

**MANIPAL UNIVERSITY**  
**SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016**  
**SUBJECT: PATHOPHYSIOLOGY (PPR 201T)**  
**(2014 REGULATION)**

Tuesday, May 17, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Explain the cellular events in acute inflammation.
2. Classify acute renal failure based on etiopathogenesis.
3. Define anaemia. Explain its etiopathogenesis.

(10 marks × 3 = 30 marks)

4. **Short answer questions:**

- 4A. Explain pathophysiology of atherosclerosis.
- 4B. Define diabetes. Explain its complications.
- 4C. Explain the pathophysiology of gastric ulcer.
- 4D. Explain type 2 hypersensitivity reaction.
- 4E. Explain pathophysiology of idiopathic parkinsonism.
- 4F. Explain nuclear changes in necrosis with help of neat diagram.

(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. Necrosis associated with inflammation.
- 5B. In premenopausal women risk of atherosclerosis is lesser compared to menopausal women.
- 5C. Primaquine use in G6PD deficiency patients leads to acute renal failure.
- 5D. *H. Pylori* causes duodenal ulcer.
- 5E. CD4+ cell count decreases in HIV patients.

(2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

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

#### SUBJECT: PATHOPHYSIOLOGY (PTH 201) (CREDIT BASED SYSTEM)

Tuesday, May 17, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL questions.**

✍ **Long Essay:**

- 1A. Enumerate the etiological factors of ischemic cell injury.
  - 1B. Explain the general mechanism by which ischemic cell injury occur.
  - 1C. Explain the cellular and tissue changes that occur in ischemic injury.
- (2+2+4 = 8 marks)

- 2A. Differentiate humoral and cell mediated immunity with suitable examples.
  - 2B. Explain Major Histocompatibility System.
  - 2C. Describe the role of antibodies in immune system.
- (3+3+2 = 8 marks)

- 3A. Define acute renal failure and enumerate the etiological factors for the same.
  - 3B. Explain various clinical features of acute renal failure.
  - 3C. Explain complications of chronic renal failure.
- (2+3+3 = 8 marks)

4. **Short Essay:**

- 4A. Classify anemia based on hematological tests.
  - 4B. Explain the pathogenesis of parkinsonism and enumerate four clinical symptoms.
  - 4C. Explain the etiopathogenesis of atherosclerosis.
  - 4D. Describe pathophysiology and enumerate the clinical symptoms of chronic obstructive pulmonary disease.
- (4 marks × 4 = 16 marks)

5. **Short Answer:**

- 5A. Explain type I Hypersensitivity reaction.
  - 5B. Differentiate metastatic and benign cancer.
  - 5C. Enumerate four opportunistic infections of AIDS.
  - 5D. Differentiate bronchitis and emphysema.
  - 5E. Enumerate four etiological agents for chronic hepatitis.
- (2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

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

#### SUBJECT: PHARMACEUTICAL MICROBIOLOGY (PBT 202T) (2014 REGULATION)

Saturday, May 07, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Draw a neat labelled diagram of typical bacterial cell. Discuss in detail the features of Gram positive and Gram negative cell walls.
2. Draw a neat labelled diagram of an industrial autoclave and describe its design.
3. What is an antibiotic policy, why it is needed? Discuss briefly on various types of antibiotic policies.

(10 marks × 3 = 30 marks)

4. **Short answer questions:**

- 4A. Write a note on growing anaerobic bacteria.
- 4B. Explain the effect of time of contact and temperature on the activity of disinfectants.
- 4C. Briefly outline the procedure for microbiological assay of antibiotics by two level factorial assay.
- 4D. Enlist the demerits of Phenol coefficient tests and explain any two.
- 4E. It is often necessary to amputate the affected limb in gas gangrene to save the patient. Why? How this can be avoided?
- 4F. Write the causative agent, mode of transmission, important symptoms, prevention and treatment of rabies.

(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. Ultrathin sectioning is necessary for TEM but not for SEM.
- 5B. Bacterial endospores have high heat resistance.
- 5C. *Aspergillus* species can be differentiated from *Penicillium* species microscopically.
- 5D. Autoclaving is not suitable to sterilise milk and vaccines.
- 5E. Infections from *E coli* cannot be treated with vancomycin.

