

## MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

SUBJECT: PPR 3.3T: PHARMACOTHERAPEUTICS – II  
(2014 REGULATION)

Thursday, May 04, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

## ✍ Long answer questions:

- 1A. Explain mantoux test with the interpretation for the diagnosis of tuberculosis.
  - 1B. Write the clinical presentation and treatment for TB meningitis.
  
  2. Explain the clinical manifestation and pharmacotherapy of plaque psoriasis.
  
  - 3A. Describe most common causes of prerenal, intrinsic, and postrenal Acute Kidney Injury.
  - 3B. Describe the therapies implemented for any two causes of AKI.
- (10 marks × 3 = 30 marks)

## 4. Short answer questions:

- 4A. Explain different types of spondylitis and its management.
  - 4B. Explain the management of any two lower respiratory tract infections.
  - 4C. Explain the role of Highly active antiretroviral therapy in HIV.
  - 4D. What is Modified Duke criteria and write the conditions to be met for the 2-week treatment regimen for *Strep. Viridans* and *Strep. Bovis* infected endocarditis.
  - 4E. Explain the basis of TNM staging in cancer.
  - 4F. Write the appropriate antifungal therapy to treat meningitis caused by *Cryptococcus neoformans*.
- (5 marks × 6 = 30 marks)

## 5. Give reasons/short answers for the following:

- 5A. Corticosteroid used as adjuvant therapy in meningitis treatment.
  - 5B. Primaquine used in plasmodium *Vivax* treatment.
  - 5C. Name the bacterial infection which infects the temporal bone.
  - 5D. What are the causes for airway emergency in upper respiratory infections.
  - 5E. Role of hemodynamic support required in sepsis.
- (2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

## SUBJECT: PD 3.3: PHARMACOTHERAPEUTICS – II

Thursday, May 04, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions.

✍ Long Essay Questions:

1A. Write the differences between bacterial and nonbacterial pneumonia.  
1B. Explain the appropriate antimicrobial agents for the treatment of pneumonia based on the community and clinical setting with respect to dominating pathogens.  
(5+5 = 10 marks)

2A. Discuss the chemoprophylaxis treatment for both chloroquine sensitive and resistant strains of malarial infection.  
2B. Explain the management of complicated and un-complicated falciparum malaria.  
(5+5 = 10 marks)

3A. Explain the stepwise treatment plan for rheumatoid arthritis in a patient who does not respond to therapy.  
3B. Explain the role of different biological in the treatment of rheumatoid arthritis.  
(5+5 = 10 marks)

4. Short Essay Questions:

4A. Explain the management of osteoarthritis.  
4B. Explain the clinical features and management of ankylosing spondylitis  
4C. Describe diagnoses malaria and write the treatment for *P.falciparum* malaria in pregnancy. Write the chemoprophylaxis of malaria during the pre-travel consultation to prevent malaria.  
4D. Explain the pharmacotherapy of any two upper respiratory tract infections.  
4E. Explain the clinical presentations and treatment for gonorrhoea and syphilis.  
4F. Define multidrug resistant and extensively drug resistant tuberculosis (XDR TB). Explain the management of XDR TB.  
(5 marks × 6 = 30 marks)

5. Short Answers Questions:

5A. Write the difference between hospital and community acquired pneumonia.  
5B. Write the difference between hemodialysis and peritoneal dialysis  
5C. Enumerate the various routes in which bacteria enter the urinary tract and cause infection.  
5D. Explain the reasons why corticosteroid use in bacterial meningitis is controversial.  
5E. Explain the log cell kill hypothesis.  
(2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

### THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

#### SUBJECT: PMA 3.4T: PHARMACEUTICAL JURISPRUDENCE (2014 REGULATION)

Saturday, May 06, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

**Long answer questions:**

- 1A. Explain in brief about Health Survey and Development Committee.
- 1B. Describe Education Regulations as per Pharmacy Council of India.
- 2A. Mention the members of Drug Technical Advisory Board.
- 2B. Mention the conditions required for General and Restricted licenses as per Drugs and Cosmetics Act.
3. Write a detailed note on manufacturing of alcoholic preparations “Outside the Bond” as per Medicinal and Toilet Preparations Act.

