MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: INSTRUMENTAL AND BIOMEDICAL ANALYSIS (PQA 402)
(CREDIT BASED SYSTEM)

Tuesday, May 03, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍   **Answer all questions. Draw neatly labeled diagram wherever necessary.**

✍   **Long Essays:**

1A.   Explain the construction and working of simple potentiometer.

1B.   Explain the various quantitative methods for polarographic analysis.

(4+4 = 8 marks)

2.   Explain wavelength selectors in UV- visible spectrophotometer in detail.

(8 marks)

3A.   Explain the advantages of chromatography as separation techniques over other methods.

3B.   List the ideal properties of detectors used in GC.

(4+4 = 8 marks)

4.   **Short Essays:**

4A.   Explain the theory of IR spectroscopy.

(4 marks)

4B.   Explain the concept of statistical quality control.

(4 marks)

4C.   i)   Differentiate fluorimeter and spectroflourimeter.

ii)   Write a short note on fixed ion and counter ion used in ion exchange chromatography.

(2+2 = 4 marks)

4D.   i)   Differentiate elastic and inelastic scattering with examples.

ii)   What are chemical shift and coupling constant?

(2+2 = 4 marks)

5.   **Short Answer:**

5A.   Name two sources each for flame photometer and atomic emission spectrometer.

5B.   What are differential thermal analysis and optical rotatory dispersion?

5C.   What is reciprocal lattice concept in X- ray diffraction?

5D.   Name any four ionization techniques in mass spectrometry.

5E.   Write the advantages of atomic absorption spectroscopy over flame photometry.

(2×5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: INSTRUMENTAL AND BIOMEDICAL ANALYSIS (PQA 402)
(MAHE SYLLABUS)

Tuesday, May 03, 2011

Time: 10:00 – 13:00 Hrs.

Max. Marks: 75

✍ **Long Essay:**

1A. Explain the instrumentation of gas chromatography.
1B. Classify with examples the adsorbents used in column chromatography.

(5+5 = 10 marks)

2. Define the terms conductance and specific conductivity. What shapes of curves do you expect for the following conductometric titrations? Justify your answer.
i) strong acid Vs strong base ii) weak acid Vs weak base iii) mixture of strong acid and weak acid Vs strong base.

(10 marks)

3A. Discuss the theory of U.V. visible spectroscopy.
3B. Outline the utility of absorption spectroscopy in the qualitative and quantitative analysis.

(5+5 = 10 marks)

4A. Explain the theory of NMR spectroscopy.
4B. Explain in detail about six basic concepts of total quality management.

(5+5 = 10 marks)

5. **Short Essay:**

5A. Write the principle and applications of Ion exchange chromatography.

(5 marks)

5B. Explain the theory of IR spectroscopy.

(5 marks)

5C. i)   Differentiate between nephelometry and turbidometry.
ii) Write a note on Bragg's equation.

(3+2 = 5 marks)

5D. i)   Explain the principle of flame photometry and name the interferences.
ii) What are molecular ion peak and base peak in mass spectroscopy?

(3+2 = 5 marks)

5E. i)   Write a Short note on Statistical quality control.
ii) Mention four pharmaceutical uses of polarography.

(3+2 = 5 marks)

5F. Write the advantages and applications of Atomic absorption and atomic emission spectroscopy.

(5 marks)

5G. i)   Explain the factors influencing the quenching of fluorescence.
ii) Write the principle of differential scanning calorimeter.

(3+2 = 5 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: CLINICAL PHARMACY AND THERAPEUTICS (PPR 401)
(CREDIT BASED SYSTEM)

Tuesday, May 10, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

1A. Describe the management of hypertension as per latest JNC guidelines.
1B. Describe the role of nitrates in the management of angina.

(4+4 = 8 marks)

2. Enumerate the various complications of chronic renal failure and explain the management of any three.

(2+6 = 8 marks)

3A. Differentiate between bronchitis and emphysema.
3B. Explain the management of chronic obstructive pulmonary disease.

(3+5 = 8 marks)

4. **Short Essays:**

4A. Enumerate the clinical manifestations and management of uncomplicated urinary tract infection in adults.
4B. Explain the role of atypical antipsychotics in the management of schizophrenia.
4C. Describe the general prescribing guidelines for geriatrics.
4D. Explain the different sources of drug information.

