

**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PHARMACOLOGY) DEGREE EXAMINATION – OCTOBER 2021**

**PAPER I**

Monday, October 11, 2021

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ Answer ALL the questions.
- ✍ Write your answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.

✍ **Essay Questions:**

1. Describe the role of membrane transporters in therapy. (15 marks)

2. Discuss various methods to prolong duration of action of drugs. (15 marks)

3. **Write briefly on:**

- 3A. Volume of distribution and its clinical significance
- 3B. Evidence based medicine
- 3C. Sir Henry Dale
- 3D. Pharmacogenetics and its relevance in therapy
- 3E. Sources of drugs
- 3F. Hypersensitivity reactions to drugs and their management
- 3G. Liquid dosage forms of drugs
- 3H. Orphan drugs
- 3I. Target concentration strategy
- 3J. Drug teratogenicity

(7 marks × 10 = 70 marks)



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**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PHARMACOLOGY) DEGREE EXAMINATION – OCTOBER 2021**  
**PAPER II**

Tuesday, October 12, 2021

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer ALL the questions.**
- ✍ **Write your answers that are brief, clear, relevant and legible.**
- ✍ **Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.**

✍ **Essay Questions:**

1. Describe the major stages in the development of a new drug. (15 marks)

2. Explain the steps in the development of a research protocol for a randomized controlled trial (RCT) for a potential new drug for hypertension. (15 marks)

3. **Write briefly on:**

- 3A. Causality assessment
- 3B. Case control study
- 3C. Responsible conduct of research
- 3D. Rational prescribing
- 3E. Vaccine trials
- 3F. Emergency use authorization
- 3G. Characteristics of ideal Drug Promotional Literature
- 3H. Therapeutic Drug Monitoring
- 3I. Alternatives to animal experimentation
- 3J. Student's 't' test

(7 marks × 10 = 70 marks)



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## PAPER III

Wednesday, October 13, 2021

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ Answer ALL the questions.
- ✍ Write your answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.

## ✍ Essay questions:

1. Classify beta blockers. Describe their clinical uses along with the pharmacological basis.  
(15 marks)

2. Describe the pharmacology of systemically used antifungal drugs.  
(15 marks)

## 3. Write briefly on:

- 3A. IL-2 receptor antagonists
- 3B. Reversal of neuromuscular blockade
- 3C. Drugs used in anaerobic infections
- 3D. Boosted protease inhibitor
- 3E. SGLT2 inhibitors
- 3F. Drugs for hypertriglyceridemia
- 3G. Non-analgesic uses of opiates/opioids
- 3H. Drugs used in paroxysmal supraventricular tachycardia
- 3I. Drugs acting on vasopressin receptors
- 3J. Clinical application of prostaglandin analogues

(7 marks × 10 = 70 marks)



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**PAPER IV**

Friday, October 15, 2021

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ Answer ALL the questions.
- ✍ Write your answers that are brief, clear, relevant and legible.
- ✍ Illustrate your answers with neatly drawn and correctly labeled diagrams wherever appropriate.

✍ **Essay Questions:**

1. Discuss recent advances in management of coagulation, thrombosis and bleeding disorders.  
(15 marks)

2. Discuss the role of biologics in therapy.  
(15 marks)

3. **Write briefly on:**

- 3A. Newer antiepileptics
- 3B. Integrase inhibitors
- 3C. Tigecycline
- 3D. Postcoital contraception
- 3E. Pegloticase
- 3F. Atypical antipsychotics
- 3G. Dopamine receptor agonists
- 3H. Suvorexant
- 3I. Nesiritide in heart failure
- 3J. Uses of Vasopressin analogues

(7 marks × 10 = 70 marks)

