

**MANIPAL UNIVERSITY**  
**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016**  
**SUBJECT: HOSPITAL AND COMMUNITY PHARMACY (PPR 301)**  
**(CREDIT BASED SYSTEM)**  
**(2013-14 BATCH)**

Wednesday, May 04, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

☞ Answer ALL the questions.

☞ Long Essay Type Questions:

1. Define Hospital. Explain the organization chart of Hospital. (8 marks)
  
2. Enumerate various methods of inventory control and explain any two methods with its advantages. (8 marks)
  
3. What is patient medication counselling? Explain the barriers for patient counselling and strategies to overcome the same. (8 marks)

4. Short Essay type Questions:

- 4A. Explain individual prescription order system with its advantages and disadvantages.
- 4B. Explain code of ethics for the practicing pharmacists.
- 4C. Explain the design and layout of patient information leaflet.
- 4D. Write briefly on prepackaging. (4 marks × 4 = 16 marks)

5. Short Answer Questions:

- 5A. What is a prescription drug? Give two examples
- 5B. Explain the use of emergency drug box during off hours
- 5C. Mention any four types of medication error
- 5D. Mention the selection criteria for charge and non charge floor stock drugs
- 5E. Enumerate the members of research and ethical committee (2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

## THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: PHARMACEUTICAL BIOTECHNOLOGY (PBT 302)  
(CREDIT BASED SYSTEM)

Friday, May 06, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL the questions.

✍ Long Essays:

1. Describe the fermentative production of Citric acid and mention its pharmaceutical applications.
2. Discuss the production of Hepatitis B vaccine by Recombinant DNA technology.
3. Describe the production of Posterior Pituitary extract and briefly outline the bioassay process for estimation of Oxytocic activity.

(8 marks × 3 = 24 marks)

4. Short Essays:

- 4A. Explain any two applications of Monoclonal Antibodies.
- 4B. Briefly outline the procedure for the production of Diphtheria toxoid.
- 4C. Enlist the different methods of purification of enzymes and explain any one method.
- 4D. Classify the different filtration equipment and explain the mechanism of filtration.

(4 marks × 4 = 16 marks)

5. Short Questions:

- 5A. Why is pH maintenance in the production of streptokinase critical?
- 5B. Enlist any four applications of PCR.
- 5C. In antibiotic assays, one has to measure the zone of inhibition. In case of assay of vitamins, what is to be measured and what is its meaning?
- 5D. Mention any two properties of Lead, which merit its use as a material of construction.
- 5E. Mention any two advantages of rotary drum Filters.

(2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

### THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016

#### SUBJECT: PHYSICAL PHARMACEUTICS AND BIOPHARMACEUTICS (PCE 303) (CREDIT BASED SYSTEM)

Monday, May 09, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

**Answer ALL the questions.**

**Long Essays:**

1. Describe a method for the evaluation of physical stability of an emulsion. Write a note on the factors affecting physical stability of emulsions.

(8 marks)

2. Explain the various theories to explain dissolution of drugs. Write about the significance of protein binding of drugs.

(6+2 = 8 marks)

3A. Explain distribution method used for the analysis of complexes.

3B. What is projected diameter? Give advantage, disadvantage and applications of optical microscopy for the determination of particle size.

(4+4 = 8 marks)

**Short notes:**

4A. Describe the process of micellar solubilization. Explain its application in pharmacy with suitable examples.

4B. Discuss the Donnan membrane equilibrium. Write about its pharmaceutical application.

4C. Discuss mammary and salivary excretion of drugs.

4D. Give the preventive measures for the oxidative degradation of drugs.

(4 marks × 4 = 16 marks)

**Short answers:**

5A. Explain:

i) yield value      ii) rheogram

5B. Write about the reductive phase I reactions of biotransformation.

5C. Discuss any two methods to enhance bioavailability.

5D. Give at least four applications of diffusion in pharmacy.

5E. Write the advantages and disadvantages of sedimentation method.

(2 marks × 5 = 10 marks)



**MANIPAL UNIVERSITY**  
**THIRD YEAR B. PHARM. DEGREE EXAMINATIONS – MAY 2016**

**SUBJECT: MEDICINAL CHEMISTRY – I**  
**(RGUHS SYLLABUS)**

Wednesday, May 11, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

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

✍ **Write the chemical reactions and structures wherever necessary.**

✍ **Long Essays (Answer any TWO):**

1A. Give an account on Sympathomimetic agents with mixed mechanism of action.

1B. Discuss the following compounds giving their structure, chemical name and uses.

i) Promethazine      ii) Antazoline      iii) Diazepam      iv) Pralidoxime

(5+5 = 10 marks)

2A. What are antiepileptic drugs? Outline the synthesis of a compound belonging to hydantoin, Succinimides and benzodiazepam class of antiepileptics.

2B. What are Central muscle relaxants? Outline the synthesis of Baclofen.

(6+4 = 10 marks)

3. Elucidate the structure of Atropine.

(10 marks)

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

4A. Give the mechanism of action of miscellaneous class of sedatives and hypnotics? Write the synthesis of any two compounds under this class.

