



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD YEAR B. PHARM. DEGREE EXAMINATION - JULY 2019

SUBJECT: PHARMACY PRACTICE (PPR 301T)

(2014 REGULATIONS)

Wednesday, July 10, 2019 (10.00 - 13.00 hrs.)

Answer all questions.

Marks: 70

Duration: 180 mins.

Long Answer Questions.

- 1) What is hospital formulary and formulary system? Explain the guiding principles to adapt hospital formulary system in the hospital. (10)
- 2) Define drug information and explain the steps involved in modified systemic approach of drug information query. (10)
- 3) Discuss the Schedule N requirement to start Community Pharmacy. (10)

4) Short Answer Questions

- 4A) Explain the goals and procedures for medication order review. (5)
- 4B) Explain perpetual inventory control method with its advantages. (5)
- 4C) Define rational drug use and explain the rational use of antibiotics. (5)
- 4D) Define medication error. Explain various types of medication error with examples. (5)
- 4E) Explain good pharmacy practice guidelines for community pharmacy. (5)
- 4F) Enumerate various drug distribution system for inpatients. Explain any two with its advantages and disadvantages. (5)

5) Give reasons for the following:

- 5A) Need for Information on toxic effects of chemicals, including plant and animal toxins. (2)
- 5B) It is important to measure rate of Return on investment in any business. (2)
- 5C) Reclassification or depomping. (2)
- 5D) Use of nursing supervisor is not good method of dispensing during off hours. (2)
- 5E) Pharmaceuticals are accepted back or when the container is unopened original package. (2)

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MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD YEAR B. PHARM. DEGREE EXAMINATION - JULY 2019
SUBJECT: PHARMACEUTICAL BIOTECHNOLOGY (PBT 302T)
(2014 REGULATIONS)

Friday, July 12, 2019 (10.00 - 13.00)

Answer ALL questions.

Marks: 70

Duration: 180 mins.

Long Answer Questions.

- 1) Taking a suitable example, discuss the production of a recombinant protein by rDNA technology. (10)
- 2) Adaptive immunity is responsible for providing third line of defence against invading pathogens. Describe the cells involved in active immunity. (10)
- 3) Describe the construction and working of an Industrial Fermenter. Add a note on control of foam. (10)

4) Short Answer Questions:

- 4A) Explain the beneficial applications of Pharmacogenomics. (5)
- 4B) Citing suitable examples, explain the secondary and immortal cultures. (5)
- 4C) What are stem cells? Explain their features. (5)
- 4D) Attenuated vaccines are considered more effective than inactivated vaccines. Explain the reasons with suitable examples. (5)
- 4E) Explain the production of an attenuated bacterial vaccine. (5)
- 4F) Describe the advantage of using microorganisms for the production of nanoparticles with suitable examples. (5)

5) Give reasons for the following:

- 5A) Fermentation is different from Putrefaction (2)
- 5B) While making the host cell competent by calcium chloride treatment, heat treatment is necessary. (2)
- 5C) Frame shift mutation results in faulty gene expression. (2)
- 5D) When fermentation is carried out with the same microbial strain the products are different. (2)
- 5E) Gene augmentation therapy is not suitable for increasing the expression of protein in a cell. (2)

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**MANIPAL ACADEMY OF HIGHER EDUCATION**

THIRD YEAR B. PHARM. DEGREE EXAMINATION - JULY 2019
SUBJECT: PHYSICAL PHARMACEUTICS AND PHARMACOKINETICS (PCE 303T)
(2014 REGULATIONS)
Monday, July 15, 2019 (10.00 - 13.00)

Answer all the questions.

Marks: 70

Duration: 180 mins.

Long Answer Questions:

- 1) Derive the rate constant, half-life and shelf life equations for first order kinetic reaction. (10)
- 2) Explain the limitations of pH partition hypothesis. Discuss biliary excretion of drugs. (10)
- 3) Explain the application of excretion rate and sigma-minus methods to determine the pharmacokinetics of drug in urine when administered as IV bolus assuming that it follows one compartment open model. (10)

4) Short Answer Questions:

