MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: MODERN PHARMACEUTICAL ANALYSIS (PQA 601)

(SPECIALIZATION: PHARMACEUTICS / PHARMACOLOGY / PHARM. QUALITY ASSURANCE / PHARM. BIOTECHNOLOGY)

Thursday, May 27, 2010

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

- ✍ **Answer ALL questions.**
- ✍ **Draw neatly labelled diagrams wherever necessary.**

1A. Define Lamberts-Beer's law and derive an expression for the same.

1B. Explain the construction and working of any two detectors used in UV Visible spectrophotometer.

1C. Discuss the factors influencing vibrational frequencies of molecules.

1D. Explain the solid sampling technique in IR spectroscopy.

(5×4 = 20 marks)

2A. Explain with suitable examples, the effect of solvent and temperature on absorption spectra.

2B. Explain the factors affecting quenching of fluorescence.

2C. Discuss the inductive effect and diamagnetic effect.

2D. Explain the steps involved in NMR data interpretation.

(5×4 = 20 marks)

3A. Write a note on size exclusion chromatography.

3B. Explain the construction and working of electrochemical detector. Explain the advantages in terms of sensitivity and specificity.

3C. Write a note on solvent selection in HPLC.

3D. Explain the meaning of split, splitless an on column injection. Explain various sample injection systems in brief.

(5×4 = 20 marks)

4A. With suitable example discuss about chemical ionization.

4B. Discuss in detail about MALDI-TOF.

4C. Discuss the principle, various methods and applications of capillary electrophoresis.

(5+5+10 = 20 marks)

5A. Write a note on triple quadrupole mass analyzer.

5B. Discuss the applications of ELISA and RIA.

5C. Compare HPTLC and TLC.

5D. Explain derivative spectroscopy with suitable examples.

(5×4 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: INDUSTRIAL PHARMACY (PCE 601)

(SPECIALIZATION: PHARMACEUTICS)

Friday, May 28, 2010

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

✍   **Answer ALL questions. All questions carry equal marks.**

1A.   Write a short note on material management in pharmaceutical industry.

1B.   Write salient features of intellectual property rights.

2A.   Write a short note on the ISO 9000 series.

2B.   Explain the effluent testing methods of pharma unit.

3A.   Explain about preformulation studies in tablets.

3B.   Discuss formulation and compression aspects of different types of tablets.

4A.   Explain the production planning, scheduling and forecasting with specific reference to plant and machinery.

4B.   Briefly describe the inbuilt safety parameters adopted in a facility for production of alcoholic products.

5.   **Write short notes on:**

5A.   Product stability of liquid orals

5B.   Plant site selection

5C.   Cost control in production management

5D.   Vendor development

MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: BIOPHARMACEUTICS AND PHARMACOKINETICS (PCE 602)

(SPECIALIZATION: PHARMACEUTICS/ PHARM. QUALITY ASSURANCE)

Saturday, May 29, 2010

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

✍   **Answer ALL questions.**

1A.   Discuss the biological factors affecting drug absorption.

1B.   Explain carrier mediated and pore transport mechanisms of drug absorption.

(10+10 = 20 marks)

2A.   Mention the methods to measure bioavailability of a drug and explain invitro dissolution testing.

2B.   Give the elements of a typical protocol in the bioequivalence study.

(10+10 = 20 marks)

3A.   Explain the pharmacokinetics of a drug given intravenously as a bolus dose and give equations for calculating relevant pharmacokinetic parameters. (Assume one compartment model).

3B.   An I.V. bolus administration of 100 mg of a drug gave AUC as 67.43 mcg.hr Ml^{-1} and AUMC as 553.21 mcg.hr^2 ml^{-1}. Calculate the mean residence time, elimination rate constant, clearance and volume of distribution.

(12+8 = 20 marks)

4A.   Explain the tissue permeability and perfusion rate limited distribution of drug.

4B.   Explain the steps in the cytochrome P-450 oxidation and glutathione conjugation reactions.

(12+8 = 20 marks)

5A.   Explain the role of drug p^{Ka} and Urine p^{H} in the reabsorption of drugs.

5B.   Explain biliary excretion of drugs.

5C.   Define dose dependent Kinetics. Write simple tests to detect nonlinearity in a rate process.

5D.   Write the advantages and disadvantages of compartment modeling.

(5+5+4+6 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: ADVANCES IN DRUG DELIVERY SYSTEMS (PCE 603)

(SPECIALIZATION: PHARMACEUTICS)

Monday, May 31, 2010

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

✐   **Answer ALL questions.**

1A.   Discuss coacervation – phase separation method for the preparation of microcapsules.

1B.   Describe osmotic pressure controlled drug delivery system for oral use.

(10+10 = 20 marks)

2A.   Discuss the design of buccal drug delivery systems.

2B.   With the help of a suitable example, explain the effect of system parameters on feed back regulated drug delivery systems.

(10+10 = 20 marks)

3A.   Explain the techniques used for developing transdermal drug delivery systems.

3B.   Discuss the design of "Occuserts".

(12+8 = 20 marks)

4A.   Discuss the following as carriers in drug targetting:

i)   nano particles.

ii)   magnetic microspheres.

4B.   Give an account of biodegradable polymers used in the design of drug delivery systems.

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

5A.   Discuss the approaches for development of subdermal implants.

5B.   Explain the design of a hormone releasing IUD.

(10+10 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: COSMETIC TECHNOLOGY (PCE 604)

(SPECIALIZATION: PHARMACEUTICS)

Tuesday, June 01, 2010

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

✍ **Answer ALL questions.**

1A. Enumerate and briefly explain the process employed in formulation of lipstick.

1B. Write about selection criteria for preservatives.

(10+10 = 20 marks)

2A. Write a detailed note on dentifrices with more emphasis on their usage.

2B. What are the different types of personal hygiene products? Explain any one in detail.

(10+10 = 20 marks)

3A. Explain the use of Botanical extracts in cosmetics.

3B. Explain about permanent hair dyes.

(10+10 = 20 marks)

4A. How do you determine the shelf life of a medicated cosmetic product.

4B. Write a note on colours used in cosmetics.

(10+10 = 20 marks)

5A. Describe the various packaging materials used for cosmetic products packaging.

5B. Discuss the legal requirements governing cosmetic products in India.

(10+10 = 20 marks)