(10 marks × 3 = 30 marks)

**Short answer questions:**

- 4A. Write a note on role of pharmacists in relation to Job and Trade.
- 4B. Explain method of calculation for ceiling price of a scheduled formulation as per DPCO 2013.
- 4C. With what objectives Drugs and Magic Remedies Act was passed? Discuss briefly prohibited advertisements.
- 4D. Write short notes on performance of experiments on animals as per “Prevention of Cruelty to Animals Act”.
- 4E. Explain patent filing procedure in India.
- 4F. Mention authorities and officers in relation to NDPS Act. List the objectives of NDPS Act.

(5 marks × 6 = 30 marks)

**Give reasons for the following:**

- 5A. Functions of Government Analyst.
- 5B. Write four examples of non-prescription drugs.
- 5C. Mention Schedule Y.
- 5D. What are Essential Commodities?
- 5E. Give labelling requirements of Sch. X drug.

(2 marks × 5 = 10 marks)





**MANIPAL UNIVERSITY****THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017****SUBJECT: PD 3.4: PHARMACEUTICAL JURISPRUDENCE**

Saturday, May 06, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

**✍ Long answer questions:**

1. Write the composition and functions of Pharmacy Council of India.
- 2A. What are the qualifications required to appoint Government Analyst? What are his duties?
- 2B. Discuss briefly the drugs which are exempted from the provisions of import of drugs. Mention the places through which drugs may be imported?
3. What are the conditions of license to manufacture dutiable goods as per Medicinal and Toilet Preparations Act?

(10 marks × 3 = 30 marks)

**4. Short answer questions:**

- 4A. Mention about authorities and officers in relation to NDPS Act? Write a note on national fund for control of drug abuse.
- 4B. Write a note on functions of NPPA.
- 4C. Which category of advertisements are exempted as per Drugs and Magic Remedies Act?
- 4D. Write short notes on performance of experiments on animals as per Prevention of Cruelty to Animals Act.
- 4E. Write a note on role of pharmacists in relation to Medical Profession and Trade.
- 4F. Explain patent filing procedure in India.

(5 marks × 6 = 30 marks)

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

- 5A. Functions of Drug Technical Advisory Board.
- 5B. Write short notes on prescription and non-prescription drugs.
- 5C. Write a note on Chopra Committee.
- 5D. What are the objectives of Essential Commodities Act?
- 5E. Give labelling requirements of Sch. X drug.

(2 marks × 5 = 10 marks)



# MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

### SUBJECT: PCH 3.5T: MEDICINAL CHEMISTRY (2014 REGULATION)

Tuesday, May 16, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Long answer questions:**

- 1A. What are beta lactam antibiotics. Classify them in detail.  
1B. Write the structure and uses for the following compounds:  
i) Streptomycin  
ii) Cycloserine  
iii) Chloramphenicol  
iv) Choro tetracycline

(6+4 = 10 marks)

- 2A. Classify diuretics and give examples.  
2B. Write the synthesis of tolazamide and give its uses.  
2C. Give important chemical structural features of thiazide diuretics.

(4+4+2 = 10 marks)

3. Classify Antimalarial drugs by giving examples. Outline the synthesis of any one 4-aminoquinolone derivative. Write the structure of two drugs belonging to the following class of anti cancer agents:  
i) Antimetabolites  
ii) DNA alkylators  
iii) Steroids

(10 marks)

4. **Short answer questions:**

- 4A. What are Radiodiagnostics? Classify them by giving examples. Outline the synthesis of any one of them.  
4B. Write the structure and chemical features of procainamide  
4C. Classify antifungal drugs by giving one structure under each class. Outline the synthesis of Flucytosine. Write the structures of two antiviral agents.  
4D. Write the structure and uses of methimazole and carbamazepine  
4E. What are Anti amoebic agents? Classify them by giving examples. Outline the synthesis for Ciprofloxacin.  
4F. Write the Mechanism of action, SAR for sulpha drugs. Outline the synthesis of Sulphathiazole.