- 4A) What is porosity? What are the different porosities encountered in a granular mass? Deduce the equations for the same. (5)
- 4B) State and explain Freundlich adsorption isotherm. (5)
- 4C) Describe the reasons for instability of lyophobic colloids. (5)
- 4D) What is plug flow? What is it due to? How can it be minimized? (5)
- 4E) Explain the single dose plasma level study to measure bioavailability. (5)
- 4F) Discuss monomolecular inclusion complexes and their pharmaceutical applications. (5)

5) Give reasons for the following:

- 5A) Why Ficks first law is mainly applicable for pharmacy? (2)
- 5B) Why drug sample from receptor compartment is replaced with fresh solvent? (2)
- 5C) Crossover design is preferable over a parallel design for a bioequivalence study. Why? (2)
- 5D) Why Hixon-Crowell cube root law is more applicable than Noyes-Whitney equation for the dissolution of drugs? (2)
- 5E) Meta stable polymorph of the drug is preferred over stable and unstable polymorph. Why? (2)

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MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD YEAR B. PHARM. DEGREE EXAMINATION - JULY 2019

SUBJECT: MEDICINAL CHEMISTRY - I (PCH 304T)

(2014 REGULATIONS)

Wednesday, July 17, 2019 (10.00 - 13.00)

Answer ALL questions.

Marks: 70

Duration: 180 mins.

Long Answer Questions:

- 1A) Discuss the important structural modifications of Morphine and their effect on analgesic activity. (6)
- 1B) Outline the synthesis of Indomethacin and Ibuprofen. (4)
- 2A) Classify H₁-antihistamines with examples giving one structure from each class. (5)
- 2B) Write the general structural requirements of H₁ antihistamines. (5)
- 3A) Explain any two physicochemical properties that effect the drug action. (4)
- 3B) Write the synthesis and uses of Dicoumarol and salbutamol. (6)

4) Short Answer Questions:

- 4A i) Classify calcium channel blockers as antianginal agents with examples giving one structure from each class. (2)
- 4A ii) Give the synthesis of any one 1,4- dihydropyridine derivative used as antianginal agent. (2)
- 4A iii) Give the structure and uses of any one H₂ receptor antagonist. (1)
- 4B) Discuss of SAR of loop diuretics and give the synthesis of furosemide. (5)
- 4C) What are angiotensin receptor antagonists? Write the structure of any two drugs from this class and explain the mechanism of action. (5)
- 4D) What is organophosphorus poisoning? How pralidoxime act as an antidote? Outline the synthesis of pralidoxime. (5)
- 4E i) Outline the synthesis of Dicyclomine. (3)
- 4E ii) Give the structure of any two anticholinergic agents which is used for the treatment of urinary incontinence. (2)
- 4F) Write a note on Beta receptor blockers. (5)

5) Give reasons for the following:

- 5A) What structural modification of Insulin resulted in Detemir Insulin which is a prolonged acting insulin preparation? (2)

- 5B) What structural feature of cetirizine makes it less sedating among cyclizines as H1 antihistamines? (2)
- 5C) Compared to lovastatin and simvastatin, pravastatin has less incidence of CNS side effects and is more selective towards hepatic tissues. (2)
- 5D) Carbonic anhydrase inhibition induces diuresis. (2)
- 5E) Local anesthetics are usually coadministered with adrenaline. (2)

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MANIPAL ACADEMY OF HIGHER EDUCATION
THIRD YEAR B. PHARM. DEGREE EXAMINATION – JULY 2019
SUBJECT: MEDICINAL CHEMISTRY – I (PCH 304)
(CREDIT BASED SYSTEM - REGULARS)

Wednesday, July 17, 2019

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1A. Discuss the important structural modifications of Morphine and their effect on analgesic activity

1B. Outline the synthesis of Ibuprofen

(6+2 = 08 marks)

2A. Classify H¹-antihistamines with examples giving one structure from each class.

2B. Write the general structural requirements of H¹ antihistamines

(4+4 = 08 marks)

3A. Explain any one physicochemical properties that effect the drug action

3B. Write the synthesis and uses of dicoumarol and salbutamol

(2+6 = 08 marks)

4. **Short Essay Questions:**

4A. Classify calcium channel blockers as antianginal agents with examples giving one structure from each class

(2 marks)

4B. Give the synthesis of any one 1,4-dihydropyridine derivative used as antianginal agent

(2 marks)

4C. What is organophosphorus poisoning? How pralidoxime act as an antidote? Outline the synthesis of pralidoxime.