4B. Explain how Geometric isomerism and hydrogen bonding influence the drug action.

4C. What are prostaglandins and Eicosanoids? Explain their biosynthesis and biological actions in the body. Write the structure of any two prostaglandins.

4D. Write a note on biosynthesis and biological actions of acetylcholine. Outline the synthesis of Pyridostigmine.

4E. What are indirectly acting cholinergic agonists? Classify them and write the synthesis of any one cholinergic agonist.

4F. What are H<sub>2</sub> – receptor antagonists? Write the structures, chemical name and uses of any three compounds. Outline the synthesis of any one compound.

4G. Write the structure, chemical name, synthesis and uses of following two compounds:

i) Salbutamol      ii) Pheniramine

4H. Write the mechanism of action and SAR of Lidocaine as local anesthetics.

- 4I. What are adrenergic blockers? Classify them with examples, with one structure in each class. Outline the synthesis of any one compound.
- 4J. What are Cholinergic blockers? Write an account on Solanaceous alkaloids and its synthetic analogues.

(5 marks × 8 = 40 marks)

**5. Short answers:**

- 5A. Give the structure and use of Loperamide and Fentanyl.
- 5B. Write any two narcotic analgesics with structure and uses.
- 5C. Outline the synthesis of Methaqualone and Chlorphenesin
- 5D. Name and write the structure of any four drugs used to treat parkinsonism.
- 5E. What are the phase-I and phase –II metabolites of Diazepam and Paracetamol. Give reactions.
- 5F. What is the importance of metabolism in medicinal chemistry?
- 5G. Explain the different forces of drug receptor interactions.
- 5H. What are inhalation anesthetics? Write the synthesis of one such compound.
- 5I. What are antitussives? Give examples with structure.
- 5J. Outline the synthesis of Piroxicam.

(2 marks × 10 = 20 marks)



## MANIPAL UNIVERSITY

## THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: MEDICINAL CHEMISTRY – I (PCH 304)  
(CREDIT BASED SYSTEM)

Wednesday, May 11, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL questions.

✍ Long Essays:

1A. Write a note on various modifications of acetylcholine. Discuss the SAR of cholinergic agonist.

(2+3 = 5 marks)

1B. What are sedatives and hypnotics? Give the synthesis and chemical name of one barbiturate and one non-barbiturate sedative.

(1+1+1 = 3 marks)

2A. Discuss the Phase-II drug metabolism with one example.

2B. Write the significance of Hydrogen bonding and Protein binding as physicochemical properties affecting the drug's biological activity.

(5+3 = 8 marks)

3A. What are anti-histaminic drugs? Classify them with examples and one structure under each class.

3B. Classify Cholinergic blocking agents with two examples. Outline the synthesis of Tropicamide.

(4+4 = 8 marks)

4. Short Essays:

4A. Outline the synthesis of carbamazepine and phensuximide

(2+2 = 4 marks)

4B. Write the synthesis and use of:

i) Lorazepam      ii) Glutethimide

(4 marks)

4C. Discuss the important structural features of morphine as opioid analgesic. Outline the synthesis of meperidine.

(4 marks)

4D. What do you mean by sympathomimetics with mixed action? Give examples and use of any one such drug.

(4 marks)

5. **Short Answers:**

5A. Write the SAR of amino benzoic acid derivatives used as local anesthetics.

5B. Discuss the induce fit theory of drug receptor interaction.

5C. Write the structure and chemical name of Procyclidine and Terbutaline.

5D. What are dissociative anesthetics? Give example with its structure.

5E. Outline the synthesis of Benzocaine and Dibucaine.

(2 marks × 5 = 10 marks)



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## MANIPAL UNIVERSITY

THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016

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

Friday, May 13, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL questions.

✍ Long Essay:

1. Define biotransformation. Explain four consequences of biotransformation. Give three different biotransformation reactions with examples.
2. Classify anticholinesterases with examples. With a neat picture describe the mechanisms of action of reversible anticholinesterases.
3. With a neat diagram, explain normal lipoprotein metabolism, the sites and mechanism of action of drugs affecting this.

(8 marks × 3 = 24 marks)

4. Short Essay:

- 4A. Explain four patient-related factors that affect drug responses.
- 4B. Explain the mechanisms of oral iron absorption. Why is iron absorption better from an acidic medium?
- 4C. Describe the mechanism of action of carbonic anhydrase inhibitors. Why is the diuresis self-limiting?
- 4D. Explain, with a diagram, the mechanism of action of sulfonylureas.

(4 marks × 4 = 16 marks)

5. Give reasons for the following:

- 5A.  $\alpha_{1A}$  Blockers are more suitable for patients in benign prostate hypertrophy (BPH).
- 5B. Diuretics are administered with vasodilators.
- 5C. Corticosteroids should not be stopped abruptly after prolonged use.
- 5D. SGLT2 as a Target for anti-diabetic drugs.
- 5E. Use of Prostaglandins as abortifacients.

