Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: PHARMACEUTICAL ANALYSIS-2 (PQA 402T)

(REVISED REGULATIONS 2014)

Tuesday, July 17, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Explain the theory involved in UV-Spectroscopy. Differentiate between Chromophore and Auxochrome with suitable examples.

(5+5 = 10 marks)

2. Write a note on rate theory and plate theory of chromatography.

10 marks)

3. What are the various methods of detecting end point in potentiometric titrations? Explain with suitable example.

(10 marks)

4. **Short Essay:**

4A. Explain quality statements.

(5 marks)

4B. Compare HPLC with column chromatography.

(5 marks)

4C. Classify sampling techniques used in IR spectroscopy. Explain solid sampling technique in detail.

(5 marks)

4D. With the help of neat and labelled diagram write a note on Hollow Cathode Lamp (HCL) used in AAS.

(5 marks)

4E. i) Differentiate between NMR and ESR spectroscopy.
ii) Enlist the applications of polarimetry.

(3+2 = 5 marks)

4F. Classify mass analysers. Write a note on time of flight (TOF) mass analyser.

(5 marks)

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

5A. List the principles of TQM.
5B. Name the detectors used in nephelometer and turbidimeter.
5C. Write any two structural features required for a compound to show fluorescence.
5D. Differentiate between heat flux and power compensated DSC.
5E. Discuss in short the principle involved in Radio Immune Assay (RIA) technique.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: INSTRUMENTAL AND BIOMEDICAL ANALYSIS (PQA 402)

(CREDIT BASED SYSTEM)

Tuesday, July 17, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

- **Answer ALL the questions.**
- **Draw neatly labeled diagram wherever necessary.**

- **Long Essay:**

1A. Explain the quality statements.

1B. Draw a neatly labeled diagram of dispersive IR spectrometer. What are its limitations?

(4+4 = 8 marks)

2A. Explain the utility of absorption spectroscopy in the qualitative and quantitative analysis.

2B. Explain the theory of UV-Visible spectroscopy.

(4+4 = 8 marks)

3A. Discuss the "development" and "detection" techniques of thin layer chromatography.

3B. Explain the principle and advantages of temperature programming in gas chromatography.

(4+ 4 = 8 marks)

4. **Short Essay:**

4A. i) Write the ionization techniques in mass spectroscopy.

ii) Explain the working of "total combustion burner" with the help of a neatly labeled diagram.

(2+2 = 4 marks)

4B. Write the structural requirement for a molecule to exhibit the fluorescence.

(4 marks)

4C. i) Explain the conductometric titration for weak acid vs strong base.

ii) What is polarimeter? Write the factors affecting the angle of rotation.

(2+2 = 4 marks)

4D. i) Why nephelometry is more sensitive than turbidometry?

ii) Explain the principle of a glass electrode for measuring the pH.

(2+2 = 4 marks)

5. **Short Answer:**

5A. What reference standard is used in NMR spectroscopy and why?

5B. What is thermal analyser? Write the two applications of thermal analysis.

5C. Differentiate atomic absorption spectroscopy and atomic emission spectroscopy.

5D. Why dissolved oxygen is removed before quantitative analysis in polarography?

5E. Derive an expression of Bragg's law for diffraction.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: MEDICINAL CHEMISTRY - II (PCH 404T)

(REVISED REGULATIONS 2014)

Monday, July 23, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long Answers:**

1A. Define combinatorial chemistry with an example. List out the different types of Combichem synthesis. Explain solid phase synthesis with an example

1B. Classify intravenous anesthetics with one example and its structure. Write the synthesis of Mephensin and mention its uses.

(5+5 = 10 marks)

2A. Classify DNA alkylators giving one structure from each class and discuss the MOA of DNA alkylators.

2B. Discuss the importance of DHFR inhibitors in malarial therapy with an example and outline the method of synthesis of proguanil.

(5+5 = 10 marks)

3A. Write the synthesis and uses of: i) Carbamazepine ii) Molindone

3B. Explain the MOA of local anesthetic and write the synthesis of Lidocaine.

(5+5 = 10 marks)

4. **Short Answers:**

4A. Explain the MOA of sulphonamides as antibacterial agent with diagram and structure.

4B. Write the structure and uses of:
i) Piperacillin ii) Azatreonam iii) Clarithromycin iv) Lincomycin

4C. i) What are Amoebicides? Classify them with example and one structure from each class.
ii) Outline the synthesis of DEC and mention its uses.

4D. Explain the SAR of Tetracyclines and give the structure of two beta lactamase inhibitors.

4E. What is trypanosomiasis? Classify the disease with respect to organism. Classify antitrypanosomal agents with example and its structure. Outline the synthesis of Sulphamethoxazole.

