

**PHARMACOLOGY**

**PAPER – I**

**Time : 3 hours**

**PHARM/D/10/34/I**

**Max. Marks : 100**

**Attempt all questions in order.  
Each question carries 10 marks**

**Write short notes on:**

- 1 What is Pharmacovigilance? Discuss briefly its merits and clinical implications. Describe its limitations in the Indian context with suggested strategies to improve the implementation. 2+4+4
- 2 Define apparent volume of distribution of drugs. How is it calculated? Explain briefly the various factors which can alter volume of distribution of a drug 2+2+6
- 3 Mention two experimental screening methods for anti-seizure activity in a compound. Describe the steps involved in the experimental procedure for ONE of these methods. Mention in brief the procedures for tabulating the observation in this experiment. 2+4+4
- 4 What is meta-analysis? Discuss briefly the merits and demerits of meta-analysis. 2+4+4
- 5 What is Nanotechnology? What are the different types of nanoparticles? Describe the application of nanotechnology in the drug development process. 2+4+4
- 6 What is conditioned avoidance response (CAR)? How is it helpful in drug screening? Briefly describe an experimental procedure for CAR. How is it evaluated? 2+2+4+2
- 7 Mention the constitution of Animal Ethics Committee (AECC) as per the CPCSEA guidelines. Describe the guidelines for functioning of AEC. 2+8
- 8 Briefly explain DOSE-RESPONSE relationship of a pharmacological agent under the following headings:
  - a) Quantal Response 3
  - b) Graded Response 3
  - c) Potency and efficacy. 4

**P.T.O**

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FINAL EXAM  
DECEMBER 2010

NATIONAL BOARD OF EXAMINATIONS

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9 Describe the hepatic microsomal enzymes that are involved in drug metabolism. Explain the concept of enzymes induction and inhibition. Mention the commonly used drugs which are inducers and inhibitors of these enzymes, with one clinical implication for each 2+2+3+3

10 Enumerate the various types of toxicity studies in pre-clinical drug development. Give a brief description of one of these methods. 6+4

Write short notes on:

2+4+4

2+2+6

2+4+4

2+4+4

2+4+4

2+2+4+2

2+8

3

3

4

P.T.O.

**PHARMACOLOGY**  
**PAPER – II**

**Time : 3 hours**  
**Max. Marks : 100**

**PHARM/D/10/34/II**

**Attempt all questions in order.**  
**Each question carries 10 marks**

**Write short notes on:**

- 1 Enumerate the drugs used in the treatment of chronic stable angina. What are the proposed mechanisms of nitrate tolerance and how can it be overcome? 6+3+1
- 2 Discuss the therapeutic rationale of using glucocorticoids in bronchial asthma. Enumerate the side-effects of topical steroid therapy in bronchial asthma. 7+3
- 3 Enumerate the drugs used in the treatment of H. pylori infection. What are their major side effects? 6+4
- 4 What are selective COX-2 inhibitors? What are their indications? What is/are the pharmacological basis of the withdrawal of some of these drugs? 3+4+3
- 5 Enumerate the drugs used in the treatment of chronic gouty arthritis. Briefly describe their mechanisms of action. 5+5
- 6 Enumerate various anti-platelet drugs. Mention their mechanisms of action. Mention any role of hepatic cytochrome P450 enzyme in the therapeutic effect of any one of them. 2+6+2
- 7 What is anaphylactic shock? What are the drugs used in the treatment of this condition? Briefly describe the mechanism/s of action of the drugs used and the rationale for their use in anaphylaxis. 2+3+5
- 8 What are HMG-CoA reductase inhibitors? What are their major side-effects? What are their pleiotropic effects? 2+6+2
- 9 Enumerate the drugs used in the treatment of hyperthyroidism? What are the side-effects of these drugs? 5+5
- 10 Enumerate the drugs which modulate the renin angiotensin-aldosterone system. What are their therapeutic uses and the pharmacological basis of these uses? 4+3+3

## PHARMACOLOGY

### PAPER – III

Time : 3 hours  
Max. Marks : 100

PHARM/D/10/34/III

Attempt all questions in order.  
Each question carries 10 marks

Write short notes on:

- 1 Describe the pathophysiology and drug treatment of migraine. 5+5
- 2 Enumerate the class III cardiac anti-arrhythmic agents. What are their mechanisms of action? What are their major indications? Enumerate the major side-effects of an iodine-containing class III anti-arrhythmic agent. 2+4+2+2
- 3 Describe the drugs which act through prostanoid receptors. Enumerate their therapeutic potentials. 6+4
- 4 Describe the mechanisms of action of cyclosporine. What are their therapeutic uses? What are its major side-effects? 3+3+4
- 5 Enumerate the drugs used in the chemoprophylaxis of malaria. Describe their mechanism(s) of action. Mention the dosage schedules of two of these agents. 3+4+3
- 6 What are ergosterol inhibitors? Mention their major side-effects. 5+5
- 7 Mention the principles and guidelines for Human Ethics Committee (HEC) as per the ICMR. Describe the constitution of HEC. 6+4
- 8 What is "Micro-dosing" in clinical trial? What are the advantages and limitations of micro dosing concept? 4+6
- 9 Describe the mechanism of action, therapeutic uses of side-effects of teicoplanin. 3+4+3
- 10 What are SERMs? What is their mechanism(s) of therapeutic action? Mention their therapeutic uses. 2+4+4

## PHARMACOLOGY

### PAPER – IV

Time : 3 hours  
Max. Marks : 100

PHARM/D/10/34/IV

Attempt all questions in order.  
Each question carries 10 marks

Write short notes on:

- 1 Enumerate various tachykinins. Discuss briefly their pathophysiological effects. Mention the pharmacological potential(s) of their modulators. 3+5+2
- 2 Discuss the major processes involved in drug excretion through Kidneys with appropriate examples. Describe the clinical relevance of each of the above processes with suitable examples. 7+3
- 3 Briefly discuss G-protein coupled receptors (GPCR). Enumerate various pharmacological agents through GPCR. 7+3
- 4 Describe the distribution of beta-adrenoceptors and effects of their modulation. 5+5
- 5 Describe the biological basis of bacterial resistance with suitable examples. 10
- 6 Define blood-brain barrier. Discuss its anatomical, physiological aspects and various factors of pharmacologic importance influencing blood-brain barrier. 2+8
- 7 Describe the pathophysiological effects of endothelins and various pharmacological agents modulating their effects. 5+5
- 8 Describe clinically relevant pharmacokinetic and pharmacodynamic factors responsible for drug interactions. 10
- 9 Describe the physiological control pathways of blood pressure. Mention pharmacological agents which control these pathways. 5+5
- 10 What is oxidative stress? What are the markers of oxidative stress? Briefly discuss pharmacologically active antioxidants. 3+3+4