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BP 810ET

2025

B.Pharm. 8th Semester End-Term (Regular) Examination

EXPERIMENTAL PHARMACOLOGY

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Hatkhowapara, Azara, Ghy-17

Full Marks – 75

Time – Three hours

The figures in the margin indicate full marks
for the questions.

1. (MCQ) (Answer ALL questions) : 20 × 1 = 20
- (i) The international organization that provides guidelines for the humane use of animals in research? (CO1)
- (a) FDA (b) OECD
- (c) ICH (d) WHO
- (ii) According to CCSEA guidelines, what is the primary objective of the "3Rs" principle in animal research? (CO1)
- (a) Reduce, Refine, Replace
- (b) Recognize, Report, Regulate
- (c) Research, Record, Reproduce
- (d) React, Report, Reduce
- (iii) Which of the following committees is responsible for the ethical approval of animal experiments in India? (CO1)
- (a) Institutional Ethics Committee (IEC)
- (b) Institutional Animal Ethics Committee (IAEC)
- (c) Drug Controller General of India (DCGI)
- (d) Central Drugs Standard Control Organization (CDSCO)

[Turn over

- (iv) Which species of laboratory animal is commonly used for ophthalmic research? (CO2)
- (a) Rats (b) Rabbits
- (c) Guinea pigs (d) Hamsters
- (v) What is the main advantage of using transgenic mice in research? (CO1)
- (a) They are easy to breed
- (b) They are resistant to diseases
- (c) They allow for the study of specific gene functions
- (d) They are cost-effective
- (vi) What is the most relevant parameter for evaluating the efficacy of a potential anti-asthmatic drug in preclinical models? (CO2)
- (a) Blood pressure
- (b) Lung function
- (c) Kidney function
- (d) Liver enzyme levels
- (vii) In preclinical screening models for nootropics, which behavioral test is commonly used? (CO2)
- (a) Elevated plus maze
- (b) Rotarod test
- (c) Morris water maze
- (d) Hot plate test
- (viii) The hot plate test is commonly used to evaluate which pharmacological activity? (CO2)
- (a) Anti-inflammatory
- (b) Analgesic
- (c) Antipyretic
- (d) Anxiolytic
- (ix) _____ parameter is used to assess in preclinical screening of sedative and hypnotic drugs. (CO2)
- (a) Locomotor activity
- (b) Blood pressure
- (c) Pupil constriction
- (d) Liver function

- (x) In preclinical screening for anti-inflammatory drugs, which test is commonly used? (CO2)
- (a) Tail flick test
 - (b) Writhing test
 - (c) Carrageenan-induced paw edema test
 - (d) Rotarod test
- (xi) Which of the following is a commonly used parameter in preclinical screening of sympathomimetic drugs? (CO2)
- (a) Decreased heart rate
 - (b) Increased blood pressure
 - (c) Decreased respiratory rate
 - (d) Pupil constriction
- (xii) _____ is used to assess the efficacy of local anesthetics in preclinical models? (CO2)
- (a) Hot plate test
 - (b) Writhing test
 - (c) Tail flick test
 - (d) Corneal reflex test
- (xiii) Which preclinical model is used to evaluate antiarrhythmic drugs? (CO2)
- (a) ECG changes in isolated perfused heart
 - (b) Blood pressure monitoring
 - (c) Morris water maze
 - (d) Langendorff heart preparation
- (xiv) What does ANOVA stand for in the context of preclinical data analysis? (CO3)
- (a) Analysis of Variation
 - (b) Analysis of Variance
 - (c) Assessment of Numerical Outcome Variability
 - (d) Assessment of Nonparametric Observations

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(xv) The statistical test suitable for comparing means between two groups in preclinical data analysis? (CO3)

- (a) Chi-square test
- (b) Fisher's exact test
- (c) Student's t-test
- (d) Mann-Whitney U test

(xvi) In preclinical models for antidyslipidemic drugs, which parameter is commonly measured? (CO2)

- (a) Serum cholesterol levels
- (b) Heart rate
- (c) Blood glucose levels
- (d) Urine output

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(xvii) Warfarin is commonly used as a reference drug in preclinical screening of which category? (CO2)

- (a) Antihypertensives
- (b) Coagulants
- (c) Anticoagulants
- (d) Diuretics

(xviii) What is the purpose of euthanasia in preclinical research involving laboratory animals? (CO1)

- (a) To increase the lifespan of laboratory animals
- (b) To minimize suffering at the end of an experiment
- (c) To induce stress in laboratory animals
- (d) To reduce the need for experimental controls

(xix) Which parameter is commonly measured in preclinical models of antidiabetic drugs? (CO2)

- (a) Blood glucose levels
- (b) Serum creatinine levels
- (c) Lipid peroxidation
- (d) RBC count

(xx) Which of the following is NOT a characteristic of a good research hypothesis? (CO 3,4)

- (a) Testable
- (b) Vague
- (c) Based on existing knowledge
- (d) Logical

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2. Short answers (Answer any SEVEN) :

7 × 5

- (a) Explain the role and functions of the Institutional Animal Ethics Committee (AEC). (CO1)
- (b) Define the terms negative control and positive control in an animal grouping. Write a note on routes of drug administration in laboratory animals. (CO1, 2)
- (c) How will you perform the pre-clinical screening for any anti-cancer agents? Describe any two models. (CO1, 2)
- (d) State about the *in-vivo* screening models for NSAIDs agents. (CO2)
- (e) Illustrate the screening models for sedative and hypnotic agents. (CO2)
- (f) Explain the importance of preparing drug solutions and suspensions in preclinical screening. (CO3, 4)
- (g) Write in detail about the pre-clinical model for antipsychotic drugs. (CO2)
- (h) Describe the pre-clinical screening models for anti-alzheimer and antiepileptic agents. (CO2)
- (i) Discuss the various techniques employed for blood collection in laboratory animals. (CO1)

3. Long answers (Answer any TWO) :

2 × 10

- (a) Explain the preclinical models used to evaluate antihypertensive drugs. 5 (CO2)
- (b) Describe about the graphical representation of data in research analysis. 5 (CO1, 4)

- (c) Describe the commonly used preclinical screening models for evaluating antidiabetic and CVS drugs.

5 + 5

(CO1, 2)

- (d) Discuss the role and significance of CCSEA guidelines for maintaining, breeding, and conducting laboratory animal experiments.

10

(CO 1)