4F. Discuss the MOA and outline the method of synthesis of ciprofloxacin and Chloramphenicol.

(5 marks × 6 = 30 marks)

5. **Give reasons:**

5A. Prilocaine has shorter duration of action than lidocaine.

5B. Phenoxymethyl Pencillin is orally active.

5C. Buspirone lacks relaxant activity.

5D. Tetracyclines shoud not be administered with milk.

5E. Sodium valproate is used as broad spectrum anticonvulsant drug.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: MEDICINAL CHEMISTRY – II (PCH 404)

(CREDIT BASED SYSTEM - REGULAR)

Monday, July 23, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1A. Explain the basic phases of computer aided drug design with respective methodology involved.

1B. Outline the synthesis of Diazepam and Phenobarbital and mention their uses.

(4+4 = 8 marks)

2A. What are the major drawbacks of penicillin G and how it is rectified, explain with one structure from each class?

2B. Discuss the MOA of anticancer antibiotics with two structures and give the synthesis of chlorambucil.

(4+4 = 8 marks)

3A. Define antipsychotic drugs. Classify with one example and its structure under each class.

3B. Explain SAR of sulphonamides with example and structure. Write the structure and use of Eflornithine.

(4+4 = 8 marks)

4. **Short Essays:**

4A. Discuss the SAR of Quinolones as antibacterial agents and outline the method of synthesis of Ofloxacin.

4B. Classify antifungal agents with example and structure of one compound under each class. Outline the synthesis of Fluoxetine and mention its uses.

4C. Write the structure and uses of:

i) Primaquine ii) Pyrimethamine iii) Sulbactum iv) Iopanoic acid

4D. Explain the SAR of Phenothiazines.

(4 marks × 4 = 16 marks)

5. **Short Answers:**

5A. Write the structure, mechanism of action and uses of Diethyl Carbamazine.

5B. Write the structure of two plant product used as anticancer agent.

5C. Why Secobarbital is more potent than pentobarbital?

5D. Write the structure of two Macrolide antibiotics and mention their uses.

5E. Write the mechanism of action and synthesis of Metronidazole.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: MEDICINAL CHEMISTRY – II (PCH 404)

(CREDIT BASED SYSTEM - REPEATERS)

Monday, July 23, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1A. Give the chemical classification of calcium channel blockers with the structure of one agent from each class. Write the synthesis of one of them.

1B. Explain the MOA of ACE inhibitors as antihypertensive agents giving the structures of two of them. Write the synthesis of clonidine.

(4+4 = 8 marks)

2A. Give the chemistry MOA and specific uses of DNA alkylators as anticancer agents and write the method of synthesis of chlorambucil

2B. Write the structure and uses of two amino glycoside antibiotics. Give the synthesis of phenoxy methyl penicillin.

(4+4 = 8 marks)

3A. Write the structure, MOA and uses of the following:
i) Ketoconazole ii) Mebendazole.

3B. Outline the synthesis of Nitrofurantoin and Sulphamethoxazole. Add a note on their mechanism of action.

(4+4 = 8 marks)

4. **Short Essays:**

4A. Classify antihyperlipidemic agents with examples. Write the MOA and synthesis of tolbutamide.

4B. Explain the mechanism of action of antiviral drugs. Write two structures of antiviral agents used in the management of Herpes virus and two structures of anti-aids drugs.

4C. Classify antibiotics giving one structure from each class and explain the SAR and stereochemistry of penicillins.

4D. Discuss the importance of DHFR inhibitors in malarial therapy with an example. Draw the structure of two anti estrogens.

(4 marks × 4 = 16 marks)

5. **Short Answers:**

5A. What are diagnostic agents? Write the specific use and synthesis of one of them.

5B. Explain SAR of thiazide diuretics.

5C. Write the structure and uses of iopanoic acid and Glibenclamide.

5D. Outline the synthesis of hydrocortisone.

5E. Write structures of any two anti TB antibiotics.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: PHARMACOLOGY – II (PHA 405T)

(REVISED REGULATIONS 2014)

Wednesday, July 25, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 70

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Discuss the objectives, methods and outcome of different phases of clinical trials.

(10 marks)

2. Classify sedative and hypnotic drugs. With a suitable diagram, explain the molecular mechanisms of sedative and hypnotics.

(3+7 = 10 marks)

3. With suitable examples, classify tetracycline antibiotics. Discuss the mechanism of action, adverse effects and contraindications of tetracycline.

(3+2+3+2 = 10 marks)

4. Short answer questions:

4A. Write a short note on acute and subacute toxicity studies.

(2½+2½ = 5 marks)

4B. Explain the phenomenon of second gas effect and diffusion hypoxia.

(5 marks)

4C. With suitable examples, classify anti-parkinsonian drugs.

