

MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: HOSPITAL AND COMMUNITY PHARMACY (PPR 301)
(CREDIT BASED SYSTEM)**

Monday, May 03, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL the questions.**✍ **Long Essay Type Questions:**

1. Define hospital formulary. Explain the guiding principles for utilizing formulary system.
(2+6 = 8 marks)
2. Enumerate various methods of dispensing to inpatient and out patients. Explain drug basket method and unit dose dispensing method.
(2+6 = 8 marks)
3. Define rational drug use. Explain factors contributing for irrational drug use. Explain the steps to improve ration drug use.
(2+3+3 = 8 marks)

✍ **Short Essay Type Questions:**

- 4A. Explain ABC and VED analysis of inventory control.
- 4B. Explain the steps involved in patient medication counseling.
- 4C. Define communication skill and explain the various communication skills needed for a pharmacist.
- 4D. Define prepackaging. Explain labeling requirement for prepackaged drugs.
(4×4 = 16 marks)

✍ **Short Answer Questions:**

- 5A. Define prescription and OTC drugs.
- 5B. What is patient information leaflet? Mention its advantages.
- 5C. Define Central Sterile Supply Room and mention two functions of the same.
- 5D. What is medication compliance and list out two factors contributing for non compliance.
- 5E. Enumerate two members and two functions of PTC.

(2×5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: PHARMACEUTICAL BIOTECHNOLOGY (PBT 302)
(MAHE SYLLABUS)**

Wednesday, May 05, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 75

Answer ALL the questions.

- 1A. Write down the procedure to isolate an antibiotic producer from the soil.
- 1B. Explain various quality control tests performed on bacterial vaccines in brief.
- 1C. Explain how the word 'vaccine' is formed and write the differences between vaccines and Antisera.
- 1D. What are the differences between batch reactors and continuous reactors used for enzymes? Enlist various types of continuous reactors.
- 1E. Explain any four applications of enzymes.
- 1F. Briefly outline the procedure for the production of monoclonal antibodies by hybridoma technology.
- 1G. Briefly outline the procedure for assaying vitamin B₁₂ by titrimetric method.

(5×7 = 35 marks)

- 2A. Enlist the various parameters to be controlled during fermentation and discuss with special emphasis on aeration and agitation.
- 2B. Discuss the production of insulin in detail by recombinant DNA technology.
- 2C. Discuss various blood products used as haemostatic agents.
- 2D. Explain the theories of filtration giving the principle, mechanism and factors affecting the process.

(10×4 = 40 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: PHARMACEUTICAL BIOTECHNOLOGY (PBT 302)
(CREDIT BASED SYSTEM)**

Wednesday, May 05, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL the questions.****1. Long essays:**

- 1A. Discuss the production of lactic acid by fermentation.
- 1B. Discuss the production recombinant Insulin with critical comments on the promoter gene.
- 1C. Describe the production of and standardization of Diphtheria antitoxin.

(8×3 = 24 marks)

2. Short essays:

- 2A. Enlist the factors affecting enzyme activity and write briefly about Michaelis Menton equation.
- 2B. Justify the reason for fusing plasma cells with myeloma cells in the production of monoclonal antibodies. Explain any two applications of monoclonal antibodies.
- 2C. Write short notes on haemostatic agents.
- 2D. Classify filtration equipments and explain the mechanism of filtration.

(4×4 = 16 marks)

3. Short Answers:

- 3A. Differentiate between modern biotechnology and traditional biotechnology with any two relevant examples.
- 3B. In the preparation of insulin from animal pancreas, zinc chloride is added in small quantity to the final preparation. Why?
- 3C. What are the common impurities found in the glass?
- 3D. Mention the specific function of impeller, baffle, sparger and glass wool in a fermentor.
- 3E. Horses are the preferred animals for the production of diphtheria antitoxin. Why?

(2×5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: PHYSICAL PHARMACEUTICS AND BIOPHARMACEUTICS (PCE 303)
(MAHE SYLLABUS)**

Friday, May 07, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 75

✍ Answer ALL the questions.