(4 marks)

4D. What are angiotensin receptor antagonists? Write the structure of any two drugs from this class and explain the mechanism of action

(4 marks)

4E. Outline the synthesis of dicyclomine and furosemide

(4 marks)

5. **Short Answer Questions:**

- 5A. What structural feature of cetirizine makes it less sedating among cyclizines as H₁ antihistamines?
- 5B. Why pravastatin has less incidence of CNS side effects and selectivity towards hepatic tissues, when compared to lovastatin and simvastatin?
- 5C. Give the structure of any two anticholinergic agents which is used for the treatment of urinary incontinence
- 5D. How carbonic anhydrase inhibition induces diuresis?
- 5E. Why local anesthetics are usually coadministered with adrenaline?

(2 marks × 5 = 10 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION****THIRD YEAR B. PHARM. DEGREE EXAMINATION - JULY 2019****SUBJECT: PHARMACOLOGY - I (PHA 305T)****(2014 REGULATIONS)****Friday, July 19, 2019 (10.00 - 13.00)**

Answer all the questions.

Marks: 70

Duration: 180 mins.

Long Answer Questions:

- 1) With the help of a diagram, explain the different pharmacokinetic processes. Discuss any six major factors affecting the drugs action. (10)
(4+6 = 10 marks)
- 2) Classify antidiabetic drugs. Explain the mechanism of action of any two antidiabetics belonging to different classes. (10)
(5+5 = 10 marks)
- 3) List the various adrenergic receptors and with a neat labelled diagram, discuss the adrenergic neurotransmission. Explain the drugs modulating the adrenergic transmission. (10)
(2+6+2 = 10 marks)

4) Short Answer Questions:

- 4A) Discuss the mechanism of action of cardiac glycosides. (5)
- 4B) With suitable examples, classify drugs used for the treatment of bronchial asthma. (5)
- 4C) Discuss the advantages and disadvantages of intravenous route of administration. (5)
- 4D) Classify and discuss the mechanism of action of anticholinesterase agents. (5)
- 4E) Explain the mechanism of action of anticoagulants. (5)
- 4F) With suitable examples, classify antiarrhythmic drugs. (5)

5) Give reasons for the followings:

- 5A) Low dose of atropine fails to produce mydriasis in rabbit. (2)
- 5B) Cinnarizine is recommended for vertigo. (2)
- 5C) Sympathetic stimulation leads to rise in blood pressure. (2)
- 5D) Passive mydriasis caused by anticholinergic drugs. (2)
- 5E) Combination of folic acid and methotrexate. (2)

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MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD YEAR B. PHARM. DEGREE EXAMINATION - JULY 2019

SUBJECT: PHARMACOGNOSY - 3 (PCO 306T)

(2014 REGULATIONS)

Tuesday, July 23, 2019 (10.00 - 13.00)

Answer ALL questions.

Marks: 70

Duration: 180 mins.

Long Answer Questions:

- 1) Discuss Ipecac under the following heading, Source, chemical constituents, morphology cultivation and collection. (10)
(1+2+2+5 = 10 marks)
- 2) Describe the Source, cultivation, collection and preparation, chemical constituents, uses and identification tests for Aloes. (10)
(1+4+1+1+3 = 10 marks)
- 3) a) Give the source, chemical constituents and uses of Cascara, Strophanthus and Linseed. (10)
b) Describe the cultivation and collection of Dioscorea.
(6+4 = 10 marks)

4) Short Answer Questions:

- 4A) Explain the biogenesis of Papaverine. (5)
- 4B) Define patent. Briefly describe the patentable and non-patentable inventions as per Indian patent act 1970. (5)
- 4C) Explain the Isolation, identification and estimation of Andrographolide. (5)
- 4D) Briefly describe the Bitterness value and its significance as per WHO guideline. (5)
- 4E) Enlist and explain various stages of growth of plant tissue culture. (5)
- 4F) Give the source, description and preparation of Urokinase. (5)

5) Give reasons for the following:

- 5A) Turmeric is used as nutricosmetic. (2)
- 5B) Water soluble ash plays a major role in evaluation of Tea powder. (2)
- 5C) Nushtur is used for incising the poppy capsules. (2)
- 5D) Functional foods are Nutraceuticals. (2)
- 5E) Isoelectric pH is used in purification of enzymes. (2)

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