

MANIPAL UNIVERSITY**M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010****SUBJECT: ADVANCED PHARMACOLOGY (PHA 601)****(SPECIALIZATION: PHARMACOLOGY)**

Friday, May 28, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

- 1A. Classify drug receptors and the mechanism of drug-receptor interaction leading to therapeutic effect.
- 1B. Discuss the current concepts of adrenergic receptors with special reference to the action of drugs.

(10+10 = 20 marks)

- 2A. Discuss the role of inhibitory neurotransmitters of the CNS and explain how drugs interfere with their actions.
- 2B. Describe the mechanisms of lipid transport. Discuss the mechanisms of action of hypolipidemic agents.

(10+10 = 20 marks)

- 3A. Prostaglandins: Bio-synthesis and drugs affecting it.
- 3B. Describe the physiology of vomiting and drugs affecting it.

(10+10 = 20 marks)

- 4A. Discuss the mechanisms of action of antidiabetic drugs.
- 4B. Explain with examples, how bacterial enzymes serve as targets for antibacterial agents.

(10+10 = 20 marks)

5. Write short notes on the following:

- 5A. Biotransformation
- 5B. Opioid receptors
- 5C. Mechanism of action of local anesthetics
- 5D. Mechanisms of action of antimalarials

(5×4 = 20 marks)



MANIPAL UNIVERSITY

M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010

SUBJECT: DRUG DISCOVERY AND DEVELOPMENT (PHA 602)

(SPECIALIZATION: PHARMACOLOGY)

Saturday, May 29, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.

- 1A. With a neat flow chart describe the sequential events involved in the introduction of a new chemical entity (NCE) into the market.
- 1B. Explain the principles and procedure involved in the immunoassays of Insulin and Digitalis. (10+10 = 20 marks)
- 2A. Three groups of rats were treated with vehicle (control), nimesulide (20 mg/kg) and test drug (25 mg/kg), 30 minutes before the administration of carrageenan. The oedema volume (ml) in the above group of animals after carrageenan administration is as follows.
Control (n=7) 0.62, 0.53, 0.63, 0.54, 0.49, 0.6, 0.51
Nimesulide (n=8) 0.21, 0.20, 0.26, 0.18, 0.24, 0.26, 0.28, 0.21
Test drug group (n=9) 0.11, 0.13, 0.14, 0.17, 0.16, 0.13, 0.14, 0.13, 0.11
Apply an appropriate parametric test to answer the following questions.
i) Do nimesulide and test drug possess anti-inflammatory action.
ii) If so which one of the above drugs is more efficacious?
Interpret and present the data with fair conclusion.
- 2B. Outline the principles in acute and chronic toxicological studies in animals. (10+10 = 20 marks)
3. Discuss the following screening procedures for:
- 3A. Analgesics
- 3B. Antifertility agents (10+10 = 20 marks)
- 4A. Describe the guidelines for housing, maintenance and care of common laboratory animals used in research.
- 4B. Write briefly on the informed consent and ethical committee in clinical trails. (10+10 = 20 marks)
5. Write short note on the following:
- 5A. Me-too-drugs
- 5B. Normal distribution
- 5C. Transgenic animals
- 5D. In MES test for anticonvulsant screening 6 out of 10 animals, which received vehicle, showed convulsions. On the other hand 7 out of 9 animals, which received a test drug, did not show convulsions (abolition of extensor phase). Apply an appropriate statistical test to find out if the test drug has got anticonvulsant action. (5×4 = 20 marks)



MANIPAL UNIVERSITY**M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010****SUBJECT: APPLIED AND CLINICAL PHARMACOLOGY (PHA 603)****(SPECIALIZATION: PHARMACOLOGY)**

Monday, May 31, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

Answer ALL questions.

- 1A. Using digoxin as example, explain the importance of Pharmacokinetic parameters in TDM.
- 1B. Discuss the principles of management of acute poisoning.
- (20 marks)
- 2A. Explain the etiology of hypertension with reference to predisposing factors. Discuss the treatment modalities of essential hypertension.
- 2B. Causes and management of microcytic hypochromic anemia.
- (20 marks)
- 3A. Discuss the pathophysiology of Alzheimer disease and the recent advances in its pharmacotherapy.
- 3B. Types of pain and their management.
- (20 marks)
- 4A. Rational approaches of the Pharmacotherapy of NIDDM.
- 4B. Infective meningitis and its management.
- (20 marks)
5. **Write short note on the following:**
- 5A. Treatment of drug induced asthma
- 5B. Therapy of AML
- 5C. Essential drug concept
- 5D. Clinical lab data on LDH and CK

(5×4 = 20 marks)



MANIPAL UNIVERSITY**M. PHARM. PART-I DEGREE EXAMINATION – MAY/JUNE 2010****SUBJECT: CELLULAR AND MOLECULAR PHARMACOLOGY (PHA 604)****(SPECIALIZATION: PHARMACOLOGY)**

Tuesday, June 01, 2010

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

Answer ALL questions.

- 1A. Discuss with a diagram how ribosomes are assembled in the nucleus. Describe the different functions of biological membranes.
- 1B. Explain, with a diagram, how Notch pathway helps in direct cell to cell signalling. Explain the chain of events in the Wnt pathway which controls the ubiquitination nuclear entry of beta catenin.

(20 marks)

- 2A. Explain how MCM helicase proteins guarantee that DNA is replicated only once in each cell cycle. Discuss the role of condensin and cohesin in the cell cycle.
- 2B. What are caspases? What is their role in apoptosis? Explain the term apoptosis. How are apoptotic bodies phagocytosed?

(20 marks)

- 3A. Explain the meaning of Okazaki fragments and their role in DNA replication. Explain how a telomerase works. What is its significance?
- 3B. Explain how pre RNAs are processed before translation occurs. Explain the chain of events in the formation of a polymerase II transcription initiation complex.

(20 marks)

- 4A. Discuss the tools of genetic engineering.
- 4B. Write briefly on the cDNA libraries.

(20 marks)

5. Write short note on the following:

- 5A. With the help of a diagram, explain the step of 'elongation' in translation.
- 5B. Explain the terms proto oncogenes and oncogenes. Explain how proto oncogenes are converted into oncogenes.
- 5C. What is the Philadelphia chromosome? How does it produce cancer?
- 5D. Different types of cloning and their application.

(5×4 = 20 marks)