- 1A. What is a first order reaction? Give example and derive integrated equation for the specific rate constant, half life and shelf-life of a first order reaction.
- 1B. Explain HLB and write the methods to determine HLB.
- 1C. State and explain Fick's first law of diffusion.
- 1D. Explain pH partition theory of drug absorption.
- 1E. Deduce an equation for protein-drug binding kinetics and explain Scatchard plot.
- 1F. Explain the role of drug pKa and urine pH in the reabsorption of drugs.
- 1G. Phase II biotransformation is true detoxification reaction. Explain.

(5×7 = 35 marks)

- 2A. Mention the kinetic properties of colloids and explain how the molecular weight of a polymer is determined using viscosity of its colloidal dispersion.
- 2B. Write the principle and method involved in the determination of particle size using Andreasen apparatus.
- 2C. Explain various theories of emulsification.
- 2D. Describe distribution method for the determination of stability constant of a complex. Mention any four applications of complexes in pharmacy.

(10×4 = 40 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: PHYSICAL PHARMACEUTICS AND BIOPHARMACEUTICS (PCE 303)
(CREDIT BASED SYSTEM)**

Friday, May 07, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

- ✍ **Answer ALL the questions.**
- ✍ **Draw neat diagram wherever necessary.**

1. Long Essays:

- 1A. Discuss the physical degradation of pharmaceutical products.
- 1B. Explain the optical properties of colloids.
- 1C. Discuss the factors affecting renal excretion of drugs.

(8×3 = 24 marks)

2. Short Essays:

- 2A. What is diffusion cell? Write its application.
- 2B. Derive an equation to determine surface tension by capillary rise method.
- 2C. Mention the different methods to analyse the particle size distribution and give the advantages and disadvantages of sedimentation method.
- 2D. List the characteristics of Passive diffusion.

(4×4 = 16 marks)

3. Short Questions:

- 3A. Mention the tests used to determine the types of emulsion.
- 3B. Define Zero order and First order reactions.
- 3C. What are the various non renal routes of Drug excretion?
- 3D. What is yield value?
- 3E. Define Rheology. Classify the materials according to the types of flow and deformation.

(2×5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: MEDICINAL CHEMISTRY – I (PCH 304)
(MAHE SYLLABUS)**

Monday, May 10, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 75

✍ **Answer ALL the questions.**

✍ **Your answers should be specific to the questions asked.**

✍ **Write structures and chemical names wherever necessary.**

✍ **Long Essays:**

1A. Explain the role of Cytochrome P-450 enzyme in oxidative biotransformation. Give two examples each for oxidative and hydrolytic transformations.

1B. Discuss the influence of solubility and partition coefficient on biological activity of the drug.
(6+4 = 10 marks)

2A. Write a brief note on biosynthesis of adrenergic neurotransmitters. Classify sympathomimetic agents with example giving the structure of one drug from each class. Outline the synthesis and medicinal use of Salbutamol.

2B. Write the Synthesis and medicinal use of Salasalate.
(7+3 = 10 marks)

3A. Discuss the different theories of drug-receptor interactions.

3B. Discuss the history and development of Local anaesthetics.
(5+5 = 10 marks)

4A. Explain the various modifications of Pethidine with structures.

4B. Write the various examples each for reversible and irreversible cholinesterase inhibitors giving structure and use. Outline the synthesis of acetylcholine.
(5+5 = 10 marks)

✍ **Short Essays:**

5A. What are antihistamines? Classify them with one example for each class with structure. Write the synthesis of Pheniramine.

5B. Classify anticonvulsants giving two examples for each class. Write the synthesis, chemical name of Phensuximide and Carbamazepine.

5C. Classify General anaesthetics with one example of each class along with structure. Outline the synthesis of Methohexital Sodium.

5D. Write a brief note on Eicosanoids.

5E. What are local anaesthetics? Outline the synthesis of Cocaine and Benzocaine.

5F. Write the structure, chemical name and use of the following drugs:

i) Phentolamine ii) Physostigmine iii) Tubocurarine

iv) Naloxone v) Ranitidine

5G. i) What are antitussives? Write the structure of Noscapine and Dextromethorphan.

ii) What are Skeletal muscle relaxants? Outline the synthesis of Chlorphenesin and Methocarbamol.
(5×7 = 35 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: MEDICINAL CHEMISTRY – I (PCH 304)
(CREDIT BASED SYSTEM)**

Monday, May 10, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Write the structures wherever necessary**✍ Long Essays:**

- 1A. Explain the development and SAR of anticonvulsants. Give the structure of one drug from each class of antiepileptic agents. Outline the synthesis of trimethadione.
- 1B. Write the synthesis of any one betablocker.

