MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: ADVANCED INDUSTRIAL PHARMACY
(RGUHS SYLLABUS)

Tuesday, May 05, 2009

Time available: 10:00 – 13:00   Max. Marks: 80

✍ **Long Essays: (Answer any TWO of the following)**

1A.   Discuss the methods of preparation of liposomes as drug carriers.

1B.   Explain the kinetics of two compartment open model for *i.v* bolus administration.

1C.   Explain the mechanism of drug absorption by carrier mediated transport.

$(10×2 = 20 \text{ marks})$

✍ **Short Notes: (Answer any EIGHT of the following)**

2A.   Describe the air suspension method of microencapsulation.

2B.   Write notes on matrix tablets.

2C.   Explain the significance of pilot plant studies in pharmaceutical industry.

2D.   What are the quality control tests performed on herbal formulations?

2E.   Explain the process validation for pharmaceutical operations.

2F.   Write notes on veterinary feed additives.

2G.   Explain the preparation of allergenic extracts.

2H.   Explain Noye's Whitney dissolution rate law.

2I.   Explain the relationship between bioavailability and therapeutic effect.

2J.   Discuss the kinetics of drug protein binding.

$(5×8 = 40 \text{ marks})$

✍ **Short Answers: (Answer ALL the questions)**

3A.   What is compartment modeling?

3B.   Define bioavailability.

3C.   What is biological half life?

3D.   What are novel drug delivery systems?

3E.   Classify herbal extracts.

3F.   Define validation.

3G.   Give the applications of pharmacokinetics.

3H.   Define apparent volume of distribution.

3I.   Mention the factors influencing protein binding of drugs.

3J.   Classify veterinary products.

$(2×10 = 20 \text{ marks})$

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

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

Tuesday, May 05, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 50

✎ **Answer all the questions.**

✎ **Long Essays:**

1. Discuss about one compartmental pharmacokinetic model for intravenous infusion.

    (8 marks)

2. Enumerate various triggering factors for asthma and explain stepwise approach in the management of chronic asthma.

    (3+5 = 8 marks)

3. Describe the pathophysiology of heart failure and mention the role of digoxin in the management of the same.

    (4+4 = 8 marks)

4. **Short Essays:**

4A. Explain the clinical manifestations and management of megaloblastic anaemia.

4B. Explain the drug treatment of hyperthyroidism.

4C. Enumerate various complications of alcoholic liver disease and explain the management of any one.

4D. Explain the etiology and management of community-acquired pneumonia.

    (4×4 = 16 marks)

5. **Short Answers:**

5A. Enumerate various clinical pharmacy services rendered by the pharmacist.

5B. Write the formulae to calculate creatinine clearance.

5C. Classify various drug information resources.

5D. Give one example each for pharmacokinetic and pharmacodynamic drug interactions.

5E. Enumerate two antiepleptics used in the management of partial seizures with their usual adult dose.

    (2×5 = 10 marks)

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MANIPAL UNIVERSITY
FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009
SUBJECT: CLINICAL PHARMACY AND THERAPEUTICS (PPR 401)
(MAHE SYLLABUS)

Tuesday, May 05, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 75

✍ **Answer ALL questions.**

SECTION – A

1A. Differentiate between various types of angina.

1B. Discuss the management of acute myocardial infarction.

(5+5 = 10 marks)

2. Enumerate the professional activities of a clinical pharmacist and describe the goals and procedures for ward round participation.

(5+5 = 10 marks)

3A. Explain the etiopathogenesis of acute renal failure.

3B. Explain the management of uremia and hyperkalemia during chronic renal failure.

(5+5 = 10 marks)

4A. Define and explain the signs and symptoms of Parkinsonism.

4B. Explain the management of Parkinsonism.

(5+5 = 10 marks)

SECTION – B

5. Describe the management of uncomplicated malaria in adults.

6. Describe the general prescribing guidelines in pediatrics and geriatrics.

7. Explain the stepwise management of chronic asthma.

8. Explain the role of ACE inhibitors in the management of hypertension.

9. Define and classify adverse drug reactions with suitable examples.

10. Explain the role of steroids in the management of rheumatoid arthritis.

11. Mention the role of Digoxin in the management of congestive heart failure.

(5×7 = 35 marks)

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MANIPAL UNIVERSITY
FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009
SUBJECT: INSTRUMENTAL & BIOMEDICAL ANALYSIS (PQA 402)
(MAHE SYLLABUS)

Thursday, May 07, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 75

✍ **Answer all questions.**

✍ **Long Essays:**

1A.   Explain the principle in elution and extrusion analysis in column chromatography.
1B.   Explain the factors affecting the column efficiency in column chromatography.