(2 marks × 5 = 10 marks)





## MANIPAL UNIVERSITY

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

#### SUBJECT: PHARMACEUTICAL MICROBIOLOGY (PBT 202) (CREDIT BASED SYSTEM)

Saturday, May 07, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Put question numbers properly with margin.**

✍ **Long Essay:**

1. Draw neat labeled diagram of a typical bacterial cell. Discuss in detail the cell wall.
2. Discuss the mechanism of action, factors influencing the efficiency and applications of sterilization by ethylene oxide.
3. Define and classify Immunity. Explain Western blot technique with its specific application.  
(8 marks × 3 = 24 marks)

✍ **Short Essay:**

- 4A. With the help of diagrams, write a detailed note on asexual spores produced by fungi.
- 4B. Enlist the various factors affecting the course of disinfection process and explain the effect of presence of organic matter.
- 4C. Write a short note on human microbial flora.
- 4D. Write the causative agent, mode of transmission, important symptoms, prevention and treatment of malaria.  
(4 marks × 4 = 16 marks)

✍ **Short Answer:**

- 5A. Electron microscope has greater resolving power than that of optical microscope. Why?
- 5B. Define the terms autotroph, heterotroph, prototroph and auxotroph.
- 5C. Culture media containing thermolabile ingredients like gelatin can be sterilized by tyndallisation but not the injections containing thermolabile medicaments. Why?
- 5D. Write the mode of action of halogens and give one example for a halogen preparation used as antiseptics.
- 5E. Differentiate between *Escherichia coli* and *Enterobacter aerogenes* on the basis of IMViC reactions.  
(2 marks × 5 = 10 marks)



# MANIPAL UNIVERSITY

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

### SUBJECT: PHARMACEUTICS (PCE 203T) (2014 REGULATION)

Tuesday, May 10, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Classify Pharmaceutical powders. What are the uses of these powders? Give examples.
2. Explain the principle, construction and working of Sigma blade mixer with the help of diagram.
3. Explain controlled flocculation. Enlist any FIVE differences between Flocculated and Deflocculated suspension.

(10 marks × 3 = 30 marks)

4. **Short answer questions:**

- 4A. Write the mechanism of flow of heat and its applications in Pharmacy.
- 4B. Explain the Mechanical Behavior of Solids during size reduction.
- 4C. Explain the working of a Fluid bed dryer.
- 4D. Write the advantages, disadvantages and applications of suppositories.
- 4E. Explain construction of Falling film evaporator with diagram.
- 4F. Discuss Reynolds experiment. List out various application in pharma industry.

(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. All extemporaneous dusting powders should be passed through a 100-200 mesh sieve.
- 5B. Absorbent cotton wool is treated with alkali during manufacturing.
- 5C. Calamine lotion is pink in colour.
- 5D. Size reduced particles to be used for decoction preparation.
- 5E. Repeated administration of some drugs reduces the therapeutic efficacy.

(2 marks × 5 = 10 marks)



**MANIPAL UNIVERSITY****SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016****SUBJECT: PHARMACEUTICAL TECHNOLOGY (PCE 203)  
(CREDIT BASED SYSTEM)**

Tuesday, May 10, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Explain various methods of sterilization of catgut.
2. What is incompatibility? Classify incompatibilities with suitable examples. Write a note on therapeutic incompatibility.
3. Define fourier's law. Explain the conduction of heat through a flat slab with suitable equations.

(8 marks × 3 = 24 marks)

✍ **Short notes:**

- 4A. Classify powder. Explain tooth powders
- 4B. What is prescription? Explain the different parts of a prescription
- 4C. Describe various types of suspensions with examples
- 4D. Explain vacuum crystallizer

(4 marks × 4 = 16 marks)

✍ **Short Answers:**

- 5A. Define throat paints. How do they differ from mouthwashes?
- 5B. Write the types of suppository bases with examples.
- 5C. Define azeotropic mixture with an example.
- 5D. Write the principle of ball mill.
- 5E. Classify dryers.

(2 marks × 5 = 10 marks)





## MANIPAL UNIVERSITY

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

SUBJECT: PHARMACEUTICAL CHEMISTRY (PCH 204T)  
(2014 REGULATION)

Thursday, May 12, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions.

✍ Long answer questions:

1A. Explain the chemistry of ephedrine.

1B. What are carotenoids? Discuss the chemistry of  $\beta$ -carotene.

(5+(1+4) = 10 marks)

2A. How do you convert aldohexose to ketohexose? Enlist the limitations of open chain structure of glucose. Write the cyclic structure of glucose and represent Alpha and Beta Glucose.

2B. How do you synthesize alpha-amino acids. Write any two methods.

(6+4 = 10 marks)

3A. Explain any one method of synthesis of pyrrole and oxazole.

3B. Explain nucleophilic substitution reactions of pyridine with suitable examples.

3C. Give the structure and uses of pyrazinamide and metronidazole.

(4+4+2 = 10 marks)

4. Short answer questions:

4A. Discuss the stereochemistry of di-substituted cyclohexane

4B. Discuss the important reactions of pyrrole and indole

4C. Discuss the chemistry of alpha terpineol

4D. Write the chemical formula and preparation of any two iron supplements used as hematinic

4E. What are antacids? Write the preparation of any one magnesium containing and one calcium containing antacid.