(6+2 = 8 marks)

- 2A. What is the significance of phase-I biotransformation reactions? Explain the phase-I biotransformations giving two examples for each type.
- 2B. Write the synthesis of Diclofenac sodium.

(6+2 = 8 marks)

- 3A. Classify anticholinergic agents giving two examples for each class with structures. Discuss their SAR and medicinal uses.
- 3B. Explain how optical and geometrical isomerisms influence the biological activity of a drug molecule.

(4+4 = 8 marks)

✍ Short Essays:

- 4A. What are general anesthetics? Classify them with examples. Write the synthesis and uses of methohexital sodium.
- 4B. Classify anti inflammatory agents giving two examples for each class with structures. Give the synthesis of one pyrazolone derivative.
- 4C. What are the structural features necessary for a compound to show cholinergic activity? Outline the synthesis of Carbachol.
- 4D. What are H₁-antagonists? Classify them giving two structures from each class. Outline the synthesis of any one of them.

(4×4 = 16 marks)

✍ Short Questions:

- 5A. Write the synthesis of Cimetidine.
- 5B. Give the structures of Paraldehyde, MethoCarbamol, Amitriptyline and Nikethamide.
- 5C. Explain the mechanism of action of Local anesthetics.
- 5D. Classify sympathomimetic agents giving the structure of one drug from each class.
- 5E. Outline the synthesis of procaine.

(2×5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010**
SUBJECT: PHARMACOLOGY – I (PHA 305)
(MAHE SYLLABUS)

Wednesday, May 12, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 75

✍ **Answer ALL the questions.****SECTION – A**

- 1A. Discuss the various factors that affect the absorption of drugs. Give examples to illustrate your answer.
- 1B. Explain different methods employed for increasing the duration of drug action.
(6+4 = 10 marks)
2. Classify cholinergic receptors giving agonists and antagonists for each type. Discuss the cellular events in the activation of muscarinic receptors. List the differences between the sympathetic and parasympathetic nervous systems.
(3+4+3 = 10 marks)
3. Discuss the physiology of action potential in the Purkinje fibres. Explain how quinidine affects the action potential. Write a short note on verapamil.
(4+3+3 = 10 marks)
4. Discuss the absorption, storage and utilization of iron. Write a short note on iron preparations. List two uses and two adverse reactions of iron preparations.
(4+4+2 = 10 marks)

SECTION – B

- 5A. Write a short note on ligand-gated ion channels.
- 5B. With a labelled diagram, explain the various steps in the synthesis and release of adrenaline and show how drugs modify it?
- 5C. Discuss the mechanism of action and the pharmacological properties of angiotensin receptor blockers.
- 5D. Write a short note on anabolic steroids.
- 5E. Write a short note on erythropoietin.
- 5F. Classify drugs that suppress cough and give examples. Discuss the mechanism of action of codeine.
- 5G. Outline the physiological roles of 5HT.

(5×7 = 35 marks)



MANIPAL UNIVERSITY

THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010

SUBJECT: PHARMACOLOGY – I (PHA 305)
(CREDIT BASED SYSTEM)

Wednesday, May 12, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL the questions.

✍ Long Essays:

1. Classify the oral anticoagulants. Write pharmacological actions, mechanism of action, drug interactions, contraindications and clinical uses of Warfarin and Warfarin derivatives.
(3+5 = 8 marks)
2. Describe how drugs get distributed in the body. Briefly write on the blood brain barrier.
(6+2 = 8 marks)
3. Classify antihypertensive drugs with examples. Write briefly on vasodilators.
(4+4 = 8 marks)

✍ Short Essays:

- 4A. Write briefly on the drugs used in myasthenia gravis.
- 4B. Drugs synergism.
- 4C. Write briefly on nasal decongestants.
- 4D. What is the mechanism of action of propylthiouracil?
(4×4 = 16 marks)

✍ Short Answers:

- 5A. Name four drugs which suppress cough.
- 5B. Describe the action of atropine on CVS.
- 5C. Explain how high ceiling diuretics produce hypokalemia.
- 5D. How is testosterone secretion regulated?
- 5E. What are the uses of flutamide?
(2×5 = 10 marks)



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MANIPAL UNIVERSITY

THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010

SUBJECT: PHARMACOGNOSY- II (PCO 306)
(MAHE SYLLABUS)

Monday, May 17, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 75

✍ Answer ALL the questions.