(5+5 = 10 marks)

2A.   Explain the methods for the location of end point in potentiometric titration.
2B.   Explain the determination of conductivity of a solution using wheatstone bridge.

(5+5 = 10 marks)

3A.   With the help of a neatly labelled diagram, explain the construction and working of the photomultiplier tube.
3B.   Write a note on UV transmission limits for common solvents.

(5+5 = 10 marks)

4A.   Explain the radiation sources used in IR spectrophotometer.
4B.   Enumerate briefly the ISO guidelines.

(5+5 = 10 marks)

✍ **Short Essays:**

5.   Explain the principle and advantages of gas chromatography.

(5 marks)

6A.   What are the types of audits? Explain briefly.
6B.   Define and explain optical rotatory dispersion.

(3+2 = 5 marks)

7A.   Give the application of nephelo-turbidometry.
7B.   Name one reference standard each used in ESR spectroscopy and NMR spectroscopy.

(3+2 = 5 marks)

8A.   How the thiamine is analyzed fluorimetrically?
8B.   Mention the various components of flame photometer.

(3+2 = 5 marks)

9A.   What are the advantages of atomic absorption spectroscopy?
9B.   Explain the formation and importance of the metastable ion and base peak in MS.

(3+2 = 5 marks)

10A. List the applications of NMR spectroscopy.
10B. Give the formula to calculate specific optical rotation of solids and liquid. Explain the terms involved in the formula.

(3+2 = 5 marks)

11A. Write a note on atomic emission spectroscopy.
11B. Write a note on the principle of differential scanning calorimeter.

(3+2 = 5 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

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

Thursday, May 07, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 50

✎ **Answer ALL the questions. Draw neatly labelled diagrams wherever necessary.**

✎ **Long Essays:**

1A. Explain any two amperometic titrations.

1B. Why is it necessary to remove the dissolved oxygen from electrolyte solution before polarographic analysis? How oxygen is removed? Write a note on polarographic maxima.

(4+4 = 8 marks)

2A. Outline the utility of absorption spectroscopy in the qualitative and quantitative analysis.

2B. Explain with examples how a non-fluorescent chemical compound is converted to fluorescent chemical compound for quantitative analysis.

(4+4 = 8 marks)

3. What is chromatography? Classify and explain the principle of each type with suitable example.

(8 marks)

4. **Short Essays:**

4A. Draw a neat and labeled diagram of dispersive IR spectrometer. What are its limitations?

(4 marks)

4B. Explain in detail about six basic concepts of total quality management.

(4 marks)

4C. i) Name two fuel and two oxidants used in flame photometry.
     ii) Define electrophoresis and explain its principle.

(2+2 = 4 marks)

4D. i) Why nephelometry is more sensitive than turbidometry?
     ii) What reference standard is used in NMR spectroscopy? Why?

(2+2 = 4 marks)

5. **Short Answers:**

5A. Explain with example the usefulness of N (1 Naphthyl) ethylene diamine dihydrochloride in colorimetric analysis.

5B. What are differential thermal analysis and inductive coupled plasma source?

5C. Name any two applications each of X ray diffraction and optical rotatory dispersion.

5D. What are mass analyzer and specific optical activity?

5E. Explain two spectral line broadening effects in atomic absorption spectroscopy.

(2×5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

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

Tuesday, May 12, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 50

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

✍ **Long Essays:**

1A. Discuss the basic principles of Unani system of medicine.

1B. Describe the role of HPTLC for the analysis of plant constituents.

(4+4 = 8 marks)

2. Describe in detail the pharmacognosy of *folia* Vasaka.

(8 marks)

3. Give the biological source, method of isolation, estimation and identification of Ephedrine.

(8 marks)

4. **Short Essays:**

4A. Write a short essay on suspension culture with suitable examples.

4B. Discuss the role of Pyrethrins as natural insecticides.

4C. How will you purify enzymes by Chromatography? Explain the various methods involved briefly.

4D. Describe the preparation of Allergenic extracts and treatment of allergy.

(4×4 = 16 marks)

5. **Short Answers:**

5A. Give the source and uses of Karela and Gurmar.

