Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: ADVANCED PHARMACEUTICS (PCE 601T)

(SPECIALIZATION: PHARMACEUTICS)

(2014 REGULATION)

Friday, May 20, 2016

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

Answer ALL questions.

1. Classify and write the characteristics of various ointment and cream bases with suitable examples.

(10 marks)

2. Discuss about the importance of supply chain management (SCM) and challenges in SCM.

(10 marks)

3. Describe various out of specifications and investigations in pharmaceutical formulations.

(10 marks)

4. Classify and explain different types of inserts.

(10 marks)

5. Explain any three novel drug delivery technologies for parenterals.

(10 marks)

6. Describe AERx pulmonary drug delivery system and mucosal atomization device in detail.

(10 marks)

7. Write a short note on the concept of ideal mixing. Compare the Yalkowlky/Bolton with ideal mixing model.

(10 marks)

8. Define Intellectual Property Rights. Explain in detail about the criteria for patentability.

(10 marks)

9. **Write short notes:**

9A. Electrostatic precipitators

9B. Inertial separators

(5+5 = 10 marks)

10. **Write briefly on the following:**

10A. Blister packaging.

10B. Evaluation tests for glass as a packaging material.

(5+5 = 10 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: BIOPHARMACEUTICS AND PHARMACOKINETICS (PCE 602T)

(SPECIALIZATION: PHARMACEUTICS/ INDUSTRIAL PHARMACY/ PHARM. QUALITY ASSURANCE)
(2014 REGULATION)

Monday, May 23, 2016

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

Answer ALL the questions.

1. Explain the methods for calculation of elimination rate constant '*k*' from urinary excretion data.

(10 marks)

2. Describe the characteristics of Nonlinear pharmacokinetics. Explain any two methods to obtain K_m and V_{max}

(10 marks)

3. Describe the in vitro and in vivo correlation in bioavailability studies.

(10 marks)

4. What is accumulation index 'R'? What is its significance? Derive an equation to measure the same.

(10 marks)

5. Describe the phase II biotransformation reactions.

(10 marks)

6. Explain any two compendial methods of dissolution testing.

(10 marks)

7. Explain the determination of binding sites on proteins involved in the binding of drugs.

(10 marks)

8. Explain the application of feathering technique to two compartment open model.

(10 marks)

9. **Write short notes:**

9A. Apparent volume of distribution
9B. Blood brain barrier

(5 marks × 2 = 10 marks)

10. **Write briefly on the following:**

10A. Determination of renal clearance.
10B. Correlation levels of IVIVC for modified release drug products.

(5 marks × 2 = 10 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: ADVANCES IN DRUG DELIVERY SYSTEMS (PCE 603T)

(SPECIALIZATION: PHARMACEUTICS / INDUSTRIAL PHARMACY)

(2014 REGULATION)

Wednesday, May 25, 2016

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

Answer ALL questions.

1. Discuss various factors to be considered in designing of sustained release dosage forms. (10 marks)

2. Explain any three approaches used to improve the oral bioavailability of drugs. (10 marks)

3. Mention different systems used as buccal mucoadhesive drug delivery systems and explain any two systems in detail. (10 marks)

4. Discuss the evaluation aspects of liposomes. (10 marks)

5. Explain the principle and composition of swellable tablets and repeat action tablets. (10 marks)

6. Enlist different drug delivery systems used for pulmonary administration of drugs and explain any TWO systems in detail. (10 marks)

7. Describe different types of formulations used as subdermal implants in brief. (10 marks)

8. Mention different types of transdermal drug delivery systems. Explain any ONE type in detail with more emphasis on components and composition. (10 marks)

9. **Write short notes:**

9A. Important approaches to deliver vaccine formulations
9B. Environmentally responsive polymers

(5 marks × 2 = 10 marks)

10. **Write briefly on the following:**

10A. Advantages and disadvantages of nanocarriers
10B. Components and composition of Ocuserts

(5 marks × 2 = 10 marks)

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FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: PHARMACEUTICAL PRODUCT DEVELOPMENT (PCE 604T)

(SPECIALIZATION: PHARMACEUTICS/ INDUSTRIAL PHARMACY)

(2014 REGULATION)

Friday, May 27, 2016

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

✍ **Answer ALL the questions.**

1. Discuss different parts of differential scanning calorimetric curve and the reasons for the same.

(10 marks)

2. Excipient interactions are what make the formulations work or not work in some cases. Explain.

(10 marks)

3. Explain the effect of following on solubility of drugs:

3A. Prodrug

3B. Co-solvency

(5+5 = 10 marks)

4. Discuss the importance of scale-up, process validation and technology transfer in the generic product development.

(10 marks)

5. Discuss in detail any five kinetic models for dissolution profile.

(10 marks)

6. Explain the factors influencing stability of drugs.

(10 marks)

7. **Explain the following:**

7A. Histogram, Pie charts and Scatter plots

7B. Regression with its types

(5+5 = 10 marks)

8. Compare and contrast the simplex and lagrangian methods of optimization.

(10 marks)

9. **Write short notes:**

9A. pH dependence solubility study for a weak acid

9B. Hixson and Crowell Cube root

(5 marks × 2 = 10 marks)

10. **Write briefly on the following:**

10A. Photostability testing of new drug substances

10B. FTIR technique for drug excipient interaction identification

(5 marks × 2 = 10 marks)