

MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PD 3.1: PHARMACOLOGY – II

Monday, May 04, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ Answer ALL the questions. Draw a neat, labeled diagram wherever necessary.

✍ Long Essays:

1. Classify anticoagulants with examples. Discuss the mechanism of action of oral anticoagulants. Mention their uses and side effects.

(2+4+2+2 = 10 marks)

2. Describe the problems associated with the anti-microbial agents' usage.

(10 marks)

3. Explain the role of oncogenes in the progression of cancer. Discuss the mechanism of action of alkylating agents.

(6+4 = 10 marks)

4. Short Essays:

4A. Mechanisms of actions of carbonic anhydrase inhibitors and osmotic diuretic

4B. Mechanisms of actions of metronidazole and diloxanide furoate

4C. Briefly describe the role of caspases in apoptosis

4D. Mechanism of action of Isoniazid

4E. Ras pathway as a means of cell signaling

4F. Mechanisms of actions of Chloroquine and primaquine

(5 marks × 6 = 30 marks)

5. Give reasons for the following:

5A. Tapeworm infestations are not affected by ivermectin

5B. Prednisolone is employed with cyclosporine

5C. Vasopressin is ineffective in nephrogenic diabetes insipidus

5D. Ciprofloxacin is contraindicated in pediatric patients

5E. Oligozoospermia may be one of the adverse effects associated with ketoconazole

(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PD 3.2: PHARMACEUTICAL ANALYSIS

Wednesday, May 06, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

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

✍ Long Essay:

1A. With the help of a neat labeled diagram describe the double beam UV-Visible spectrophotometer.

1B. Define lambda max (λ_{max}). Why absorbance is measured at the λ_{max} to perform quantitative analysis?

(8+2 = 10 marks)

2A. Define validation. Enlist and explain phases of equipment validation.

2B. Explain different amperometric titrations. What are its advantages?

(5+5 = 10 marks)

3A. Discuss the principle and instrumentation of Gas Chromatography.

3B. What is “programmed temperature gas chromatography”? Explain the advantages with a suitable example.

(5+5 = 10 marks)

4. Short Essay:

4A. What are the advantages of HPLC over classical column chromatography?

(5 marks)

4B. What is fluorimeter? Explain with a neat and labeled diagram.

(5 marks)

4C. i) Explain the working of Inductively Coupled Plasma (ICP) source in Atomic Emission Spectroscopy (AES).

ii) Classify ICH guidelines.

(3+2 = 5 marks)

4D. Write a short note on detectors used in IR spectrometer.

(5 marks)

4E. Explain why oxygen removal is necessary before quantitative analysis in polarography?

(5 marks)

4F. i) Explain the working of polarimeter.

ii) Differentiate between heat flux and power compensated DSC.

(3+2 = 5 marks)

5. **Short Answer:**

- 5A. Enlist the applications of X-ray diffraction technique.
- 5B. Name any four regulatory agencies and their respective countries.
- 5C. Enlist the applications of flame photometry.
- 5D. What is TMS? Give its importance in NMR spectroscopy.
- 5E. Name different ionic peaks in mass spectrum.

(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PD 3.3: PHARMACOTHERAPEUTICS – II

Friday, May 08, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

1. Describe clinical manifestation and management of systemic lupus erythematosus (SLE).
(10 marks)

- 2A. Discuss the clinical presentation and the diagnostic lab parameter in meningitis.
- 2B. Briefly describe the management of *Neisseria meningitidis* and *Haemophilus influenza* meningitis.
(4+3+3 = 10 marks)

- 3A. Classify different stages of chronic kidney disease (CKD) based on GFR criteria. Explain initiating and progressive mechanisms involved in pathogenesis of CKD.
- 3B. Explain the role of ACE inhibitors in CKD management.
(6+4 = 10 marks)

4. **Short Essay Questions:**

- 4A. Describe the HIV replication life cycle and sites for pharmacologic intervention.
- 4B. Outline the clinical presentation and management of chronic myeloid leukemia (CML).
- 4C. Explain the role of DMARDs in the management of rheumatoid arthritis.
- 4D. Write the common organisms causing urinary tract infection and explain the management of acute pyelonephritis.
- 4E. Describe the any two clinical manifestations of hyperuricemia.
- 4F. Explain the etiology and management of hospital-acquired pneumonia.
(5 marks × 6 = 30 marks)

5. **Short Answers Questions:**

- 5A. Enlist the role of TNF-alpha in ankylosing spondylitis.
- 5B. Define the following terms related to cancer: proto-oncogenes, oncogenes.
- 5C. Explain the importance of PUVA therapy in the management of psoriasis.
- 5D. Discuss factors that contribute to syphilis infection and their management.
- 5E. Write the difference between rheumatoid arthritis and osteoarthritis.
(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2015****SUBJECT: PD 3.4: PHARMACEUTICAL JURISPRUDENCE**

Monday, May 11, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay Questions:**

- 1A. Who appoints Government Analyst? What are his qualification and duties?
- 1B. What are the different categories of drugs whose import is exempted as per Drugs and Cosmetics act?
- 2A. What are the particulars for application to be submitted for obtaining the license to manufacture dutiable goods?
- 2B. Who are the different authorities and officers in relation to NDPS Act?
- 3A. Write short notes on Pharmaceutical Enquiry Committee and Hathi Committee.
- 3B. Discuss in brief the ethics that a pharmacist should observe in relation to his Trade.

