

MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2016

SUBJECT: PD 3.1: PHARMACOLOGY – II

Wednesday, May 04, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Draw the neat, labeled diagram wherever necessary.**

✍ **Long Essays:**

1. Describe the mechanism of action of tetracyclines. Mention its therapeutic uses. Name two tetracyclines that can be used to treat infections in renal impairment. (4+4+2 = 10 marks)
2. Classify alkylating agents with examples. Discuss the mechanism of action and adverse effects of Cyclophosphamide. What is the rationale of using mesna in cyclophosphamide therapy? (3+5+2 = 10 marks)
3. Define Apoptosis. Discuss different pathways of apoptosis with the help of a diagram. (2+8 = 10 marks)

4. **Short Essays:**

- 4A. Outline the metabolic functions of Vitamin B₁₂ and folic acid in DNA synthesis.
- 4B. Compare and contrast warfarin and heparin.
- 4C. Discuss the mechanism of action of cyclosporine with a neat labeled diagram.
- 4D. Discuss the mechanism of development of resistance to antibiotics in bacteria.
- 4E. Explain the process of isolation of plasmid DNA from a sample of E.coli strain inoculated in a culture broth.
- 4F. Describe the mechanism of action of chloramphenicol and oxazolidinones. (5 marks × 6 = 30 marks)

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

- 5A. Aminoglycoside-induced nephrotoxicity also causes increased ototoxicity
- 5B. Dexamethasone must be started before and after an anthelmintic course
- 5C. Primaquine for the treatment of *Plasmodium vivax* and *P. ovale* infection
- 5D. High ceiling diuretics are used in the treatment of renal calcium stones
- 5E. Proto-oncogenes play a role in carcinogenesis

(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2016****SUBJECT: PD 3.2: PHARMACEUTICAL ANALYSIS**

Friday, May 06, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL questions. Draw neatly labeled diagram wherever necessary.

✍ Long Essays:

1A. Write a brief note on statistical Quality Control (SQC) with special emphasis on quality control charts.

1B. Classify the indicator electrodes used in potentiometry. Explain the principle of glass indicator electrode.

(5+5 = 10 marks)

2A. Define Beer-Lambert's law. Enlist its limitations.

2B. What are bathochromic shift and hypsochromic shift? Explain with suitable example.

(5+5 = 10 marks)

3A. Discuss the principle of Ion Exchange Chromatography and write its applications.

3B. Enlist the properties of an ideal Gas chromatography detector. Discuss the working of flame ionization detector.

(5+5 = 10 marks)

4. Short Essays:

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

(5 marks)

4B. Compare classical column chromatography with High Performance Liquid Chromatography (HPLC) and discuss the working of HPLC instrument.

(5 marks)

4C. i) Discuss amperometric titrations.

ii) What are chemical shift and coupling constant in NMR?

(3+2 = 5 marks)

4D. i) Define the term fluorescence quenching. Explain the factors influencing quenching of fluorescence.

ii) Name the reference standards used in NMR and ESR.

(3+2 = 5 marks)

4E. With the help of schematic diagram, explain the working of flame photometer.

(5 marks)

4F. i) Discuss the interferences in Atomic Absorption Spectroscopy.

ii) Enlist the components of Good Laboratory Practices (GLP).

(3+2 = 5 marks)

5. **Short Answer Questions:**

- 5A. Write the principle of polarography.
- 5B. Name different types of ion peaks in a mass spectrum.
- 5C. Write a short note on Optical Rotatory Dispersion (ORD).
- 5D. Define and derive Bragg's law in X-ray diffraction (XRD).
- 5E. Enlist any four applications of Differential Scanning Calorimetry (DSC).

(2 marks × 5 = 10 marks)



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

MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2016

SUBJECT: PD 3.3: PHARMACOTHERAPEUTICS – II

Monday, May 09, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

1A. Describe the Risk, Injury, Failure, Loss of Kidney Function, and End-Stage Renal disease (RIFLE) classification systems for Acute Kidney Injury.

1B. Explain the mechanism of any two drugs causing renal disorder with preventive measures.

(5+5 = 10 marks)

2. Discuss the management of uncomplicated and complicated urinary tract infection.

(10 marks)

3. Explain the interpretation of tuberculin skin test. Explain the management of multi drug resistant pulmonary tuberculosis.

(10 marks)

4. **Short Essay Questions:**

4A. Discuss the susceptibility, initiation, and progression factors that contribute to the progression of kidney disease.

4B. Explain the signs and symptoms and treatment regimen of falciparum malaria.

4C. Explain the management of any two opportunistic infections in HIV.

4D. Write the management of mucocutaneous candida infections. Outline the pharmacotherapy for aspergillosis.

4E. Explain any three antibiotic regimens for the management of bacterial endocarditis.

4F. Enlist three risk factors for the development of osteoarthritis (OA). Explain the mechanism of action of acetaminophen in the treatment of OA.

(5 marks × 6 = 30 marks)

5. **Short Answer Questions:**

5A. Differentiate the clinical manifestations between idiopathic SLE and drug-induced SLE.

5B. Enlist the short-term and long-term goals of treatment for acute leukemia.

5C. Outline modified Duke's criteria for the diagnosis of infective endocarditis.