5B. Give the mechanism of action of dietary fibres.

5C. Source, active constituents and uses of Vinca.

5D. Marine sponges.

5E. Mention any four advantages of non-saccharide sweetening agents.

(2×5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: INDUSTRIAL PHARMACOGNOSY
(RGUHS SYLLABUS)

Tuesday, May 12, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 80

✍ **Answers should be specific to the questions.**
✍ **Draw neat labeled diagrams and chemical structures wherever necessary.**

1. **Long Essays: (Answer any TWO)**

1A. Describe the method of isolation, identification and estimation of Andrographolides.

1B. Discuss the general methods of isolation and purification of enzymes.

1C. Describe Vasaka under suitable monograph with special emphasis on its standardization.

<div align="right">(10×2 = 20 marks)</div>

2. **Short Essays: (Answer any EIGHT)**

2A. W.H.O. procedure for the determination of Saponins.

2B. Significance of Extractive values.

2C. Acupuncture and Moxibustion.

2D. Physical methods of gene transfer.

2E. Isolation of an anti-malarial drug.

2F. Give the source and assay of Phyllanthin.

2G. Immobilisation and its applications.

2H. Isolation procedure for Hesperidin.

2I. Organoleptic evaluation of crude drugs.

2J. Principle and procedure involved in the preparation of Taila.

<div align="right">(5×8 = 40 marks)</div>

3. **Short Answers: (Answer ALL)**

3A. Fermented ayurvedic preparations.

3B. Define patent act and patent agent.

3C. CRI and CPCRI.

3D. Identification and uses of Digitoxin.

3E. Leiberman burchard test.

3F. Source, active constituents and uses of Punarnava.

3G. Significance of Acid insoluble ash.

3H. Polyploidy.

3I. Marker compound.

3J. Kantakari.

<div align="right">(2×10 = 20 marks)</div>

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: INSTRUMENTAL AND BIOMEDICAL ANALYSIS
(RGUHS SYLLABUS)

Thursday, May 14, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 80

1.   Long Essays: (Answer any TWO)

1A. Describe the construction, working, advantages, disadvantages and applications of standard hydrogen electrode.

1B. Explain the instrumentation of gas chromatography. What is the principle of quantitative determination by this method?

1C. Draw a neatly labeled diagram of double beam UV-Visible spectrophotometer. Explain each component.

(10×2 = 20 marks)

2.   Short Essays: (Answer any EIGHT)

2A. Explain the principle of flame photometry. Write note on interferences.

2B. What is the principle of conductometric titrations? Explain the conductometric titration of a mixture of strong acid and weak acid against strong base.

2C. Explain how spectrofluorimetric measurement is more sensitive and reliable than the spectrophotometric measurement?

2D. How can a non-fluorescent chemical compound be converted to fluorescent chemical compound for quantitative analysis? Explain with examples.

2E. Explain in brief the detectors used in IR spectrophotometer.

2F. Why it is necessary to remove the dissolved oxygen from electrolyte solution before polarographic analysis? How oxygen is removed? :

2G. Describe the methodology employed in column chromatography.

2H. What is nephelo-turbidometry? Give its applications.

2I. What is electrophoresis? Give factors affecting the processes. Give applications of electrophoresis.

2J. Explain the factors affecting the Rf value in thin layer chromatography.

(5×8 = 40 marks)

3.   Short Answers: (Answers the following)

3A. "Finger print region is a boon to quality control analyst." Comment. ‧

3B. Define the terms "wave length and absorbance.

3C. What are the detectors used in fluorimeter?

3D. Define the terms "Indicator" and "reference electrodes. Give examples.

3E. What is the cell constant and how is it determined?

3F. What are the precautions to be taken for dropping mercury electrode?

3G. What are the advantages and limitations of TLC?

3H. Name any four differences between nephelometer and turbidometer.

3I. What is TMS? Mention its use in NMR spectroscopy.

3J. Explain with examples the usefulness of N (1 Naphthyl) ethylene diamine di hydrochloride in colorimetric analysis.

(2×10 = 20 marks)

MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

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

Thursday, May 14, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

1. Classify anti-emetics with examples. Explain the mechanism of action of prokinetic drugs. Mention their uses.

                                                          (3+3+2 = 8 marks)

2. Write the classification of antidepressants. Discuss the mechanism of action of SSRIs. List the toxic effects of MAO inhibitors.