(10 marks × 3 = 30 marks)

4. **Short Essay Questions:**

- 4A. What are the conditions for distribution of Sch. C, C1 drugs through motor vehicle?
- 4B. What are the requirements of production and ancillary area as per Sch. M of Drugs and Cosmetics Act?
- 4C. Write a detailed note of Education Regulations.
- 4D. What are different categories of advertisements which are exempted conditionally as per Drugs and Magic Remedies Act?
- 4E. What are the conditions for breeding and stocking of animals?
- 4F. What are the objectives of Essential Commodities Act? Write a note on functions of NPPA.

(5 marks × 6 = 30 marks)

5. **Short Answers:**

- 5A. Which inventions are not patentable according to Patents Act?
- 5B. How many years maximum a Design can be Protected according to Designs Act? Enlist any five things which should not be included in a Design.
- 5C. Define 'narcotic drug' and 'psychotropic substance'.
- 5D. Give two examples each for prescription and non-prescription drugs.
- 5E. Define 'Misbranded drug' as per Drugs and Cosmetics Act.

(2 marks × 5 = 10 marks)



MANIPAL UNIVERSITY

THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2015

SUBJECT: PD 3.5: MEDICINAL CHEMISTRY

Wednesday, May 13, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

☞ **Answer ALL the questions.**

☞ **Long Essays Questions:**

1. Classify antihypertensive agents with examples. Explain the SAR of beta blockers. Write the structures of clonidine, diltiazem, losartan and enalapril.

What are antianginal agents? Explain the mechanism of action and disadvantages of nitrovasodilators. Write the structures of isosorbide dinitrate, verapamil, metformin and glibenclamide

2. Write the structure and uses for the following drugs:

- | | |
|-----------------------|-----------------------|
| i) Nalidixic acid | ii) Propyl paraben |
| iii) Diatriazoic acid | iv) Methyl thiouracil |

Explain any one modern concept of drug design.

3. Write the structure and uses for the following drugs:

- | | |
|-------------------------------|-----------------------------|
| i) Broad spectrum antibiotic | ii) Penicillinase inhibitor |
| iii) Antipseudomonal agent | iv) Macrolide antibiotic |
| v) Aminoglycoside antibiotics | |

Write the chemistry of amino quinolones as antimalarial agents. Outline the method of synthesis for chloroquine

(10 marks × 3 = 30 marks)

4. **Short Essay Questions:**

4A. Outline the synthesis for the following drugs:

- | | | |
|-----------------|-----------------------|----------|
| i) Pyrazinamide | ii) Sulphamethoxazole | iii) PAS |
|-----------------|-----------------------|----------|

4B. Define diuretics and mention their medicinal uses. Classify them giving structure of one drug under each category. Outline the synthesis of ethacrynic acid.

4C. Write the structure, mechanism of action and uses for the following drugs:

- | | |
|-------------------------|---------------------|
| i) Cyclophosphamide | ii) 5-fluoro uracil |
| iii) Diethylstilbestrol | iv) Cisplatin |

4D. What is UTI and how is it caused? Classify the drugs used in treating UTI with structure. Outline the synthesis of any one such drug.

4E. What are antifungal agents? Classify them and give examples with structure. Outline the synthesis of one antifungal drug.

4F. Explain the mechanism of action and synthesis of dicoumarol. Write the structure and uses of lovastatin and gemfibrozil.

(5 marks × 6 = 30 marks)

5. **Short Answers Questions:**

5A. Classify steroidal hormones giving the structure of one agent from each class

5B. Outline the synthesis of Metchlorethamine and mention its uses

5C. Classify the antiviral drugs giving the structure of one agent from each class

5D. Give the structure, chemical name and uses of methyl dopa and nitroglycerin

5E. Outline the synthesis of ethambutol and mention its use

(2 marks \times 5 = 10 marks)



MANIPAL UNIVERSITY**THIRD YEAR PHARM D. DEGREE EXAMINATION – MAY 2015****SUBJECT: PD 3.6: PHARMACEUTICAL FORMULATIONS**

Friday, May 15, 2015

Time: 10:00 – 13:00 Hrs.

Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Explain various suppository bases with examples. How to calculate the displacement value of suppository base.
2. What is pyrogen? Explain the methods to determine the presence of pyrogens in the sterile products in detail.
3. Explain the manufacturing of soft gelatin capsules.

(10 marks × 3 = 30 marks)

4. Short Essay:

- 4A. Explain the concept of oral sustained release dosage forms.
- 4B. Differentiate flocculated and deflocculated suspensions.
- 4C. Explain the diluents and disintegrants used in manufacture of tablets with examples.
- 4D. Explain the advantages and disadvantages of buccal drug delivery systems.
- 4E. What is instability of an emulsion? Explain with suitable diagrams.
- 4F. What are the advantages and disadvantages of direct compression method? Explain in brief about the manufacturing of tablets by direct compression.

(5 marks × 6 = 30 marks)

5. Short Answers

- 5A. Classify sterile products.
- 5B. Explain the term enteric coating.
- 5C. Give any four ideal properties of ointment bases.
- 5D. Enlist the quality control tests for ophthalmic preparations.
- 5E. Write a short note on effervescent tablets.

(2 marks × 5 = 10 marks)