(5 marks × 6 = 30 marks)

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

- 5A. Anti TB agents are basic in nature
- 5B. Alpha glucosidase inhibitors are used as hypoglycemic agents
- 5C. Hydralazine act as antihypertensive agent
- 5D. 6APA and 7ACA are inactive whereas, penicillins and cephalosporins are antibacterial agents
- 5E. Anti viral drug design is based on Nucleosides.

(2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

## SUBJECT: PD 3.1: PHARMACOLOGY – II

Tuesday, May 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions.

✍ Draw a labeled diagram wherever necessary.

✍ Long Essays:

1. With the help of a neat diagram, discuss the synthesis of cell wall in bacteria. Indicate the site of action of antibiotics that inhibit cell wall synthesis.

(10 marks)

2. Explain the various phases of cell cycle.

(10 marks)

3. Classify anti-cancer drugs. Discuss the mode of action of alkylating agents and cytotoxic drugs of natural origin.

(10 marks)

4. Short Essay:

4A. Mechanisms of action of tetracyclines and development of resistance to them.

4B. Mechanism of action of thiazide and loop diuretics.

4C. Give the mechanism of action of aspirin as an antiplatelet drug. Why is low dose aspirin given as an antiplatelet drug?

4D. Discuss the steps involved in Excision nucleotide DNA repair.

4E. Mechanisms of actions of anti-HIV agents.

4F. Explain the mechanism of action of erythromycin.

(5 marks × 6 = 30 marks)

5. Given reasons for the following:

5A. Ras and Raf are called as proto-oncogenes.

5B. p53 gene is called as house keeping gene or guardian of the genome.

5C. Tazobactam combined with piperacillin in severe infections caused by beta lactamase producing bacilli.

5D. Topoisomerase enzymes are required for continuation of DNA replication process.

5E. Comment on combination of diuretic with digitalis.

(2 marks × 5 = 10 marks)





**MANIPAL UNIVERSITY****THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017****SUBJECT: PHA 3.1T: PHARMACOLOGY – 2  
(2014 REGULATION)**

Tuesday, May 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Classify antitubercular drugs with examples. Describe the anti-tubercular mechanism of isoniazid and development of resistance against this drug.

(3+4+3 = 10 marks)

2. Depict the sites of action of diuretics in a labelled diagram of nephron. Explain the mechanism of loop diuretics. In hypercalciuria-induced nephrolithiasis, thiazide diuretics are preferred over loop diuretics. Why?

(10 marks)

3. Define apoptosis. Explain the steps involved in mitochondrial apoptosis.

(1+9 = 10 marks)

4. **Short answer questions:**

4A. Describe the mechanism of actions of beta-lactam antibiotics with a diagram.

(5 marks)

4B. Explain the absorption of iron in the body.

(5 marks)

4C. Explain how morphine produces pin point pupil and respiratory depression during poisoning.

(2½+2½ = 5 marks)

4D. Explain the various steps involved in genetic engineering process.

(5 marks)

4E. Discuss the mechanism of action of alkylating agents.

(5 marks)

4F. Explain the mechanism of actions of various antifungal agents.

(5 marks)



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

- 5A. Female rats are preferred over male rats for acute oral toxicity.
- 5B. Ras gene is also known as proto-oncogene.
- 5C. Albendazole is drug of choice in the management of neurocysticercosis compared to praziquantel.
- 5D. Clavulanic acid is given along with amoxicillin.
- 5E. Ciprofloxacin is contraindicated in pediatric patients.

