

(SPECIALIZATION: PHARMACEUTICS)

Friday, May 31, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 100

✍ **Answer ALL the questions.**

1A. Enlist the physicochemical and biological properties for the design of sustained release dosage forms. What are different terminologies associated with sustained release dosage forms?

1B. What are different system parameters in controlled release drug delivery? Explain any THREE parameters.

(10+10 = 20 marks)

2A. Mention different types of osmotic pumps and explain any ONE type of oral osmotic pumps.

2B. Explain the mechanisms of transmucosal permeation.

(10+10 = 20 marks)

3A. Write a note on pulmonary drug delivery systems.

3B. What are the different factors affecting transdermal permeation of drugs? Explain any THREE factors in detail.

(10+10 = 20 marks)

4A. Classify injectable controlled release formulations and explain any TWO formulations.

4B. Mention the different methods of preparation of nanoparticles and explain any two methods in detail.

(10+10 = 20 marks)

5A. Classify polymers with examples. Mention the advantages and disadvantages of using polymers in controlled drug delivery systems.

5B. Explain the design of:
   i)   Ocusert
   ii) Copper IUD

(10+(5+5) = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2013

SUBJECT: COSMETIC TECHNOLOGY (PCE 604)

(SPECIALIZATION: PHARMACEUTICS)

Monday, June 03, 2013

Time: 10:00 – 13:00 Hrs.   Max. Marks: 100

✍ **Answer ALL the questions.**

1A. Explain about applications of cosmeceuticals with examples.

1B. Describe the composition of Oral rinses.

(10+10 = 20 marks)

2A. Write about various types of hair conditioners available.

2B. Compare the regulatory issues of cosmetics of US and Europe.

2C. What are different types of personal hygiene products?

2D. Write about colour additives allowed in cosmetic product.

(5+5+5+5 = 20 marks)

3A. Explain the current trends in cosmetic packaging.

3B. Explain the selection criteria and safety testing of preservatives in cosmetic products.

(10+10 = 20 marks)

4A. Explain about lip colour cosmetics.

4B. Write about preformulation studies of cosmetic product.

(10+10 = 20 marks)

5A. Discuss the formulation and evaluation of moisturizers.

5B. Discuss about cream bases used in hair creams and skin creams.

(10+10 = 20 marks)

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