

MANIPAL UNIVERSITY**FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016**

SUBJECT: ADVANCES IN MOLECULAR PHARMACOLOGY & CHEMOTHERAPY (PHA 601T)
(SPECIALIZATION: PHARMACOLOGY)
(2014 REGULATION)

Wednesday, May 18, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

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

1. Describe transport membrane proteins contributing to pharmacokinetic changes with example.
2. Describe NF- κ B signaling and feedback inhibition by I κ B.
3. Describe the structure and functions of RNA-polymerase. Explain the importance of promoter sequence in the transcription process.
4. Discuss the physiology of the resting and exciting cell. Point out how drugs affect these two.
5. Discuss the molecular mechanisms of adrenaline actions through β -adrenoreceptors.
6. Write briefly on cannabinoid receptors and their physiological functions. Add a note on retrograde signaling by endocannabinoids.
7. Discuss the molecular mechanisms of anti-HIV drugs and the mechanisms of development of resistance to anti-HIV drugs.
8. What are oncogenes? Discuss with examples, the genesis of oncogenes from proto-oncogenes.
9. **Write short notes on:**
 - 9A. Daptomycins
 - 9B. Agarose gel-electrophoresis and its applications
10. **Write short notes on:**
 - 10A. Mechanisms of actions of antimalarial drugs.
 - 10B. Vectors used in gene-therapy

(10 marks \times 10 = 100 marks)

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MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: DYNAMICS OF DRUGS AFFECTING MAJOR ORGAN SYSTEMS (PHA 602T)
(SPECIALIZATION: PHARMACOLOGY)

(2014 REGULATION)

Friday, May 20, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

✍ Draw neat, labeled diagrams wherever necessary.

1. Discuss the mechanisms of action of antiplatelet drugs.
2. Discuss the transportation of lipoproteins in the body and the mechanisms of action of hypolipidaemic drugs.
3. Describe the monoamine hypothesis of depression. Explain why antidepressants take time to exert their effects.
4. Discuss the mechanisms of various antiepileptic drugs.
5. Describe the pathways for emesis. Explain the mechanisms of action of drugs used to treat/prevent vomiting.
6. Describe the roles of iron, folic and vitamin B₁₂ in haemopoiesis.
7. Discuss the cellular and molecular mechanisms of corticosteroids as anti-inflammatory and immunosuppressants
8. Discuss the basal ganglia functions in normal individuals and in Parkinsonism and the mechanisms of action of drugs used to treat the disease.
9. **Write briefly on:**
 - 9A. Vasopressin receptors and drugs affecting them
 - 9B. Estrogen receptor modulators
10. **Write briefly on:**
 - 10A. Ketamine in anaesthesia
 - 10B. Digoxin in a failing heart

(10 marks × 10 = 100 marks)



MANIPAL UNIVERSITY**FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016****SUBJECT: APPLIED AND CLINICAL PHARMACOLOGY (PHA 603T)****(SPECIALIZATION: PHARMACOLOGY)****(2014 REGULATION)**

Friday, May 23, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ Answer ALL questions.**✍ Draw the neat, labeled diagram wherever necessary.**

1. Compare and contrast type A and type B ADRs. Discuss the predisposing factors of ADR in patients.
2. Describe the pathogenesis and clinical manifestations of bronchial asthma. Discuss the drugs used in asthma.
3. Explain the positive and negative symptoms of schizophrenia. Discuss the pharmacological management of schizophrenia.
4. Discuss the primary signs and symptoms of congestive cardiac failure (CCF). Write scale of severity and explain pharmacological management of CCF.
5. Explain the etiology, pathophysiology, drug therapy and treatment algorithm for gout.
6. What are the clinical manifestations of HIV infection? Describe the goals of therapy and therapeutic agents for treatment of HIV infection.
7. Discuss the chemotherapy of leukemia.
8. Discuss the pathophysiology and pharmacotherapy of diabetes mellitus.
9. **Write short notes:**
 - 9A. Health economic evaluations
 - 9B. Drugs for venous and arterial thromboembolism
10. **Write briefly on following:**
 - 10A. Mixed order elimination kinetics of drugs
 - 10B. Strategy of target concentration intervention

(10 marks × 10 = 100 marks)



MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: PRE-CLINICAL DRUG DISCOVERY AND ANALYTICAL TECHNIQUES (PHA 604T)
(SPECIALIZATION: PHARMACOLOGY)
(2014 REGULATION)

Wednesday, May 25, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

1. Using suitable examples, discuss the basic principles and applications of cell-based assays. (10 marks)

2. With the help of neat diagrams, describe the operation of UV and Fluorescence detectors. (10 marks)

3. Following are the data for fasting plasma glucose (FPG, mg/dl) of three groups of animals who received vehicle, standard drug (2.5 mg/kg) and test compound (10 mg/kg), respectively in the following order. With the help of suitable statistical test, answer the following questions:

| | | | | | | |
|----------------------|-----|-----|-----|-----|-----|-----|
| Vehicle treated (G1) | 200 | 210 | 175 | 180 | 225 | 220 |
| Standard drug (G2) | 110 | 121 | 100 | 104 | 150 | 155 |
| Test drug (G3) | 125 | 130 | 135 | 140 | 135 | 120 |

- 3A. Do the standard and test drugs have any influence on FPG?
- 3B. Which of the two treatments is more efficacious in its action? (10 marks)

4. Describe the production and use of transgenic animals in drug discovery. (10 marks)

5. Discuss any two methods each for *in vitro* and *in vivo* screening of anticancer drugs. (10 marks)

6. Discuss any four *in vivo* methods for screening anti-anxiety drugs. (10 marks)

7. Explain the methods of *in vitro* and *in vivo* carcinogenicity testing for NCE. (10 marks)

8. Elaborate the tests to evaluate preclinical absorption profile using CACO-2 cell lines.

(10 marks)

9. **Write short notes on:**

9A. Flow cytometry

9B. Patch clamp technique

(5 marks × 2 = 10 marks)

10. **Write briefly on the following:**

10A. Cell lines used in screening techniques

10B. COMET assay

(5 marks × 2 = 10 marks)



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MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION – MAY 2016

SUBJECT: CLINICAL DRUG DEVELOPMENT (PHA 605T)
(SPECIALIZATION: PHARMACOLOGY)
(2014 REGULATION)

Friday, May 27, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 100

- ✍ Answer ALL the questions.
- ✍ Draw neat, labeled diagrams wherever necessary.

1. Describe the ICH guidelines for drugs intended for long term treatment of non-life threatening conditions.
2. Enumerate and explain the general principles of Belmont report.
3. Write a note on appraisal of clinical trial report.
4. Discuss the addendum to periodic safety update reports for marketed drugs.
5. Write a note on exploratory evaluation of time invariant steady state pharmacokinetics.
6. Explain IPR and its role in market exclusivity.
7. Explain the different phases of clinical trials.
8. Describe the contents of schedule Y.
- 9A. Draw a flow chart describing the process of obtaining informed consent.
- 9B. Explain the role of principal investigator in the conduct of clinical trials.
- 10A. Explain the different IEC review procedures.
- 10B. Explain the different methods of randomization.

(10 marks × 10 = 100 marks)