(4×4 = 16 marks)

5. **Short Answers:**

5A. Explain the role of lithium in psychiatric disorders.
5B. Mention four examples of pharmacokinetic drug interactions.
5C. Explain the role of carbimazole in the management of thyroid disorder.
5D. Mention four predisposing factors for adverse drug reactions.
5E. Explain the management of megaloblastic anemia.

(2×5 = 10 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: INDUSTRIAL PHARMACY (PCE 403)
(MAHE SYLLABUS)

Thursday, May 05, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 75

✍ **Answer all questions.**

1. **Short Answers:**

1A. Explain any two factors considered in the formulation of liquid orals.

1B. What are the ideal properties of ointment bases?

1C. Explain the evaluation tests for the performance testing of aerosols.

1D. What are the therapeutic uses of radiopharmaceuticals?

1E. Explain one method to prepare microspheres.

1F. What are the requirements of GMP under part-I of schedule M?

1G. Give the general description of plastic resins available for packaging of drug products.

(5×7 = 35 marks)

✍ **Essay questions:**

2. Discuss the processing problems occur in the production of tablets.

(10 marks)

3. Describe the rotary die process of soft gelatin capsules manufacturing.

(10 marks)

4. Describe the layout of aseptic manufacturing of injections.

(10 marks)

5. Explain the formulation of following cosmetic preparations with suitable formula.
    i.   Liquid shampoo
    ii.   Vanishing cream.

(5+5 = 10 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: INDUSTRIAL PHARMACY (PCE 403)
(CREDIT BASED SYSTEM)

Thursday, May 05, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

1. With suitable diagrams, explain the principle of dosing disk and dosator methods of filling hard gelatin capsules.

                                                                (4+4 = 8 marks)

2. Mention different methods used to measure the tonicity in sterile products and explain class-I methods of tonicity adjustment in detail.

                                                                (8 marks)

3. Explain the types of aerosol systems.

                                                                (8 marks)

4. **Short Notes:**

4A. Explain the compounding of liquid dosage form with a suitable formula.

4B. Write on plastics as packaging materials for pharmaceuticals.

4C. Compare wet and dry granulation methods for tablet manufacturing.

4D. Discuss the weight variation and content uniformity tests for tablets.

                                                                (4×4 = 16 marks)

5. **Short Answers:**

5A. What are the steps involved in hard gelatin capsule shell manufacturing?

5B. Write on sealing materials used in sugar coating of tablets.

5C. List the therapeutic uses of radiopharmaceuticals.

5D. Write a note on water for injection.

5E. Write the importance of GMP in pharmaceutical industry.

                                                                (2×5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: MEDICINAL CHEMISTRY – II (PCH 404)
(MAHE SYLLABUS)

Tuesday, May 17, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 75

✎ **Long Essay:**

1A. Write the synthesis, chemical names and mechanisms of action of hydralazine and enalapril.

1B. Classify diagnostic agents with examples. Write the chemical name, specific use and synthesis of diatrizoic acid.

$$(((2+¼+¾)×2)+(1+¼+¼+2½) = 10 \text{ marks})$$

2A. What are antihyperlipidemic agents? Classify them with examples. Explain the mechanism of action of gemfibrozil and lovastatin giving their structures.

2B. Write a note on mechanism of blood coagulation. Explain the mechanism of action and synthesis of warfarin sodium.

$$((½+1+1½+2)+(2+1+2) = 10 \text{ marks})$$

3. Define and classify antimalarial agents with structures and give the mechanism of action and synthesis of primaquine.

$$(2+3+5 = 10 \text{ marks})$$

4. Write two examples each with structures for acid resistant, penicillinase resistant and broad spectrum penicillins. Outline the method of synthesis of penicillin V.

$$(6+4 = 10 \text{ marks})$$

5. **Short Essays:**

5A. Give the structures, chemical names and uses of the following:
   i)   amiodarone   ii)   diltiazem   iii) tolbutamide
   iv)   nitroglycerine   v)   methimazole

5B. Write the SAR of quinolones as urinary antibacterials.

5C. Classify sulphonamides. Give their chemistry and toxicity.

5D. Define and classify antiviral agents with structures.

