Reg. No.										

MANIPAL UNIVERSITY

M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2011

SUBJECT: ADVANCED PHARMACOLOGY (PHA 601)

(SPECIALIZATION: PHARMACOLOGY)

Thursday, May 26, 2011

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

✍ **Answer all questions. Each question carries TWENTY marks.**

1A. Discuss drug absorption. Outline various techniques employed to increase the duration of drug action.

1B. Discuss drugs affecting adrenergic neurotransmission.

2A. Discuss the mechanisms of action of Benzodiazepines and Barbiturates.

2B. Discuss the mechanism of antiinflammatory and analgesic action of NSAIDs. Write briefly on COX2 selective drugs.

3A. Discuss the physiology of renin angiotensin aldosterone system and drugs affecting this system.

3B. Discuss the mechanisms of action of drugs used in the treatment of dyslipidemia.

4A. With a description of the life cycle of the malarial parasite, discuss the mechanisms of action of antimalarial drugs.

4B. Discuss the biosynthesis of thyroid hormones and the actions of drugs acting on it. Add a note on drug-induced hypothyroidism.

5. Write short notes on the following:

5A. Microsomal enzyme induction.

5B. Non sedating antihistaminics.

5C. Multidrug resistant tuberculosis.

5D. Calcium channel blockers.

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2011

SUBJECT: DRUG DISCOVERY AND DEVELOPMENT (PHA 602)

(SPECIALIZATION: PHARMACOLOGY)

Saturday, May 28, 2011

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

✍ **Answer all questions.**

1A. Discuss the conventional approaches to new drug development.

1B. Role of genomics and proteomics in drug discovery- discuss.

(10+10 = 20 marks)

2. Describe the screening procedures for:

2A. Antiepileptic drugs

2B. Antidepressants

(10+10 = 20 marks)

3A. Describe the design of clinical trials for an NCE.

3B. Describe the principles and procedures for the immunoassay for insulin.

(10+10 = 20 marks)

4A. A new analgesic molecule was screened for its activity in the writhing model in rats. Three groups of rats were given the vehicle (control), standard drug (paracetamol) and the test drug (CPS). Given below are the writhing scores of the three different treatments.

Treatment	Writhing movements							
Control (n=8)	56	74	42	53	59	39	52	67
Paracetamol (n = 8)	15	18	29	31	11	10	20	15
CPS (n = 8)	43	19	30	20	32	43	29	42

Analyse the data using the appropriate statistical treatments and answer the following questions.

i) Is the new molecule active?

ii) Is it superior to the standard drug?

4B. Discuss the tests to determine the carcinogenic and mutagenic potential of an investigative drug molecule.

(10+10 = 20 marks)

5. Write notes on:

5A. Student's "t" distribution.

5B. CPCSEA guidelines for animal experimentation.

5C. Extrapolation of animal data to humans.

5D. Non-parametric tests.

(20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2011

SUBJECT: APPLIED AND CLINICAL PHARMACOLOGY (PHA 603)

(SPECIALIZATION: PHARMACOLOGY)

Tuesday, May 31, 2011

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

Answer all questions.

1A. Discuss the applications of volume of distribution and bioavailability of drugs in drug therapy.

1B. Discuss the importance of TDM with respect to antiepileptic and digoxin like drugs.

(10+10 = 20 marks)

2. Discuss the etiology and pharmacotherapy of

2A. Hypertension

2B. Schizophrenia

(20 marks)

3. Discuss the pharmacotherapy of

3A. Rheumatoid arthritis

3B. Constipation

(20 marks)

4A. Discuss the management of chronic renal failure.

4B. Discuss the management of UTI.

(20 marks)

5. Write short notes on the following:

5A. Drugs for bronchial asthma

5B. Leukemia

5C. HRT in menopausal women

5D. NIDDM

(5×4 = 20 marks)

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M. PHARM. PART–I DEGREE EXAMINATION – MAY/JUNE 2011

SUBJECT: CELLULAR AND MOLECULAR PHARMACOLOGY (PHA 604)

(SPECIALIZATION: PHARMACOLOGY)

Thursday, June 02, 2011

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

✍ **Answer ALL questions.**

1A. Discuss the structure and functions of the nuclear envelope, with a diagram. Explain the four levels of protein structure.

1B. Explain the feedback inhibition of NF-kB pathway through IkB. Outline the chain of events in activation of ERK via Ras. What is the outcome of this pathway?

(20 marks)

2A. Explain the role of condensin and cohesin in the cell cyle. Explain an experiment that demonstrated a cytoplasmic role during meotic maturation in frog oocytes.

2B. Explain the term apoptosis and its significance. What are the major differences between apoptosis and necrosis? Explain the role of p53 in the regulation of apoptosis.

(20 marks)

3A. Explain the chain of events in the replication of DNA in eukaryotes. Explain the different types of DNA repair.

3B. Explain the mechanism of histone acetylation and DNA methylation and its role in the regulation of transcription. Explain the chain of events in the formation of the RNA polymerase transcription initiation complex.

(20 marks)

4A. What is recombinant DNA-technology? Describe the fundamentals of rDNA-technology.

4B. Explain with appropriate examples the applications of gene cloning.

(20 marks)

5. Write short note on the following:

5A. Explain the role of chaperones in the process of translation.

5B. Explain how you can show that cancer cells are clones of a single cancer cell.

5C. Mutagenesis of cloned genes.

5D. Explain the differences between a normal cell and a cancer cell.

(5×4 = 20 marks)