(2 marks × 5 = 10 marks)



# MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

### SUBJECT: PCE 3.6T: PHARMACEUTICAL FORMULATIONS (2014 REGULATIONS)

Thursday, May 11, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL questions.**

✍ **Long answer questions:**

1. Explain different Official quality control tests for tablets. (10 marks)

2. What are different raw materials used in Soft gelatin capsules? Explain Rotary Die Process followed in the manufacture of Soft gelatin capsules. (3+7 = 10 marks)

3. Describe different sterilization methods used in parenteral preparations. (10 marks)

4. **Short essay questions:**

4A. Write about different types of Glass used in the packaging of parenteral products.

4B. Briefly explain important methods of preparation of semisolids.

4C. Add a note on Ocuserts.

4D. Explain different tests used to differentiate types of emulsions.

4E. What are the advantages and disadvantages of transdermal drug delivery systems?

4F. Explain the process of extraction of gelatin with the help of a flowchart.

(5 marks × 6 = 30 marks)

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

5A. Nasal drug delivery systems are advantageous in certain conditions.

5B. Sterility and isotonicity are important criteria in parenteral preparations.

5C. Compression coating method generally has two stages of compression

5D. Emulsifying agents are the integral components in emulsions. Give reason(s) along with the examples of emulsifying agents.

5E. Gelatin capsules should be stored in appropriate conditions.

(2 marks × 5 = 10 marks)



# MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

### SUBJECT: PD 3.6: PHARMACEUTICAL FORMULATIONS

Thursday, May 11, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL questions.**

✍ **Long Essay Questions:**

1. Mention different types of tablet coating. Explain sugar coating process in detail.  
(2+8 = 10 marks)
2. What are different methods for manufacturing hard gelatin capsules in large scale? Explain any ONE method.  
(2+8 = 10 marks)
3. Define parenteral preparations. Explain various routes of parenteral administration.  
(2+8 = 10 marks)

4. **Short Essay Questions:**

- 4A. Describe different filling methods for Liquid Orals.  
(5 marks)
- 4B. Briefly explain different types of ointment bases.  
(5 marks)
- 4C. Explain the Extraction of gelatin with the help of a flow-sheet.  
(5 marks)
- 4D. Briefly explain the methods for the preparation of Emulsions.  
(5 marks)
- 4E. Mention different types of transdermal drug delivery systems and explain any ONE type in detail.  
(1+4 = 5 marks)
- 4F. What are different evaluation tests for parenteral preparations? Explain sterility testing.  
(1+4 = 5 marks)

5. **Short answer questions:**

- 5A. Mention different types of novel drug delivery systems.
- 5B. What are different types of preservatives used in Liquid orals? Give examples.
- 5C. Define Ointment and Creams.
- 5D. What are the advantages of Direct compression method?
- 5E. Define base adsorption value with appropriate equation.  
(2 marks × 5 = 10 marks)



## MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

SUBJECT: PQA 3.2T: PHARMACEUTICAL ANALYSIS  
(2014 REGULATION)

Saturday, May 13, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL questions.

✍ Draw chemical reactions and neatly labelled diagrams wherever necessary.

✍ Long answer questions:

1A. Outline the use of absorption spectroscopy in the qualitative and quantitative analysis.

1B. Explain the construction and working of photomultiplier tube.

(5+5 = 10 marks)

2. Write the van Deemter equation and explain its terms. Discuss the factors affecting the efficiency of a column.

(10 marks)

3. Explain with graph, the conductometric titration of strong acid vs strong base. Explain the different types of conductivity cells.

(10 marks)

4. Short answer questions:

4A. Why phosphorescence is delayed phenomenon than fluorescence? Explain with energy level diagram.

(5 marks)

4B. List the limitations of Dispersive IR spectrometer.

(5 marks)

4C. i) Explain spin-spin coupling with one example.

ii) What is single focusing type electron impact mass spectrometer?

(3+2 = 5 marks)

4D. Write the advantages of TLC as separation technique over paper chromatography.

(5 marks)

4E. Explain difference between calibration and validation.

(5 marks)

4F. Write a brief note on “Quality Assurance of pharmaceutical dosage forms”.