                                                          (3+3+2 = 8 marks)

3. Elaborate the mechanism of action of aminoglycosides. How does bacterial resistance occur to this class of drugs? List their toxicities.

                                                          (3+3+2 = 8 marks)

4. **Short Essays:**

4A. List out the indications for bioassay. Explain quantal assay with a suitable example.

4B. Explain the mechanism of action of chloroquine. Mention its adverse effects.

4C. Describe about spinal anaesthesia, its applications and complications.

4D. Explain the major neurological adverse effects of conventional neuroleptics.

                                                          (4×4 = 16 marks)

5. **Short Answers:**

5A. Mention the drugs used for the treatment of chronic mercury poisoning.

5B. What is the rationale behind administering morphine in acute left ventricular failure?

5C. Give two advantages of antimicrobial combinations with examples.

5D. Mention the major topical antifungal drugs.

5E. Explain the reasons for the short duration of action and long recover period for thiopentone sodium.

                                                          (2×5 = 10 marks)

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

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

Thursday, May 14, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 75

✍ **Answer ALL questions.**

SECTION – A

1. Describe the steps involved in viral proliferation. Classify antiviral agents with examples.

(6+4 = 10 marks)

2. Discuss the normal immune system. Explain the immunosuppressant mechanism of tacrolimus.

(6+4 = 10 marks)

3. Classify antiepileptics drugs based on chemical structure. With a neat diagram, describe the mechanism of action of antiepileptics.

(4+6 = 10 marks)

4. List the proton pump inhibitors. Discuss their mechanism of action. Discuss their pharmacological actions and therapeutic actions.

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

SECTION – B

5. Discuss the mechanism of action of Co-trimoxazole and list its uses.

6. Write a short note on vancomycin.

7. List the common properties of aminoglycosides.

8. Write a short note on INH.

9. Discuss the special toxicity tests in the preclinical screening of drugs.

10. Write a short note on chlorpromazine.

11. Write a brief note on Piroxicam.

(5×7 = 35 marks)

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PHA 405 (MAHE)   Page 1 of 1

MANIPAL UNIVERSITY
FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009
SUBJECT: MEDICINAL CHEMISTRY – II (PCH 404)
(MAHE SYLLABUS)

Saturday, May 16, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 75

✍ **Answer all questions.**

✍ **Long Essays:**

1A. What are antihypertensive agents? Classify them giving two examples for each class. Explain the mechanism of action and synthesis of enalapril.

1B. Classify hypoglycemic agents giving the structures of three agents belonging to different classes.

((1+2+2+2)+3 = 10 marks)

2A. What are antibiotics? Classify them with examples. Explain the stereochemistry and degradation reactions of Penicillins.

2B. Discuss the chemistry, SAR and uses of Tetracyclines. Write the structures of any four.

(5+5 = 10 marks)

3A. Classify antimalarials giving two examples for each class with structures. Outline the synthesis of pyrimethamine.

3B. Write the structures, mechanism of actions and specific uses of any five anticancer agents of alkylating agents.

(5+5 = 10 marks)

4A. Classify antifungal agents with examples giving structures of one agent from each class. Write the synthesis of Tolnaftate.

4B. Explain SAR of quinolones as antibacterial agents.

(5+5 = 10 marks)

✍ **Short Essays:**

5. Explain the concepts of prodrug and combinatorial chemistry in rational drug design.

6. Classify diuretics with suitable examples. Write the mechanism of action and synthesis of furosemide.

7. Give the structures, chemical names and uses of the following:
   i)   Betamethasone   ii)   Mebendazole   iii)   Furazolidone
   iv) Metronidazole   v)   Diethyl stilbestrol

8. Write a note on antitubercular drugs giving the synthesis of Ethambutol.

9. Classify antidysrrhythmic agents giving the structures of one drug from each class. Write the synthesis of Diltiazem (or) Verapamil.

10. Write the synthesis, chemical names and uses of Isosorbide dinitrate and diatriazoic acid.

11. Name one anticoagulant and one antihyperlipidemic agent giving their mechanism of action and synthesis.

(5×7 = 35 marks)

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MANIPAL UNIVERSITY
FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009
SUBJECT: MEDICINAL CHEMISTRY – II (PCH 404)
(CREDIT BASED SYSTEM)
Saturday, May 16, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 50

✍ **Answer all the questions.**

✍ **Long Essays:**

1A. How do you determine the two hydrophobic parameters used in QSAR equation? And what are the advantages of QSAR study?