5D. Define renal failure index.

5E. Write the differences between scabies and eczema.

(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2016****SUBJECT: PD 3.4: PHARMACEUTICAL JURISPRUDENCE**

Wednesday, May 11, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

- 1A. Discuss in brief general requirements as per Schedule M of Drugs and Cosmetics Act.
1B. Enlist the advisory and analytical agencies. Describe the functions of CDL. (10 marks)
- 2A. Discuss the provisions for bonded manufactory as per Medicinal and Toilet Preparations Act.
2B. Explain offences and penalties with respect to poppy straw, prepared opium as mentioned under Narcotic and Psychotropic Substances. (10 marks)
- 3A. Discuss in brief recommendations put forwarded by Drugs Enquiry Committee.
3B. Discuss in brief the ethics that a pharmacist should observe in relation to his Job. (10 marks)

4. **Short Essay Questions:**

- 4A. Write short notes on conditions for Import of drugs for personal use and import of new drugs.
4B. Discuss briefly conditions for retail Sale of Drugs.
4C. Write the objectives of Pharmacy Council of India. Add a note on Education Regulations.
4D. With what objectives Drugs and Magic Remedies Act was passed? Discuss briefly prohibited advertisements.
4E. Write the constitution and functions of Institutional Animal Ethics Committee.
4F. Enlist the functions of NPPA. (5 marks × 6 = 30 marks)

5. **Short Answer Questions:**

- 5A. Write short notes on Product Patent.
5B. Mention the criteria for registering a Design according to Designs Act.
5C. Enlist objectives of Narcotic and Psychotropic Substances Act.
5D. List at least two prescription and OTC drugs.
5E. Distinguish spurious, misbranded and adulterated cosmetic as per Drugs and Cosmetics Act. (2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2016

SUBJECT: PD 3.5: MEDICINAL CHEMISTRY

Friday, May 13, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

1. Classify antimalarial agents by giving one structure under each class. Outline the method of synthesis for praguaniol. Classify antihypertensive agents giving the structure of one drug under each class. Write the synthesis, chemical name and uses of propranolol.
2. Write the SAR, Mechanism of action of sulphonamides. Outline the synthesis for sulphacetamide. What are antianginal agents? Explain the mechanism of action giving two structures of nitrovasodilators. Write the synthesis of one calcium channel blockers.
3. Explain the various aspects governing the prodrug design. With examples classify the types of prodrugs. Classify antifungals with one example and its structure. Outline the synthesis of any one antifungal agent giving its mechanism of action.

(10 marks × 3 = 30 marks)

4. **Short Essay Questions:**

- 4A. Outline the synthesis and uses of dienestrol and ethacrynic acid.
- 4B. What is combinatorial chemistry? Mention different types of CombiChem techniques and list out their applications.
- 4C. Explain the mechanism of action and synthesis of dicoumarol. Write the structures and uses of atorvastatin and gemfibrozil.
- 4D. Classify Beta lactam antibiotics giving the structure of one agent from each class. Give their mechanism of action.
- 4E. Classify antiviral and anti-Aids drugs with example and its structure. Outline the synthesis of any one antiviral drug.
- 4F. Write the synthesis, IUPAC name and uses of the following drugs:
 - i) Nitrofurazone
 - ii) Mebendazole

(5 marks × 6 = 30 marks)

5. **Short Answers Questions:**

- 5A. Write the chemical structure and uses of the following compounds:
 - i) Chlorbutol
 - ii) Lindane
- 5B. What are antithyroid drugs? Give examples with structure.

- 5C. Classify antidysrhythmic agents with examples giving the structure of two agents belonging to different classes.
- 5D. Write the structure, chemical names and uses of hydrochlorthiazide and acetazolamide.
- 5E. Write the structure, mechanism of action and uses for trimethoprim and sulphamethoxazole.
- (2 marks × 5 = 10 marks)



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

MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2016

SUBJECT: PD 3.6: PHARMACEUTICAL FORMULATIONS

Monday, May 16, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

1. Write and explain the various stages involved in the sugar coating of tablets. What are the disadvantages of sugar coating?
2. What are the excipients used in ophthalmic formulations? Explain the formulation of ophthalmic solutions.
3. How hard gelatin and soft gelatin capsule dosage forms are evaluated? Explain.

(10 marks × 3 = 30 marks)

4. **Short Essay Questions:**

- 4A. Write on the disintegration test, content uniformity and weight variation tests for tablets.
- 4B. What are the requirements of an ideal suspension? Explain.
- 4C. How emulsions are stabilised and evaluated?
- 4D. Mention the types of novel drug delivery systems and explain the concept of any one such system.
- 4E. Explain the quality control tests performed on injections.
- 4F. Write on cosolvency and salt formation solubilization techniques available for formulation of liquid orals.

(5 marks × 6 = 30 marks)

5. **Short Answers Questions:**

- 5A. What is the importance of isotonicity adjustment of injectable preparations?
- 5B. What is the role of surfactants in the formulation of emulsion?
- 5C. List the disadvantages of parenteral dosage forms.
- 5D. Write the uses of dibasic calcium phosphate and mannitol in production of tablets.
- 5E. Mention the preparation of coca butter suppositories.

(2 marks × 5 = 10 marks)