(2 marks × 5 = 10 marks)





## MANIPAL UNIVERSITY

### THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016

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

Monday, May 16, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL questions.**

✍ **Draw neat labelled diagrams and structure wherever necessary.**

✍ **Long essay:**

1. Explain in detail the different spectroscopic methods used for the identification of phytoconstituents.
2. Present Senna under suitable Pharmacognostic scheme.
3. Give the pharmacognostic report on cinnamon.

(8 marks × 3 = 24 marks)

4. **Short essay:**

- 4A. Describe the different physical methods used for the evaluation of volatile oils.
- 4B. Explain the powder characteristics of
  - i) clove
  - ii) coriander
- 4C. Describe the cultivation, collection and preparation of Digitalis.
- 4D. Explain the chemistry of Podophyllum

(4 marks × 4 = 16 marks)

5. **Short answer:**

- 5A. Biogenesis of hyoscyne from hyocyamine.
- 5B. Give the steps involved in biogenesis of flavonoid glycosides.
- 5C. Source, Chemical constituents and uses of Asafoetida.
- 5D. Substituents and adulterants of Capsicum.
- 5E. Precursor product sequences.

(2 marks × 5 = 10 marks)



**MANIPAL UNIVERSITY****THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016****SUBJECT: PHARMACOGNOSY AND PHYTOCHEMISTRY  
(RGUHS SYLLABUS)**

Monday, May 16, 2016

Time: 10.00 – 13.00 Hrs.

Max. Marks: 80

✍ **Answer should be specific.**

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

✍ **Long essay (Answer any TWO):**

1. Give an account of different methods of extraction of phytoconstituents.
2. Discuss the biosynthesis of Tropane alkaloids.
3. Define Anthracene glycosides. Give their occurrence, chemical nature, method of extraction and tests for identification.

(10 marks × 2 = 20 marks)

4. **Write a short essay on any EIGHT of the following:**

- 4A. Life cycle of Ergot.
- 4B. Morphology and microscopy of Nux-vomica.
- 4C. Source, diagnostic characters, constituents and uses of Bitter almond.
- 4D. Biogenesis of Morphine.
- 4E. Morphology, constituents and uses of Squill.
- 4F. Classification of Alkaloids with examples.
- 4G. Classification of Essential oils.
- 4H. Chemistry of Resins.
- 4I. Physical method of evaluation of natural products.
- 4J. Morphological differences between Coriander and Fennel.

(5 marks × 8 = 40 marks)

5. **Write the short answers on the following:**

- 5A. Tests for Tannins
- 5B. Competitive feeding
- 5C. Constituents and uses of Siam Benzoin
- 5D. Source and uses of Sandal wood
- 5E. Structure and uses of Cineole
- 5F. Morphology of Datura
- 5G. Substitutes and adulterants of Nux vomica
- 5H. Enflourage method
- 5I. Camera Lucida
- 5J. Vitali Morin test

(2 marks × 10 = 20 marks)



**MANIPAL UNIVERSITY**  
**THIRD YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016**  
**SUBJECT: PHARMACEUTICAL JURISPRUDENCE (PMA 307)**  
**(CREDIT BASED SYSTEM)**

Wednesday, May 18, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Long essay questions:**

- 1A. Write briefly about Education Regulations as mentioned under the Pharmacy Act 1948.
- 1B. Write the formula for calculating ceiling price of a scheduled formulation as per DPCO 2013. What is NPPA and under which ministry it operates?
- 2A. Differentiate the following:
- i) Charas and Medicinal Hemp                      ii) Coca derivatives and coca leaf
- iii) Opium Derivative and opium poppy      iv) Narcotic drug and psychotropic substances
- 2B. Explain “Licensing procedure for bonded manufactory” under the Medicinal and Toilet Preparations Act.
- 3A. Explain duties of Drug inspector and Government analyst.
- 3B. Outline provisions of following Schedules according to D&C Act 1940 and Rules, 1945:
- i) Schedule C      ii) Schedule N      iii) Schedule X      iv) Schedule M
- (8 marks × 3 = 24 marks)

**4. Short note questions:**

- 4A. i) Write about Health Survey and Development committee.  
ii) What ethics should a pharmacist follow in relation to his Profession?  
(2+2 = 4 marks)
- 4B. i) Differentiate Drug Advertisement from Consumer Goods Advertisement.  
ii) Write short notes on statutory functions of CDSCO.  
(2+2 = 4 marks)
- 4C. i) Mention duties of Food inspector as per Prevention of Food Adulteration Act.  
ii) Enlist certain Acts relating to Sales Promotion Employees.  
(2+2 = 4 marks)
- 4D. Explain briefly Copyright, Trademark, Trade secret and Geographical indication.  
(4 marks)

5. **Short answer questions:**

- 5A. Write the objectives of Medical Termination of Pregnancy Act.
- 5B. Discuss the procedure for “Registration of establishments” under The Bombay Shops and Establishments Act.
- 5C. State the purpose of the enactment and explain its provisions relating to ‘Experimentation on animals’.
- 5D. Enlist the powers and functions of AICTE Council.
- 5E. Which are the agencies and authorities established under the Insecticides Act?

(2 marks × 5 = 10 marks)