1B. Give the structure, mechanism of action and uses of
  i) PAS   ii) Rifamycin   iii) Cycloserine   iv) Streptomycin
  ((3+1)+4 = 8 marks)

2A. What are antianginal agents? Classify them with examples giving structure of one drug from each class. Explain the mechanism of action and synthesis of any one calcium channel blockers.

2B. Define anti coagulants with their uses. Write the mode of action and synthesis of dicoumarol.
  (((½+1½+3)+3 = 8 marks)

3A. Write the structure, mechanism of action and specific uses of
  i) Ampicillin   ii) Cefuroxime   iii) Erythromycin   iv) Chloramphenicol

3B. Outline the synthesis of chloroquine and pyrimethamine.
  (4+4 = 8 marks)

4. **Short Essays:**

4A. Give the structure, chemical name and uses of the following:
  i) Chlorthiazide   ii) Lindane   iii) Cloniphene   iv) Niclosanide.

4B. Classify locally anti infective agents with one structure from each class. Outline the method of synthesis of any one anti bacterial agent used as dye.

4C. Write a note on β lactamase inhibitors.

4D. What is hyper lipidemia? Classify antihyper lipidemic agents giving structures of one agent from each class. Outline the synthesis of any one of them.
  (4×4 = 16 marks)

5. **Short Answers:**

5A. Name two examples each for plant products and antimetabolites used in cancer therapy with structures.

5B. What are anthelmintics, anti scabious and antipedicular agents?

5C. Write a note on antiviral drugs.

5D. Write the structure, chemical name and uses of losartan, methyl dopa and hydrallazine.

5E. Outline the method of synthesis of fluorescein and procainamide.
  (2×5 = 10 marks)

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MANIPAL UNIVERSITY
FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009
SUBJECT: MEDICINAL CHEMISTRY – II
(RGUHS SYLLABUS)

Saturday, May 16, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 80

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1.   Long Essays: (Answer any TWO)

1A. i)   Write a note on mechanism of blood coagulation. Classify anticoagulants with examples. Outline the synthesis of Warfarin giving its chemical name.
     ii) Classify antiarrhythmic agents giving the structures of one agent from each class. Write the synthesis of any one of them.

$$((2+1+3)+(2+2) = 10 \text{ marks})$$

1B. Classify sulphonamides. Give their chemistry, SAR and mechanism of action.

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

1C. Classify diuretics. Discuss the structure activity relationship of thiazide diuretics. Outline the synthesis of chlorthiazide.

$$(2+4+4 = 10 \text{ marks})$$

2.   Short Essays: (Answer any EIGHT)

2A. What are antihypertensive agents? Explain mechanism of action of enalapril. Give the synthesis of Clonidine.
2B. Classify antihyperlipidemic agents with examples. Write the structures and mechanism of action of Gemfibrozil and Lovastatin.
2C. How do you determine the positions of methyl groups in caffeine?
2D. Explain the SAR of urinary tract anti-infective quinolones.
2E. Write the structure of any two antiviral agents and give their specific uses with their mechanism of action.
2F. Classify antineoplastic agents. Explain the mechanism of action of plant product as antineoplastic agents.
2G. Explain the importance of ß-lactamase inhibitors with two structures.
2H. Give the mechanism of action and SAR of quinolines as antimalarials.
2I. Explain the chemistry and uses of aminoglycoside antibiotics and give the structure of one aminoglycoside antibiotics.
2J. Outline the synthesis of penicillin V.

$$(5 \times 8 = 40 \text{ marks})$$

3.   Short Answers: (Answer ALL questions)

3A. Write the method of preparation of any one hypoglycemic agent.
3B. Give the structures, chemical names and uses of Propyl thiouracil and dipyridamole.
3C. Explain the mechanism of action of isosorbide dinitrate giving its structure.
3D. Write the structure and specific use of chloramphenicol with its mechanism of action.
3E. Give the structures of two antifungal imidazoles with its mechanism of action.
3F. Write the structures of doxycycline and minocycline with their specific use.
3G. Write the synthesis and uses of diethyl carbamazine citrate.
3H. Give the structure and uses of a ciprofloxacin and hexamine.
3I. Define the term prodrug with a suitable example.
3J. Write the structure and uses of metronidazole.

$$(2 \times 10 = 20 \text{ marks})$$

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

SUBJECT: PHARMACEUTICAL MANAGEMENT & MARKETING
(RGUHS SYLLABUS)

Tuesday, May 19, 2009

Time: 10.00-13.00 Hrs.

