



**UNIVERSITY OF PETROLEUM AND ENERGY
STUDIES**

End Semester Examination, December 2021

Program: BSc Clinical Research
Course: Animal studies and toxicity
Course Code: HSCR2003

Semester: III
Duration: 03 hrs.
Max. Marks: 100

Instructions: All questions are compulsory

	SECTION A (Type the answers in test box) MCQs, One or two line answers	(20Q x1.5M= 30 Marks)	CO
Q1	Define action potential	1.5	CO1
Q2	Define antagonism with example	1.5	CO1
Q3	Regulatory toxicology aims at guarding the public from dangerous chemical exposures, and depends primarily on which form of study: a. Observational human studies. b. Controlled laboratory animal studies. c. Controlled human studies. d. Environmental studies.	1.5	CO1
Q4	Extrapolation is best described as which of the following: a. using known information to reach a conclusion. b. using known information to infer something about the unknown. c. using speculative information to infer something about the known. d. a "best guess" approach.	1.5	CO1
Q5	Doses of substances used in animal toxicity studies are usually many times greater than those experienced by people because: a. Animals are generally much less sensitive than people b. Such tests can detect only very large risks because of the fact that only small numbers of animals can be used c. It is difficult in such studies to determine whether the observed toxic effects were caused by the substance d. It is the only way to ensure results are applicable to people	1.5	CO2
Q6	Risk assessment is applied to data on toxicity and human exposure to: a. Estimate the likelihood, or probability, of a toxic effect on exposed humans	1.5	CO2

	<ul style="list-style-type: none"> b. To support risk management decisions for food substances c. To derive Allowable Daily Intakes d. All of the above 		
Q7	<p>Which is true regarding chronic exposure?</p> <ul style="list-style-type: none"> a. Repeated exposure occurring for a period of three months. b. Repeated exposure occurring for a period of one month. c. Repeated exposure occurring for a period of more than three months. d. Repeated exposure occurring for a period of one day 	1.5	CO2
Q8	<p>Which information can be obtained from an acute toxicity study?</p> <ul style="list-style-type: none"> a. Median toxic dose (TD50) b. Median lethal dose (LD50) c. No Observed Adverse Effect Level (NOEL) d. All of the above 	1.5	CO2
Q9	<p>A particular dose of a substance X is minimal toxic to animal. Substance Y is also minimal toxic to the animals at the same dose, but when both the substances are administered together they show the toxicity several orders of magnitude higher than compared with individual administrations. This is an example of:</p> <ul style="list-style-type: none"> a. Potentiation b. Additivity c. Synergism d. Agonism 	1.5	CO2
Q10	<p>Which is true about the LD₅₀?</p> <ul style="list-style-type: none"> a. Dose of a substance which kills 50% of animals exposed. b. Dose of a substance to which 50% of animals do not show any response. c. 50% of the dose of a substance which can kill an animal. d. Dose of a substance which can kill 50 animals 	1.5	CO2
Q11	<p>Which of the following toxicity can occur due to single exposure?</p> <ul style="list-style-type: none"> a. Acute toxicity b. Sub-acute toxicity c. Sub-chronic toxicity d. Chronic toxicity 	1.5	CO2
Q12	<p>Dose is defined as the _____</p>	1.5	CO3

	<ul style="list-style-type: none"> a. Amount of substance which is released into the environment. b. Amount of substance which reaches the target site in the body. c. Amount of substance which enters into the body. d. Amount of substance is bound to the plasma proteins 		
Q13	What are antibiotics? Give one example.	1.5	CO3
Q14	Name three fat soluble vitamins	1.5	CO3
Q15	Which one of the following is true regarding Dose-response relationship? <ul style="list-style-type: none"> a. Response is directly proportional to the dose of a substance. b. Dose exhibits 'all or none' response. c. The dose which elicit a toxic response. d. The dose which does not induce any response. 	1.5	CO4
Q16	The term 'toxin' generally refers to toxic substances that are _____ <ul style="list-style-type: none"> a. Any kind of poisons. b. Produced by biological systems such as plants, animals, fungi, or bacteria. c. Toxicants released as industrial effluents. d. Toxic elements of inorganic origin such as mercury, lead, arsenic etc. 	1.5	CO4
Q17	Which of the following is not a natural rout of exposure to chemicals? <ul style="list-style-type: none"> a. Inhalation b. Oral/Gastrointestinal tract c. Topical/Dermal d. Intraperitoneal 	1.5	CO4
Q18	The most common target organ of toxicity is the ---- <ul style="list-style-type: none"> a. Heart b. Lung c. CNS d. Skin 	1.5	CO4
Q19	What is chemical allergy? <ul style="list-style-type: none"> a. The allergy described in terms of chemistry. b. An immunologically mediated adverse reaction to a chemical resulting from previous sensitization to that chemical or to a structurally similar one. c. When an individual exhibit adverse immunological response against all chemicals. d. Immunological response where chemicals mediate the process instead of antibodies. 	1.5	CO5

Q20	What is bio-activation of a drug?	1.5	CO5
	SECTION B (Scan and upload) Short Answer Type Question (5 marks each)	(4Qx5M=20 Marks)	CO
Q1	Discuss the procedure for skin sensitization tests.	5	CO2
Q2	Discuss the role of institute ethics committee in animal studies.	5	CO2
Q3	Write a note on mechanism of endotoxin action.	5	CO3
Q4	Elaborate the principles of the 3Rs in animal research.	5	CO5
	SECTION C (Scan and upload)	(2Qx15M=30 Marks)	CO
Q1	Write note on procedure of: a. Acute toxicity b. Carcinogenicity testing c. Neurotoxicity studies in rodents	(5+5+5)	CO2
Q2	Write a detailed note on one <i>in vitro</i> and one <i>in vivo</i> test for pyrogen	(7.5+7.5)	CO3
	SECTION- D (Scan and upload) Long Answer type Question	(2Qx10M=20 Marks)	CO
Q1	Write the bioassay of a. Acetylcholine b. Oxytocin	(5+5)	CO1
Q2	Describe the principle and procedure of microbial assay of vitamin B ₁₂	(10)	CO3