(5 marks)



5. **Short answer questions:**

- 5A. Explain the quantitative flame photometric methods in brief.
- 5B. List the types of nebulizers used in Atomic Absorption Spectroscopy.
- 5C. Write the neat labeled diagram of Inductively Coupled Plasma.
- 5D. List advantages and disadvantages of Differential Thermal Analysis.
- 5E. Write requirements for the crystalline solid.

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



## MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

## SUBJECT: PD 3.2: PHARMACEUTICAL ANALYSIS

Saturday, May 13, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

- ☞ Answer ALL questions.
- ☞ Draw neatly labeled diagram wherever necessary.

## ☞ Long Essay:

- 1A. Define laws of photometry. Give its limitations.
- 1B. Draw a neat labeled diagram of double beam UV-Visible spectrophotometer and name its sources and detectors.

(5+5 = 10 marks)

- 2A. Write a brief note on statistical quality control with special emphasis on quality control charts.
- 2B. Explain Deming's philosophy of total quality management.

(5+5 = 10 marks)

- 3A. Define and classify chromatography.
- 3B. Discuss any four mechanisms responsible for separation in chromatography.

(5+5 = 10 marks)

## 4. Short Essay:

- 4A. Explain with examples the derivatisation techniques for quantitative analysis in fluorimetry.
- 4B. What are the principle and applications of IR Spectroscopy?
- 4C. i) Discuss the principle of flame photometry.  
ii) Draw a neat labeled diagram of polarimeter.
- 4D. What is a chromatogram? What information is obtained from a chromatogram?
- 4E. Discuss the principle of potentiometry with the help of a diagram of "Electrochemical cell".
- 4F. What are reference electrodes? Discuss the construction of standard hydrogen electrode.

5. **Short answer:**

5A. Differentiate between heat flux and power compensated DSC.

5B. Enlist any four applications of X-ray diffraction technique.

5C. Classify mass spectrometry.

5D. Differentiate NMR spectroscopy and ESR spectroscopy.

5E. Classify interferences observed in Atomic Absorption Spectroscopy (AAS).

(2 marks × 5 = 10 marks)



# MANIPAL UNIVERSITY

## THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2017

### SUBJECT: PD 3.5: MEDICINAL CHEMISTRY

Tuesday, May 16, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long essay:**

1. What are diuretics? Mention their uses. Classify them based on their site of action writing the structure of one agent from each class. Give the synthesis and chemical name of acetazolamide.

Classify Antibiotics by giving one structure under each class.

2. Write the Synthesis and mechanism of action for the following:

i) Pyrimethamine      ii) chloroquine

Classify Urinary tract anti-infectives with examples. Discuss the SAR of one class of Urinary tract anti-infectives.

3. Classify Anticancer agents with examples Classify Local Anti-infectives chemically with examples. Outline the synthesis of any one such compound.

(10 marks × 3 = 30 marks)

4. **Short essay questions:**

4A. Classify antitubercular agents by giving one structure under each class. Write the selection criteria and application of combination therapy.

4B. Explain the SAR and uses of beta blockers giving two structures. Write the structures of  
i) enalapril    ii) methyl dopa    iii) isosorbide dinitrate    iv) procainamide

4C. Outline the synthesis and uses of i) Amantadine    ii) p-amino hippurate

4D. Write the chemistry of sulphonamide. Outline the synthesis of any one of them.

4E. What are anthelmintics? Classify them with one example and its structure. Outline the synthesis of any one anthelmintic.

4F. What are antihyperlipidemic agents? Classify them with examples. Give the method of preparation of gemfibropzil.

(5 marks × 6 = 30 marks)

5. **Short answers questions:**

5A. Give the synthesis and uses of warfarin.

5B. Write the synthesis for Chlorambucil.

5C. Classify steroidal hormones with examples giving structure of one agent from each class.

5D. Write the chemical structure and IUPAC name of the following compounds:

i) Carbimazole    ii) Metronidazole

5E. What is the need for a QSAR study? What are its advantages?

(2 marks × 5 = 10 marks)

