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BP 810ET

Roll No. of candidate | | | | | | | | | | |

2024

B.Pharm. 8th Semester End-Term Examination

(Regular)

EXPERIMENTAL PHARMACOLOGY THEORY

(New Regulation w.e.f. 2017–18)

Full Marks – 75 Time – Three hours

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

1. Multiple choice questions (MCQ) (Answer *all* questions) : (20 × 1 = 20)

(i) Which organization provides guidelines for the maintenance breeding and conduct of experiments on laboratory animals?

(a) CDC (Centers for Disease Control and Prevention)

(b) CCSEA (Committee for Control and Supervision of Experiments on Animals)

(c) WHO (World Health Organization)

(d) FDA (U.S. Food and Drug Administration)

(ii) Which of the following is NOT a common laboratory animal species?

(a) Rats (*Rattus norvegicus*)

(b) Cats (*Felis catus*)

(c) Mice (*Mus musculus*)

(d) Dogs (*Canis lupus familiaris*)

(iii) What are the common routes of drug administration in laboratory animals?

(a) Oral, intravenous, intramuscular

(b) Intracranial, intrathecal, intradermal

(c) Subcutaneous transdermal, intraosseous

(d) Inhalation intraperitoneal, sublingual

[Turn over

(iv) Which of the following is NOT an important consideration in dose selection for preclinical screening models?

(a) Body weight of the animal

(b) Pharmacokinetic properties of the drug

(c) Age of the animal

(d) Color of the animal's fur

(v) What is the rationale for including sham negative and positive control groups in preclinical screening studies?

(a) To ensure that the drug being tested is effective

(b) To provide a baseline for comparison with the experimental group

(c) To increase the variability of the results

(d) To reduce the number of animals needed for the study

(vi) In preclinical screening models for anti-asthmatics, which parameter would be most relevant to assess the efficacy of a potential drug?

(a) Blood pressure

(b) Lung function

(c) Kidney function

(d) Liver enzyme levels

(vii) Preclinical screening models for sympathetic activity involve the evaluation of drugs that

(a) Increase heart rate and blood pressure

(b) Decrease heart rate and brood pressure

(c) Increase gastrointestinal motility

(d) Decrease gastrointestinal motility

(viii) Which of the following drugs is a commonly used parasympathomimetic agent?

(a) Atropine

(b) Epinephrine

(c) Pilocarpine

(d) Propranolol

(ix) Skeletal muscle relaxants tested in preclinical screening models are primarily evaluated for their ability to

(a) Increase muscle tone

(b) Decrease muscle tone

(c) Increase muscle strength

(d) Decrease muscle strength

(x) In preclinical screening models for drugs acting on the eye, which parameter is typically assessed to evaluate the drug's efficacy?

(a) Pupil constriction

(b) Pupil dilation

(c) Corneal sensitivity

(d) Intraocular pressure

(xi) Which of the following drugs is an example of a local anesthetic commonly used in preclinical screening models?

(a) Morphine

(b) Lidocaine

(c) Atropine

(d) Propranolol

(xii) In preclinical screening models for antiulcer drugs, which parameter is typically assessed to evaluate the drug's efficacy?

(a) Gastric acid secretion

(b) Gastric motility

(c) Intestinal absorption

(d) Intestinal peristalsis

(xiii) Diuretics are evaluated in preclinical screening models primarily for their effect on

(a) Increasing blood pressure

(b) Decreasing blood pressure

(c) Increasing urine output

(d) Decreasing urine output

(xiv) What does ANOVA stand for in the context of preclinical data analysis?

(a) Analysis of Variation

(b) Analysis of Variance

(c) Assessment of Numerical Outcome Variability

(d) Assessment of Nonparametric Observations

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

(a) Chi–square test

(b) Fisher's exact test

(c) Student's t–test

(d) Mann–Whitney U test

(xvi) Which preclinical screening model is commonly used to evaluate the analgesic effects of drugs?

(a) Antipyretic assay

(b) Anti–inflammatory assay

(c) Hot plate test

(d) Elevated plus maze test

(xvii) Which category of drugs is commonly screened using preclinical animal models for CNS activity?

(a) Antihypertensives

(b) Anti–inflammatory agents

(c) Diuretics

(d) General anesthetics

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

(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) Why is the rationale for selecting animal species and sex important in preclinical research?

(a) To prioritize the use of endangered species

(b) To ensure diversity in study populations

(c) To minimize experimental variability and enhance reproducibility

(d) To increase the cost of research projects

(xx) Which of the following is not a parameter commonly assessed in preclinical screening models for CVS activity?

(a) Blood pressure

(b) Heart rate

(c) Insulin sensitivity

(d) Vascular tone

2. Short answer (Answer any *seven*) : (7 × 5 = 35)

(a) State any two screening models for anti–arrhythmic agents.

(b) Explain the terms negative control and positive control in an animal grouping. Write a note on transgenic animals.

(c) How will you perform the pre-clinical screening for anti–cancer agents? Describe any two models.

(d) Discuss about the in-vivo screening models for anti–hypertensive agents.

(e) Illustrate the screening models for anti–depressant agents.

(f) Explain the principles and applications of statistical analyses such as Student's t–test and one–way ANOVA in preclinical data analysis.

(g) Write in detail about the pre-clinical model for skeletal muscle relaxants and diuretics.

(h) Describe the pre–clinical screening models for analgesic and antipyretic agents.

(i) Explain the process of dose selection, calculation and conversions in pre–clinical studies. Write a note on anesthesia and euthanasia for experimental animals.

3. Long answers (any *two*) : (2 × 10 = 20)

(a) (i) Explain the common routes of drug administration in laboratory animals. (5)

(ii) Discuss the various techniques employed for blood collection in laboratory animals. (5)

(b) Describe the commonly used preclinical screening models for evaluating antiulcer and antidiabetic drugs. (5+5)

(c) Explain the role and significance of CCSEA guidelines for maintaining, breeding, and conducting laboratory animal experiments. (10)