Max. Marks: 80

1. **Long Essays: (Answer any TWO)**

1A. Define term Economics. Explain various Economic and Non-Economic activities. Discuss Economic Systems.

1B. Describe various Secretarial Services and Record Keeping Systems.

1C. Describe Current Assets and Long term Liabilities. Enlist the contents of Balance Sheet.

$(10 \times 2 = 20 \text{ marks})$

2. **Short Essays: (Answer any EIGHT)**

2A. Discuss in brief the Law of Demand and Demand Schedule.

2B. Enlist various Accounting concepts and explain briefly any two.

2C. Explain in brief various risks involved in developing new products.

2D. Enlist the stages of PLC and add a note on its importance.

2E. Write short note on export and import of pharmaceutical products.

2F. Enlist various liabilities and briefly explain any two.

2G. Explain briefly the exceptions to Law of Demand with examples.

2H. Write a short note on Wholesaler.

2I. Describe the criteria for selecting a medical representative.

2J. Write a short note on Personal Selling.

$(5 \times 8 = 40 \text{ marks})$

3. **Short Answers: (Answer ALL the questions)**

3A. Mention the advantages of Double entry book keeping.

3B. Define Marketing. Add a note on its scope.

3C. What do you mean by Trade?

3D. Give an account on Push and Pull Strategy.

3E. Enlist the various dimensions of a market segment.

3F. Which promotional element you would prefer to communicate an Innovative Product? Give reasons.

3G. Enlist any four characteristics of a Good Brand.

3H. What is the basic difference between a C&F agent and Distributor/Wholesaler?

3I. Write a short note on Product Differentiation.

3J. Enlist any four differences between Ledger and Journal.

$(2 \times 10 = 20 \text{ marks})$

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MANIPAL UNIVERSITY
FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009
SUBJECT: PHARMACEUTICAL MANAGEMENT (PMA 407)
(MAHE SYLLABUS)
Tuesday, May 19, 2009

Time: 10.00-13.00 Hrs.   Max. Marks: 75

✍ **Answer all the questions.**

SECTION – A

1.   Explain in brief five main functions of management.

2.   Discuss in brief Double entry book keeping.

3.   What are the members of a pharmaceutical distribution channel? Explain.

4.   What are the criteria for selecting a medical representative?

5.   What is salesmanship? Write a short note on Detailing.

6.   Write short notes on export and import of goods.

7.   Briefly explain demand schedule.

$(5 \times 7 = 35 \text{ marks})$

SECTION – B

8.   Explain in brief Work Specialization, Chain of Command, Span of Control and Formalization.

9.   Enlist various accounting concepts. Explain any four in detail.

10. Differentiate wholesaler and C&F agent. Enlist the functions of a Wholesaler and C&F agent.

11. Explain the criteria to be considered while setting up a pharmaceutical unit?

$(10 \times 4 = 40 \text{ marks})$

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MANIPAL UNIVERSITY

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – MAY 2009

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

Tuesday, May 19, 2009

Time: 10.00-13.00 Hrs.

Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Define Organizing. Explain Departmentalization by Function and Product. Write a short note on Matrix Organization.

(8 marks)

2A. Explain Inventory Management with the help of various Inventory Control Models.

2B. Explain how Shanthi Nikethan model of education is pro-environment.

(6+2 = 8 marks)

3. Define "Market Segmentation'. Explain briefly various dimensions of segmentation and segmentation criteria.

(8 marks)

4. **Short Note:**

4A. Discuss in brief staffing and Controlling.

4B. Define term 'economics' and give an account of types of economics.

4C. What is the difference between fixed assets and intangible assets? Write a note on Current Assets.

4D. Write a short note on "Personal Selling" and "Sales Promotion".

(4×4 = 16 marks)

5. **Short Answer:**

5A. Discuss in brief evolution of quality concept with reference to TQM.

5B. Discuss advantages of ISO series.

5C. What steps are necessary for preserving resources for future generations?

5D. What are the advantages of Petty Cash Book?

5E. What are the functions of Trial Balance?

(2×5 = 10 marks)

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