4F. Explain the chemistry of cardiac glycosides

(5 marks  $\times$  6 = 30 marks)

5. Give reasons for the following:

5A. Camphor forms a benzylidene derivative on reaction with benzaldehyde. Justify with reaction

5B. In 2-bromocyclohexenone, bromine takes up the axial position rather than the equatorial position.

5C. Pyrimidine show less reactivity towards electrophilic aromatic reactions.

5D. Cholesterol is referred as  $C_{27}$  sterol. Justify.

5E. Cis fatty acids have lesser melting point than corresponding trans fatty acids.

(2 marks  $\times$  5 = 10 marks)



## MANIPAL UNIVERSITY

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

SUBJECT: PHARMACEUTICAL CHEMISTRY (PCH 204)  
(CREDIT BASED SYSTEM)

Thursday, May 12, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL questions.

✍ Long Essays:

1A. Explain the structural elucidation and synthesis of vitamin-A.  
1B. What are cardiac glycosides? Give an account of cardenolides and bufadienolides.  
(6+2 = 8 marks)

2A. Explain the stereochemistry of nitrogen compounds.  
2B. Discuss the chemistry of Quinoline and Isoquinoline.  
(4+4 = 8 marks)

3A. Explain Erlenmeyer's azlactone reaction for the synthesis of alpha amino acids.  
3B. Write the structure and medicinal uses of caffeine.  
3C. Giving suitable example explain the chemistry of Nucleotides.  
(4+2+2 = 8 marks)

4. Short Essays:

4A. Explain briefly the chemistry of atropine.  
(4 marks)

4B. Explain Fischer synthesis of Indole and give the structure of one Indole derivative.  
(4 marks)

4C. i) Define heterocyclic compounds with suitable example.  
ii) Discuss about the aromaticity of furan, pyrrole and thiophen.  
(1+3 = 4 marks)

4D. How will you convert an aldose to its isomeric ketose? Explain with reactions.  
(4 marks)

5. Short Answers:

5A. What are the basic structural features of lignans? Give their medicinal importance.  
5B. Give the structure and uses of Quinine.  
5C. Define any two analytical constants which are used to determine the purity of oils and fats.  
5D. Write one method of preparation of imidazole.  
5E. Write the structures and uses of furazolidone and INH.

(2 marks × 5 = 10 marks)





Reg. No.																			
----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

## MANIPAL UNIVERSITY

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

#### SUBJECT: PHARMACEUTICAL ORGANIC CHEMISTRY (RGUHS SYLLABUS)

Thursday, May 12, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

✍ **Long Essays: (Answer any TWO)**

1. What are racemic mixtures? Explain the different methods used for the resolution of racemic mixtures.
2. Explain the various analytical constants used for the purity assessment of fixed oils.
3. Explain the stereochemistry of cyclohexane.

(10 marks × 2 = 20 marks)

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

- 4A. Explain briefly the stereochemistry of oximes
- 4B. How the ring structure of glucose was established?
- 4C. Discuss the chemistry and uses of starch
- 4D. Give the structure and medicinal uses of the following:
  - i) piperazine
  - ii) sulphadiazine
  - iii) tolnaftate
  - iv) isoniazid
- 4E. How will you convert aldohexose to ketohexose and vice-versa?
- 4F. Discuss in detail about the determination of peptide structures.
- 4G. Explain the skraup synthesis of quinoline with mechanism
- 4H. Explain briefly nucleophilic substitution reactions of pyridine
- 4I. Discuss briefly the optical activity of biphenyls
- 4J. Compare the basicities of pyridine, pyrrole and alkylamines

(5 marks × 8 = 40 marks)

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

- 5A. Define the term atropisomerism.
- 5B. Give two uses of naphazoline.
- 5C. Define the term rancidity.
- 5D. Give the structure and use of indomethacin.
- 5E. Write the name and structure of two essential aminoacids.

- 5F. What are polynuclear hydrocarbons?
- 5G. Give the structure and use of diethylcarbamazine.
- 5H. Define the term walden inversion.
- 5I. Give the structures of thiazole and oxazole
- 5J. What is tschitschibarbin reaction?

(2 marks  $\times$  10 = 20 marks)



**MANIPAL UNIVERSITY****SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016****SUBJECT: PHARMACEUTICAL MANAGEMENT (PMA 205T)  
(2014 REGULATION)**

Saturday, May 14, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Discuss Henry Fayol's 14 principles of management.
2. What are the Elements of promotional mix? Discuss all in detail.
3. With specimen formats explain all types of Journals and a Ledger.

(10 marks × 3 = 30 marks)

4. **Short answer questions:**

- 4A. Discuss Conflict handling modes.
- 4B. Discuss SWOT analysis of Indian Pharmaceutical Industry.
- 4C. What are marketing objectives and strategies for different stages of product life cycle?
- 4D. What is law of demand? Explain demand curve and demand schedule.
- 4E. What are the different pharmaceutical plant layouts? Explain diagrammatically.
- 4F. Discuss Total Quality Management with respect to pharmaceutical industry.