5E. Outline the synthesis and mode of action of lomustine and 6-mercatopurine.

5F. Write the structures of two imidazole derivatives used as antifungals and give their mechanism of action.

5G. Give the structures, uses and mechanism of action of two carbonic anhydrase enzyme inhibitors.

$$(5×7 = 35 \text{ marks})$$

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: MEDICINAL CHEMISTRY – II (PCH 404)
(CREDIT BASED SYSTEM)

Tuesday, May 17, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long essays:**

1A. Define diuretics with their uses. Explain the SAR and mechanism of action of Thiazide diuretics. Out line the synthesis of Furosemide.

1B. Classify Calcium channel blockers giving structure of one agent from each class. Write the synthesis of Nifedipine.

(5+3 = 8 marks)

2A. What are antiseptics? Distinguish them from disinfectants. Classify them by giving one structure from each class.

2B. What are the basic phases of computer aided drug design? Give their application.

(5+3 = 8 marks)

3A. Classify antineoplastic agents. Give two examples from each class with structures.

3B. Explain the mechanism of action of Cyclophosphamide and Methotrexate.

(5+3 = 8 marks)

4. **Short Essays:**

4A. Write the structure, chemical naming and uses of the following:
   i)   Amiodarone   ii)   Warfarin sodium
   iii)   Diatriazoic acid   iv)   Glibenclamide

4B. Out line the synthesis of Pyrimethamine and Chloroquine.

4C. What is Cotrimoxazole? Explain the mechanism of action of Sulpha drugs. Give an account of their SAR.

4D. Discuss the chemistry, mechanism of action and SAR of Tetracyclines.

(4×4 = 16 marks)

5. **Short Answers:**

5A. What are antihyperlipidimic agents? Name one HMG Co-A reductase inhibitor giving the structure and mechanism of action.

5B. Write the structure, mechanism of action and uses of ACE inhibitors.

5C. Write the chemistry of Beta-lactamase inhibitors.

5D. What are anthelmintics? Write the synthesis of Mebendazole.

5E. Write in brief on combinatorial chemistry with its applications.

(2×5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: PHARMACOLOGY – II (PHA 405)
(MAHE SYLLABUS)

Saturday, May 07, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 75

✍ **Answer all questions.**

1. Classify antifungal agents with examples. Describe the mechanism of action of different classes of antifungal drugs.

(10 marks)

2. Outline the major approaches to drug discovery. Write a note on special toxicity studies.

(6+4 = 10 marks)

3. Classify tricyclic antidepressants with examples. Discuss the pharmacological actions of tricyclic antidepressants. Write a short note on the adverse drug reactions of tricyclic antidepressants.

(2+4+4 = 10 marks)

4. Describe the mechanism of action of NSAIDs. Discuss the general actions of NSAIDs.

(5+5 = 10 marks)

5A. Write briefly on toxicity and precautions to be taken while prescribing tetracyclines.

5B. Write briefly on long acting preparations of penicillin G.

5C. Highlight the salient features of fluoroquinolones.

5D. Discuss the role of antimetabolites in cancer chemotherapy.

5E. Discuss, with an illustrative example, how a quantal assay is performed.

5F. Compare barbiturates and benzodiazepines.

5G. Write short note on 5 HT antagonists as antiemetics.

(5×7 = 35 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: PHARMACOLOGY – II (PHA 405)
(CREDIT BASED SYSTEM)

Saturday, May 07, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍   **Answer all the questions.**

✍   **Long Essays:**

1. With a diagram describe the mechanisms of action of three drugs which inhibit bacterial cell wall synthesis at different stages. Mention the drawbacks of penicillin G.

(6+2 = 8 marks)

2. Explain with a neat diagram the process of gastric acid secretion in parietal cell. Describe how different classes of antisecretory drugs which interfere with this process.

(4+4 = 8 marks)

3. Classify neuroleptics with examples. Write briefly on Olanzepine.

(3+5 = 8 marks)

4. **Short Essays:**

4A. Describe the mechanism of action and side effects a HIV protease inhibitors.

4B. Describe the mechanism of action of cyclophosphamide with its toxic effects.

4C. Preanaesthetic medication.

4D. Define Bio-assays and describe briefly any one bio-assay you have studied.