(5 marks)

4D. With suitable examples, classify anti-ulcer drugs. Explain the mechanism of action of omeprazole.

(3+2 = 5 marks)

4E. Write the mechanism of action and two major adverse effects of amphotericin-B.

(3+2 = 5 marks)

4F. Discuss the mechanism of action and adverse effects of alkylating agents.

(3+2 = 5 marks)

5. Give reasons for the followings:

5A. Folinic acid administration with methotrexate therapy.

5B. Despite the poor oral absorption, neomycin can treat hepatic coma when administered orally.

5C. Ramelteon for disturbed circadian rhythm.

5D. Gingko biloba can be used as a cognition enhancer.

5E. Sirolimus exerts immunosuppressant action.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY 2018

SUBJECT: PHARMACOLOGY – II (PHA 405)

(CREDIT BASED SYSTEM)

Wednesday, July 25, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

✍ **Answer ALL the questions**

✍ **Long Essays:**

1. Classify sulfonamides with examples. Describe their mechanism of action. Mention their uses.

(3+3+2 = 8 marks)

2. Classify purgatives with examples. Describe the mode of action of any one group. What are the uses and unwanted effects of purgatives?

(8 marks)

3. Describe the mechanism of action and pharmacological actions of aspirin. What are its adverse effects?

(8 marks)

4. **Short Essays:**

4A. How does mebendazole act? List its uses.

4B. Explain the mechanisms of actions of any two first line anti-tubercular drugs.

4C. Discuss the mechanism of action of SSRIs.

4D. Principles of ELISA.

(4 marks × 4 = 16 marks)

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

5A. BAL is used in arsenic poisoning.

5B. Muromonab-CD3 used as immunosuppressant.

5C. Protease inhibitors are used in antiretroviral treatment.

5D. Domperidone preferred to metoclopramide in vomiting induced by levodopa.

5E. Magnesium salts combined with aluminium hydroxide as antacids.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY/AUGUST 2018

SUBJECT: CLINICAL PHARMACY AND THERAPEUTICS (PPR 401)

(CREDIT BASED SYSTEM)

Monday, July 30, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Explain the stepwise management of chronic asthma with the help of a diagram.

(8 marks)

2. Discuss the goal and procedure for following professional activities of clinical pharmacist:
   i) Ward round participation
   ii) Medication order review

(4+4 = 8 marks)

3. Explain the management of type 2 diabetes mellitus with the help of an algorithm.

(8 marks)

4. **Short Essay:**

4A. Draw the treatment algorithm for stable angina.
4B. Write management of community acquired pneumonia.
4C. Explain the role of pharmacist in ADR management.
4D. Write the eradication regimens for *H.pylori* infection.

(4 marks × 4 = 16 marks)

5. **Short Answer:**

5A. What is meant by DMARDs and give two examples?
5B. Mention management of hypertension in pregnancy.
5C. What are 'positive symptoms' and 'negative symptoms' of Schizophrenia?
5D. What are the sources of contamination for *Salmonella* infection?
5E. Enlist various ECG and enzymatic changes in myocardial infarction.

(2 marks × 5 = 10 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH YEAR B. PHARM. DEGREE EXAMINATION – JULY/AUGUST 2018

SUBJECT: PHARMACOGNOSY – III (PCO 406)

(CREDIT BASED SYSTEM)

Wednesday, August 01, 2018

Time: 10:00 – 13:00 Hrs. Max. Marks: 50

✍ **Answer ALL the questions.**

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

✍ **Long Essays:**

1A. How are Guggul sterones isolated? Give its biological source and uses.

1B. Classify Enzymes and give the source and preparation of Pepsin.

(4+4 = 8 marks)

2A. What is Callus? Explain the growth and maintenance of a callus culture.

2B. How do you detect pesticide residue in herbal finished products as per WHO guidelines?

(4+4 = 8 marks)

3A. With the help of chemical structures, illustrate the relationship scheme between the important constituents of Ipecac.

3B. Bring out the similarity and differences in the powder characters of Solanaceous drugs.

(4+4 = 8 marks)

4. **Short Essays.**

4A. Discuss in brief the principles of Unani system of medicine.

4B. What are Allergens? Give their characteristic features and factors that make some persons more susceptible to allergy.

4C. Discuss Nicotine (tobacco) as a pesticide.

4D. Give the method of isolation and tests for identification of Sennosides.

(4 marks × 4 = 16 marks)

5. **Short Answers.**

5A. Define and classify Nutraceuticals.

5B. Describe Stevioside and Trans-anethole as sweetening agents.

5C. Give the source and structures of any two Cardiovascular drugs of marine origin.

5D. Give the source, constituents of any two anti-AIDS drugs.

5E. RRL and NBRI.

(2 marks × 5 = 10 marks)