Reg. No.										

MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2009

SUBJECT: ADVANCED PHARMACOLOGY (PHA 601)

SPECIALIZATION: PHARMACOLOGY

Thursday, May 28, 2009

Time: 10:00-13:00 Hrs. Max. Marks: 100

Answer ALL questions.

1A. Discuss the modern concepts in drug-receptor interactions.

1B. Describe the steps involved in cholinergic transmission and how do drugs affect it?

(10+10 = 20 marks)

2A. Discuss the mechanisms of action of anti-depressant drugs.

2B. Describe the mechanisms of action of anti-arrhythmic drugs.

(10+10 = 20 marks)

3A. Discuss the mechanistic bases of drugs use in peptic ulcer therapy.

3B. Explain the role of renin-angiotensin system in the maintenance of blood pressure. Outline the mechanism of action of different drugs used to treat hypertension by interfering with renin-angiotensin system.

(10+10 = 20 marks)

4A. Explain the mechanisms of action of anti-diabetic drugs.

4B. Discuss the mechanistic aspects of antimalarial chemotherapy.

(10+10 = 20 marks)

5. Write short notes on:

5A. G-protein coupled receptors.

5B. Benzodiazepine receptors.

5C. Cyclosporin.

5D. Endogenous opioids.

(5×4 = 20 marks)

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MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2009

SUBJECT: DRUG DISCOVERY AND DEVELOPMENT (PHA 602)

SPECIALIZATION: PHARMACOLOGY

Friday, May 29, 2009

Time: 10:00-13:00 Hrs. Max. Marks: 100

Answer ALL the questions. All questions carry equal marks.

1A. Explain the term lead compounds. Discuss target validation and lead optimization in drug discovery.

1B. Discuss the procedural requirements and methodology of phase I, II and III clinical trial.

2A. Pyrexia was induced in three groups of rats [n = 9] by injecting yeast and the rectal temperatures were recorded. Group A received a test compound G, Group B received paracetamol and Group C received Normal Saline one hour before the induction of pyrexia. The rectal temperatures of both groups are given below

Rectal temperatures [n = 9]

Group A: (G)	39.9	40.1	40.0	39.8	38.9,	39.9,	38.8,	39.0,	39.0
Group B: (Paracetamol)	37.9	37.2	37.4	37.6	36.9	37.1	37.1	37.3	37.2
Group C: (normal saline)	38.9	40.0	39.8	38.0	39.0	39.0	40.2	39.5	37.9

Apply an appropriate statistical method for this experimental data. Explain the application of the statistical procedure step by step, giving the logical arguments at each stage. Does the experiment suggest any antipyretic action for the test compound G?

2B. With the help of examples, explain the application of parametric tests such as students't test and chi-square test.

3A. Discuss the various techniques for the screening of analgesics. What is the difference in the information obtained from different models?

3B. Explain the different procedures for screening antianxiety drugs in experimental animals.

4A. Discuss the limitations of animal pharmacological and toxicological data in drug discovery.

4B. Discuss the various in vitro toxicity methods for preclinical screening of drug candidates.

5. Write short notes on the following:

5A. Placebo

5B. Enzyme linked immunosorbent assay

5C. Any two methods to screen drugs for peptic ulcers.

5D. Two corridor design for animal house.

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2009

SUBJECT: APPLIED AND CLINICAL PHARMACOLOGY (PHA 603)

SPECIALIZATION: PHARMACOLOGY

Saturday, May 30, 2009

Time: 10:00-13:00 Hrs. Max. Marks: 100

Answer ALL questions.

1A. Explain the concepts of pharmacoeconomics.

1B. Discuss the consequences of drug-drug interactions in therapeutics.

(10+10 = 20 marks)

2A. Drugs used in acute myocardial infarction.

2B. Management of gout.

(10+10 = 20 marks)

3A. Discuss the drug treatment of generalized seizures.

3B. Leukemias.

(10+10 = 20 marks)

4A. Discuss the management of hyperthyroidism.

4B. Chemotherapeutic management of TB.

(10+10 = 20 marks)

5. Write short notes on:

5A. Drug-induced airway resistance

5B. Constipation

5C. Herpes infections

5D. Myasthenia gravis

(5×4 = 20 marks)

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MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2009

SUBJECT: CELLULAR AND MOLECULAR PHARMACOLOGY (PHA 604)

SPECIALIZATION: PHARMACOLOGY

Monday, June 01, 2009

Time: 10:00-13:00 Hrs. Max. Marks: 100

Answer ALL questions.

1A. Explain the electron transport chain and how it produces ATP. Explain the difference between cotranslational and post translational pathway of protein localisation.

1B. Outline the chain of events in activation of ERK via Ras. What is the outcome of this pathway? Explain, with a diagram, how Notch pathway helps in direct cell to cell signalling.

(20 marks)

2A. Outline the major phases of the cell cycle and the checkpoints that regulate its progress. Explain how Rb acts as a repressor of cell cycle.

2B. Explain, with a diagram, the molecular mechanism that distinguishes and phagocytoses the apoptotic cells. Explain, with a diagram, the mitochondrial pathway in apoptosis.

(20 marks)

3A. Explain the chain of events in the synthesis of telomeres. Explain the term retrotransposon and its role in DNA replication.

3B. Explain the term splicing. How is it carried out and what is its significance? Explain the terms repressors, corepressors and enhancers of transcription. What are their functions?

(20 marks)

4A. Describe the functions and the applications of restriction enzymes in cloning.

4B. What are vectors? Write briefly on eukaryotic vectors.

(20 marks)

5. Write short notes on the following:

5A. Explain the role of miRNAs in the regulation of translation.

5B. Explain how the translocation of c-myc in the development of Burkitt's lymphoma.

5C. The principle and applications of PCR.

5D. What are tumor suppressor genes? How do they prevent cancer?

(5×4 = 20 marks)