(4×4 =16 marks)

5. **Short answers:**

5A. Clinical applications of Metronidazole.

5B. Dapsone – explain its mechanism of action.

5C. Therapeutic uses of immunosuppressants.

5D. Why is ethosuximide used in absence (petit mal) seizures?

5E. Name two inhibitory and two excitatory transmitters in the CNS.

(2×5 =10 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: PHARMACOGNOSY – III (PCO 406)
(MAHE SYLLABUS)

Saturday, May 14, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 75

✍ **Answer all the questions.**

✍ **Draw neat labeled diagrams wherever necessary.**

1. **Short Essays:**

1A. List out the important pesticides of natural origin. Give the constituents responsible for their various pesticidal actions.

1B. Name and describe any two antihypertensive agents from plants.

1C. Describe tests for allergy.

1D. Write an essay on protoplast culture.

1E. Describe any two sweeteners of plant origin.

1F. Write the principle and procedure involved in the detection of lead and cadmium in herbal preparations.

1G. Write a short essay on the importance of herbal medicines in India.

(5×7 = 35 marks)

✍ **Long Essays:**

2. Give a detailed account on Streptokinase and Hyaluronidase.

(10 marks)

3. Explain in detail the pharmacognosy of Vasaka.

(10 marks)

4A. What are plant exudates? Give the preparation of any three such plant exudates.

4B. Give the biological source and uses of Hesperidin. Describe the method of isolation of Hesperidin.

(5+5 = 10 marks)

5A. Define menstruum and give the flow sheet for the extraction of herbs.

5B. Discuss Pyrethrins and explain their role as insecticides.

(5+5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: PHARMACOGNOSY – III (PCO 406)
(CREDIT BASED SYSTEM)

Saturday, May 14, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer all the questions. Draw a neat labeled diagrams wherever necessary.**

✍ **Long Essays:**

1A.   What is callus? Explain the growth and maintenance of a callus culture.

1B.   Discuss the principle and procedure involved in the detection of lead and cadmium in medicinal plant materials.

(4+4 = 8 marks)

2A.   Explain the Fluidized bed reactor and Membrane reactor for the production of enzymes.

2B.   How are Guggul sterones extracted? Give its biological source and uses.

(4+4 = 8 marks)

3A.   With the help of chemical structures, illustrate the relationship scheme between the important constituents of Ipecac.

3B.   Describe the cultivation and method of production of Opium.

(4+4 = 8 marks)

4.   **Short Essays:**

4A.   Discuss in brief the various principles of Ayurveda.

4B.   Define the following terms:
   i)   Allergy   ii)   Allergens
   iii) Primary exposure   iv)   Secondary exposure.

4C.   Describe the mode of action and uses of the Pyrethrins.

4D.   Describe the method of isolation of Digitoxin.

(4×4 = 16 marks)

5.   **Short Answers:**

5A.   What is Kalmegh?

5B.   Give the source, composition and uses of Honey.

5C.   Dolastatins.

5D.   Define and classify nutraceuticals based on their source.

5E.   CDRI and CTRI.

(2×5 = 10 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2011

SUBJECT: PHARMACEUTICAL MANAGEMENT (PMA 407)
(CREDIT BASED SYSTEM)

Thursday, May 12, 2011

Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

1. Enlist different motivation theories. Explain any one theory in detail.

2. Explain concept of 'Accountancy'. Write brief account on 'Single entry and double entry' book keeping.

3. Discuss the criteria for Site Selection for a Pharmaceutical company.

(8×3 = 24 marks)

4. **Short Notes:**

4A. Discuss tools and methods to spread awareness about environment.

4B. Define Demand. What are various types of demand? Explain with relevant examples.

4C. Briefly write about importance and limitations of segmentation. How pharmaceutical market is segmented? Add a note on dimensions of pharmaceutical market.

4D. What factors influence pricing in pharmaceutical industry? Add a note on pricing objectives. Enlist steps in developing pricing for a new product.

(4×4 = 16 marks)

5. **Short Answers:**

5A. Enlist different leadership theories.

5B. Define 'Planning' and 'Organisation'.

5C. Enlist quality management principles of ISO.

5D. What are Deming's 14 principle of Total Quality Management?

5E. Write a brief note on "targeting".

(2×5 = 10 marks)