MANIPAL UNIVERSITY

FIRST YEAR M. PHARM. DEGREE EXAMINATION - JULY 2017
SUBJECT: ADVANCES IN MOLECULAR PHARMACOLOGY AND CHEMOTHERAPY (PHA 601T)
(PHARMACOLOGY)
Monday, July 17, 2017 (10.00 - 13.00 Hrs.)

Marks: 100 **Duration: 180 mins.**

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

1)	Discuss the implications of the ABC and SLC-transporters in drug disposition.	(10)
2)	Discuss the intracellular signal transduction through the MAP-kinase pathways.	(10)
3)	What are Ozazaki fragments? Why are they formed in lagging strand? How does the completion of lagging strand occur during DNA replication process?	(10)
4)	Discuss the signaling pathways that regulate the apoptosis.	(10)
5)	Explain the molecular and cellular mechanisms of actions of adrenergic drugs.	(10)
6)	Discuss the pathophysiological roles of 5HT and its implications in pharmacology.	(10)
7)	Describe the replication of the DNA of microbes. Discuss the mechanisms of actions of different classes of drugs that affect the microbial DNA-replication.	(10)
8)	With examples discuss the principles behind the drug combinations in cancer chemotherapy with a special reference to the drugs affecting the cell-cycle.	(10)
9)	**Write short note on:** i) Molecular and cellular mechanisms of drugs used to treat typhoid. ii) Gene cloning techniques in general.	(10)
10)	**Write short note on:** i) Glycopeptides as antimicrobial agents. ii) Obstacles to gene therapy.	(10)

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FIRST YEAR M. PHARM. DEGREE EXAMINATION - JULY 2017
SUBJECT: DYNAMICS OF DRUGS AFFECTING MAJOR ORGAN SYSTEMS (PHA 602T)
(SPECIALIZATION: PHARMACOLOGY)
Wednesday, July 19, 2017 (10.00 - 13.00 Hrs.)

Marks: 100 **Duration: 180 mins.**

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

1)	Explain the ventricular action potential. Write a note on class-I antiarrhythmics.	(10)
2)	Discuss the molecular mechanisms of action of vasodilators.	(10)
3)	Describe the pathophysiology of Parkinsonism and mechanisms of antiparkinsonian drugs.	(10)
4)	Discuss the various stimuli for vomiting and the mechanisms of action of antiemetics.	(10)
5)	Arachidonic acid metabolites in inflammation.	(10)
6)	Detail the mode of action of immunosuppressants.	(10)
7)	Describe the synthesis of thyroid hormones and the mechanism of action of antithyroid agents.	(10)
8)	Outline the mechanisms of action of antidiabetic drugs.	(10)
9)	**Write briefly on:** i) Mechanisms of diuretics acting on the collecting duct of nephrons. ii) Local anaesthetics and their mechanisms of action.	(10)
10)	**Write briefly on:** i) Fibrinolytic agents ii) 5-HT receptors and migraine	(10)

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FIRST YEAR M. PHARM. DEGREE EXAMINATION - JULY 2017
SUBJECT: APPLIED AND CLINICAL PHARMACOLOGY (PHA 603T)
(SPECIALIZATION: PHARMACOLOGY)
(2014 REGULATION)
Friday, July 21, 2017 (10.00 - 13.00 Hrs.)

Marks: 100 **Duration: 180 mins.**

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

1)	Define adverse drug reactions. Classify and explain the mechanisms of adverse drug reactions.	(10)
2)	Describe the pharmacotherapy of malaria based on the life cycle of malarial parasite.	(10)
3)	Describe blood pressure regulation and depict the principal autonomic sites of drug action. Explain the clinical features and management of hypertensive crisis.	(10)
4)	Explain the principles of management of exertion angina. Discuss the role of nitrates in the management of angina.	(10)
5)	Describe the pathophysiology of insomnia and its drug treatment.	(10)
6)	Discuss the etiopathophysiology and pharmacotherapy of hypothyroidism and hyperthyroidism.	(10)
7)	Discuss the pathophysiology and pharmacotherapy of leukemia.	(10)
8)	Describe how combination therapy will help to treat HIV infection and the opportunistic infections in AIDS.	(10)
9)	**Write short notes:** i) Concept of chronopharmacology in therapeutics ii) Management of Parkinsonism by drugs affecting brain dopaminergic system	(10)
10)	Write briefly on following: i) Loading and maintenance dose ii) WHO criteria for the selection of essential drugs	(10)

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FIRST YEAR M. PHARM. DEGREE EXAMINATION - JULY 2017
SUBJECT: PRECLINICAL DRUG DISCOVERY AND ANALYTICAL TECHNIQUES (PHA 604T)
(SPECIALIZATION: PHARMACOLOGY)
(2014 REGULATION)
Monday, July 24, 2017 (10.00 - 13.00 Hrs.)

Marks: 100 **Duration: 180 mins.**

Answer ALL the questions:

1) With illustrations, explain the various hurdles involved in drug discovery. (10)

2) Describe how various chromatographic techniques are helpful in drug discovery process. (10)

3) Following are the data for immobility time (sec) of three groups of animals who received vehicle, standard (25 mg/kg) and test drug (50 mg/kg), respectively in the following order. With the help of suitable statistical test, answer the following questions: (10)

i) Do the standard and test drugs have any influence on depression?
ii) Which of the two treatments is more efficacious in its action?

Vehicle treated (G1)	156	157	164	160	159	160	156	157	164	180
Standard drug (G2)	50	70	49	66	70	78	52	58	58	78
Test drug (G3)	102	124	78	96	118	98	110	136	150	125

4) Describe renal hypertension models in experimental animals for screening antihypertensive drugs. (10)

5) Discuss any two screening methods each for testing acute and sub-acute inflammation. (10)

6) Describe the principle and procedure of any three chemically-induced animal models for anticancer screening. (10)

7) Elaborate the use of different anaesthetics for experimental animals as per CPCSEA guidelines. (10)

8) Discuss the various endpoints for detection of toxic effects on female reproductive system. (10)

9. **Write short notes on:**

9A) Transgenic animals. (5)

9B) Principles and applications of quantitative whole body autoradiography. (5)

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

10A) Factors affecting the sensitivity of animal tests. (5)

10B) Parameters assessing sub-acute toxicity. (5)

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FIRST YEAR M. PHARM. DEGREE EXAMINATION - JULY 2017
SUBJECT: CLINICAL DRUG DEVELOPMENT (PHA 605T)
(SPECIALIZATION: PHARMACOLOGY)
(2014 REGULATION)
Wednesday, July 26, 2017 (10.00 - 13.00 Hrs.)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.
Draw neat labeled diagram wherever necessary.

1)	Elaborate on the constitution and responsibilities of Independent Review Board.	(10)
2)	Explain the phases of clinical trials through which an NCE for hypertension, after obtaining permission from regulatory body in India, should pass through.	(10)
3)	Explain the concept of Missing data and its Management.	(10)
4)	Describe the ICH guidelines [E4] for selection of dose response.	(10)
5)	Explain the general principles for the periodic safety update reports for marketed drugs.	(10)
6)	Discuss the importance of Schedule Y in clinical trials.	(10)
7)	Describe 'exploratory assessment of drug dose linearity' and its use for study optimization.	(10)
8)	Explain the methods of randomization in clinical trials.	(10)
9)	i) Write a note on expedited review of trial protocol by institutional ethics committee. ii) What are the problems in Orphan drug development?	(10)
10)	i) Write a note on prospectus of CRO in India. ii) What is the significance of literature review in clinical research?	(10)