✍ Draw well labelled diagrams wherever necessary.

✍ Short Essays:

- 1A. Give the biogenesis of Tropane alkaloids.
- 1B. What are Bitters? Describe the source, morphology, constituents and uses of Chirata.
- 1C. Explain the Shikimic acid pathway and give its significance.
- 1D. Describe the morphology of Cardamom and Dill.
- 1E. Explain the qualitative identity tests for Saponin and Cyanogenetic glycosides.
- 1F. Give and account of hydro distillation method of extraction of Volatile oil.
- 1G. Give the cultivation, collection and post harvest care of Dioscorea.

(5×7 = 35 marks)

✍ Long Essays:

- 2A. What are Anthracene glycosides? Describe the chemistry, isolation and estimation.
- 2B. Describe the physical and chemical methods of analysis of Essential oils.
- 2C. Give an account of purification methods applied for phytoconstituents.
- 2D. Give the source, constituents and uses of Storax, Myrrh, Podophyllum and Ginger.

(10×4 = 40 marks)



MANIPAL UNIVERSITY**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010****SUBJECT: PHARMACEUTICAL JURISPRUDENCE (PMA 307)
(CREDIT BASED SYSTEM)**

Friday, May 14, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL the questions.**✍ Long Essay Questions:**

1A. Write the composition and functions of Pharmacy Council of India.

1B. Briefly explain licensing procedure for bonded manufactory.

(8 marks)

2A. Define the following according to the Narcotic Drugs and Psychotropic Substances Act:

i) Coca Derivative

ii) Narcotic Drugs

iii) Medicinal Hemp

iv) Poppy Straw and Poppy Concentrate

2B. What circumstances prevailing in India made the government pass the Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954? Write the objectives of the Act.

(8 marks)

3. Briefly explain the duties, qualification and power of a drug inspector.

(8 marks)

✍ Short Note Questions:

4A. Discuss in brief the ethics that a pharmacist should observe in relation to his trade.

4B. What are the Objectives of DPCO? Write briefly about Maintenance of Records.

4C. Briefly explain the Repacking License.

4D. Briefly write about “Copyright” and “Trademark”.

(4×4 = 16 marks)

✍ Short Answer Questions:

5A. Write the objectives of Medical Termination of Pregnancy Act?

5B. Briefly explain the provisions relating to “Experimentation on Animals” under the Prevention of Cruelty to Animals Act.

5C. Write the objective of Insecticides Act and Poisons Act 1919.

5D. Discuss “Working Hours” under the Shops and Establishments Act.

5E. Define “batch” and “combination package” according to The Standards of Weight and Measures Act.

(2×5 = 10 marks)



MANIPAL UNIVERSITY

THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2010

SUBJECT: PHARMACOGNOSY- II (PCO 306)
(CREDIT BASED SYSTEM)

Monday, May 17, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL the questions.

✍ Draw neat labelled diagrams and structures wherever necessary.

1. Long Essays:

1A. Explain the biogenesis of Cocaine.

1B. Describe the pharmacognosy of Clove.

1C. What are Anthracene glycosides? Give their chemistry, method of extraction and chemical tests.

(8×3 = 24 marks)

2. Short essays:

2A. Give an account of adsorption column chromatography and its role in separation of natural products.

2B. Describe the method of cultivation of Cassia.

2C. Describe and discuss the occurrence and chemistry of Cardiac glycosides.

2D. Write a brief essay on HPTLC for separation of phytoconstituents.

(4×4 = 16 marks)

3. Short Answers:

3A. Classify Glycosides on the basis of linkage with an example for each.

3B. Define Resins with examples.

3C. Write a note on Cup and Gutter method.

3D. Describe the powder microscopy of Capsicum.

3E. Describe the combined umbelliferone test.

(2×5 = 10 marks)

