THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1224] DECEMBER 2024 Sub. Code: 4091
(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

PHARMACOLOGY
PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY AND EVALUATION OF DRUGS
Q.P. Code: 204091

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

(3+3+3+5+1)

1. Mention the factors governing drug distribution. Describe Apparent volume of Distribution and Redistribution. Enumerate the clinical significance of Plasma Protein bindings. Role of blood brain barrier in drugs distribution.

(1+4+2+8)

2. Define Bioassay. Enumerate the objective and principles of Bioassay. Mention the applications of Bioassay. Classify and describe the different types of Bioassay.

II. Short notes: **(10 x 5 = 50)**

1. Chi-square test.
2. Principles of PvP1.
3. Decontamination procedures in poisoning and Rationale.
4. Pharmacokinetic alterations in pregnancy and its application in therapeutics.
5. Methods of disposal of expired drugs.
6. Requirements for Animal house.
7. Evaluation of analgesic activity in Experimental animals.
8. Use of Biodegradable implants for sustained Drug Release.
9. Oswald Schmiedeberg.
10. Enumerate steps in choosing a P- Drug with a suitable example.

III. Reasoning Out: **(4 x 5 = 20)**

1. Special features of Extra pharmacopoeia.
2. UDP – Glucoronyl transferase with IRINOTECAN – Explain the interaction.
3. Zebra Fish in research – Merits and Challenges.
4. Knockout Mice – Advantages and Disadvantages.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0525] **MAY 2025** **Sub. Code: 4091**

M.D. DEGREE EXAMINATION

PHARMACOLOGY

PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY AND EVALUATION OF DRUGS

Q.P. Code: 204091

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the methods for evaluation of anti-epileptic activities of drugs using intact animals and isolated tissues.

2. Write in detail about Drug Interactions, their types and outcomes of treatment.

II. Short notes: **(10 x 5 = 50)**

1. Define Bioassay and its types.
2. Ecopharmacology.
3. Factors affecting the nature and degree of response of drugs in animal experiments.
4. Challenges in treatment with Orphan drugs in Indian scenario.
5. Uses of Rabbits in preclinical research.
6. Rational uses of drugs.
7. Institutional Animal Ethics Committee Members and their responsibility.
8. Plasma Protein binding.
9. Materiovigilance.
10. Transgenic animals.

III. Reasoning Out: **(4 x 5 = 20)**

1. Transdermal patches vs Oral drugs.
2. Placebo and Test drug.
3. First order kinetic and Zero order kinetics.
4. Enzyme inducers in Pharmacotherapy.

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 1025] **OCTOBER 2025** **Sub. Code: 4091**

M.D. DEGREE EXAMINATION

PHARMACOLOGY

PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY AND EVALUATION OF DRUGS

Q.P. Code: 204091

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. a) Application of Pharmacokinetic and Pharmacodynamic variables in dose individualization.
   b) Briefly explain factors modifying interpretation of serum level of drugs.

2. Write in detail on physiological salt solutions – rationale of composition and use in various isolated tissue preparations.

II. Short notes: **(10 x 5 = 50)**

1. Role of genetic variations in drug induced immune reactions with examples.
2. Fluorescence Polarization Immunoassay.
3. Brief on drug interactions with Botanical substances.
4. Confounding factors in clinical trials.
5. Types of Bias in vaccine trials.
6. Brief on steady state concentration and the dosage calculation for loading and maintenance dose with examples.
7. Criteria for inclusion and exclusion of a drug in National List of Essential Medicines (NLEM) and factors involved in framing NLEM.
8. Describe Partial agonist with suitable diagram and therapeutic uses.
9. Applications of Transgenic animals.
10. Write in detail on Synthetic reactions with examples and clinical significance.

III. Reasoning Out: **(4 x 5 = 20)**

1. Draw a Pyramid of levels of evidence in evidence-based medicine.
2. Blinding and Unblinding – explain the purpose and conditions.
3. With one example each, explain chrono kinetics of various systems.
4. Knock out versus Knock in technique.

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0526] **MAY 2026** **Sub. Code: 4091**

M.D. DEGREE EXAMINATION

PHARMACOLOGY

PAPER I – GENERAL PHARMACOLOGY, EXPERIMENTAL PHARMACOLOGY AND EVALUATION OF DRUGS

Q.P. Code: 204091

Time : Three Hours **Maximum : 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Discuss in detail the types of drug interactions and their clinical implications with examples. What is dose dumping?

2. Describe the various screening methods for evaluation of antidepressants in experimental animals.

II. Short notes: **(10 x 5 = 50)**

1. Placebo effect vs Nocebo effect and their significance.
2. Role of Hepatic transporters in drug disposition and toxicity.
3. What are Inbred strains? Discuss their advantages and disadvantages.
4. Therapeutic drug monitoring in clinical practice.
5. Explain Balanced and Biased agonism with examples.
6. Types of Spectrophotometry and its applications in pharmacology.
7. What is Bioequivalence and therapeutic equivalence? Describe Bioequivalence studies.
8. Describe the various tissue levers used in experimental pharmacology.
9. Rational use of Drugs.
10. Volume of distribution and its significance.

III. Reasoning Out: **(4 x 5 = 20)**

1. What are the alternatives to animal experiments?
2. Post marketing surveillance and its importance.
3. Companion diagnostics and precision medicine.
4. Reverse tolerance vs Tolerance.

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