(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. Decision making may not be always rational.
- 5B. Define Asset and Liability.
- 5C. What are the benefits of marketing research?
- 5D. What is 'efficiency' and 'effectiveness'?
- 5E. Differentiate between sole-proprietorship and partnership.

(2 marks × 5 = 10 marks)





## MANIPAL UNIVERSITY

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

SUBJECT: PHARMACEUTICAL ANALYSIS (PQA 205)  
(CREDIT BASED SYSTEM)

Saturday, May 14, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

**✍ Long essay:**

- 1A. Write a short note on “indicator errors” in neutralization titration.
- 1B. In the titration of 0.1M hydrochloric acid against 0.1M sodium hydroxide, if methyl red (pT = 5.5) is used as an indicator, calculate the indicator error involved, state whether methyl red is a suitable indicator or not ?

(5+3 = 8 marks)

2. Explain Nernst equation and factors affecting the same with relevant example.

(8 marks)

- 3A. Write note on inorganic precipitant with examples.

- 3B. Explain drying and ignition of precipitants.

(4+4 = 8 marks)

**✍ Short essay:**

- 4A. Define the term calibration. Explain the correction factors to be considered in the calibration of graduated volumetric glassware.
- 4B. Explain the factor affecting the stability constant of metal-EDTA complexes.
- 4C. Classify solvents used in non-aqueous titrations with two examples each class.
- 4D. Explain the preparation and standardization of 0.1 M Silver Nitrate solution.

(4 marks × 4 = 16 marks)

**✍ Short answer:**

- 5A. Explain principle and reaction for the standardization 0.1M sodium nitrite.
- 5B. Write a note on crucibles used in gravimetry.
- 5C. What do you mean by absolute and derived standards?
- 5D. Name any two methods to calculate equivalent weights in redox titrations.
- 5E. What is Le Chatelier- Braun principle? Explain.

(2 marks × 5 = 10 marks)



**MANIPAL UNIVERSITY****SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016****SUBJECT: PHARMACOGNOSY - II (PCO 206T)  
(2014 REGULATION)**

Thursday, May 05, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Give the source, chemical constituents and uses of Ginger. Describe its morphology and microscopy with neat labelled diagram.
2. Give the Pharmacognostic report of Clove.
3. Describe in detail Droplet Counter Current Chromatography and HPTLC.  
(10 marks × 3 = 30 marks)

4. **Short answer questions:**

- 4A. What is Colophony? Describe the collection and preparation.
- 4B. Explain Stas Otto procedure for extraction of Glycosides. Add a note on identification tests of Glycosides
- 4C. Umbelliferous fruits
- 4D. Discuss briefly various methods of conservation of medicinal plants
- 4E. What are bitters? Discuss briefly Quassia and Kalmegh
- 4F. Give the source, chemical constituents and uses of Garlic and Crocus (Saffron)  
(5 marks × 6 = 30 marks)

5. **Give reasons for the following:**

- 5A. Preseasonal immunotherapy is different from co-seasonal immunotherapy
- 5B. Brass knife is used for scraping the outer cork of Cinnamon bark
- 5C. Pyrethrins are used as insecticides
- 5D. Lemon grass oil is used for the synthesis of Vitamin A
- 5E. Intradermal sensitivity test must be carried out on the volar surface of the lower or upper arm  
(2 marks × 5 = 10 marks)



Reg. No.									
----------	--	--	--	--	--	--	--	--	--

## MANIPAL UNIVERSITY

SECOND YEAR B. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: PHARMACOGNOSY - I (PCO 206)  
(CREDIT BASED SYSTEM)

Thursday, May 05, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ Answer ALL the questions.

✍ Draw neat labeled diagrams and structures wherever necessary.

✍ Long Essays:

1A. Describe the morphology and microscopy of a rhizome drug with neat labeled diagram.

1B. Powder characters of fennel.

(6+2 = 8 marks)

2. Explain mutation and polyploidy in detail.

(4+4 = 8 marks)

3. Give the source, constituents and method of preparation and uses of tragacanth and Acacia.

(8 marks)

4. Short Essays:

4A. Source and uses of Gelatin and Spirulina

4B. Explain various leaf constants

4C. Classify and give the general tests for tannins

4D. Source and preparation of Castor oil

(4 marks × 4 = 16 marks)

5. Short Answers:

5A. Natural Colour from insect

5B. General tests for Alkaloids

5C. Define Glycosides and give the examples

5D. Anamocytic stomata and anisocytic stomata

5E. Alphabetical classification

(2 marks × 5 = 10 marks)

