2211E783

Candidate's Seat No :_____

M.Sc Sem-3 Examination

503

Biomedical Technology (EB)

Time : 2-30 Hours] **November-2024** **[Max. Marks : 70**

Q-I	**1**	Explain briefly: hydrophobic receptors.	**(14)**
	2	Discuss hormonal activation of adenylyl cyclase.	
		OR	
	1	Give a brief note on the mechanism of autophosphorylation.	
	2	Write a short note on neurotransmitter signaling with an example.	
Q-II	**1**	Explain the role of aldosterone in regulating blood pressure [renin-angiotensin-aldosterone system (RAAS)] in brief.	**(14)**
	2	Write a detailed note on the pituitary gland and its role in the human endocrine system.	
		OR	
	1	Write a detailed note on disorders of abnormal cell growth in the thyroid gland and the disorders when adrenal glands produce too much or too little hormones.	
	2	Describe types of hormones on the basis of the distance between the site of production and the site of action.	
Q-III	**1**	Explain glucose stimulated insulin secretion.	**(14)**
	2	Briefly explain the role of Calciferol as a hormone.	
		OR	
	1	Describe the external factors affecting pancreatic hormone secretion.	
	2	Give a brief description of hormonal control of lipid metabolism.	
Q-IV	**1**	Write the trypan blue dye exclusion assay's principle, method, advantages, and disadvantages, along with the labeled diagram.	**(14)**
	2	Explain free radical toxicity in brief.	
		OR	
	1	Write the principle, method, applications, advantages, and limitations of the Ames test.	
	2	Describe in detail: The various routes of administration to assess the toxicity of specific test substances.	
Q-V		**Answer any SEVEN out of TWELVE.**	**(14)**
	1	What is the full form of "PKC"? Mention its role.	**02**
	2	State the contribution of "Claude Bernard".	**02**
	3	Add a note on "kinases".	**02**
	4	Define mixed gland with an example.	**02**
	5	Enlist the four feel-good hormones.	**02**
	6	Write the role of insulin and glucagon in the human body.	**02**
	7	What are the effects of insulin in muscles?	**02**
	8	What are the functions of glucagon in the liver?	**02**
	9	Name any 8 (eight) glucoregulatory hormones.	**02**
	10	Write the general phase I oxidative biotransformation formula using CYP450.	**02**
	11	Give four examples of endogenous xenobiotics.	**02**
	12	Define dose and threshold dose.	**02**

(P.T.O)

2211E783-2 Candidate's Seat No :_____

M.Sc Sem-3 Examination

503

Biomedical Technology (ED)

November-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Q-I	**1**	What are the components of genetic counseling? Explain.	**(14)**
	2	What are the counseling contexts and situations? Discuss.	
		OR	
	1	What are the additional factors which can impact genetic risk assessment during pedigree analysis? Explain.	
	2	What are the basics of collecting family history? Discuss.	
Q-II	**1**	What is Medical Genetic evaluation? Explain in context of genetic counseling.	**(14)**
	2	Discuss the points to be addressed by a genetic counselor to ensure a proper working alliance with the client.	
		OR	
	1	Write on the counselees coping styles and factors affecting decision-making.	
	2	Write on the process and importance of documentation of genetic disorders.	
Q-III	**1**	Pathway-based counseling in monogenic disease.	**(14)**
	2	Discuss genetic diagnosis for metabolic disorders by an example.	
		OR	
	1	What is molecular pathology? Explain with an example.	
	2	Write a short note on Bayes' theorem application in risk assessment.	
Q-IV	**1**	List the factors influencing toxicity and include comprehensive information on each one.	**(14)**
	2	Write the principle, method, applications, advantages, and limitations of the Ames test.	
		OR	
	1	Explain free radical toxicity in brief.	
	2	Enumerate the various routes of administration that are helpful to evaluate the toxicity of the test substances and explain them in detail.	
Q-V		**Answer any SEVEN out of TWELVE.**	**(14)**
	1	What is meant by nondirective counseling?	**02**
	2	Who can be providers of genetic counseling?	**02**
	3	Draw the symbol for surrogate ovum donor.	**02**
	4	What is transference?	**02**
	5	Write on the significance of silence in a session.	**02**
	6	Give an example of use of "redirecting" by the counselor during information exchange.	**02**
	7	Mention the purpose of a gene expression profile.	**02**
	8	Define: MLPA technique.	**02**
	9	Add a note on "allele frequency".	**02**
	10	Write the advantages and disadvantages of the trypan blue dye exclusion test.	**02**
	11	Give a diagrammatic representation of the differences between apoptosis and necrosis.	**02**
	12	Define LD_{50} and LC_{50}.	**02**

2211E783-3 Candidate's Seat No :_____

M.Sc Sem-3 Examination

503

Biomedical Technology (EE)

November-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Q-I	**1**	Explain the duties, powers and composition of IAEC.	**(14)**
	2	Discuss design and construction guidelines for housing experimental animals.	
		OR	
	1	Explain the regulations for care, handling and feeding of experimental animals.	
	2	Describe the objective, function and members of CCSEA.	
Q-II	**1**	Define reproductive toxicity. Explain the impact of endocrine disruptors on the ovary.	**(14)**
	2	Describe the toxic responses of immune system.	
		OR	
	1	Explain the toxicity classification criteria for mixtures.	
	2	Briefly describe the renal toxicity.	
Q-III	**1**	Classify and describe the pesticides based on their application and formulation.	**(14)**
	2	Write a detailed note on any four classes of toxicants with examples.	
		OR	
	1	Explain about the metabolism of xenobiotics.	
	2	Give information about the types of food additives with their E number, purpose to use, and examples of food additives with their specific application.	
Q-IV	**1**	List the factors influencing toxicity and include comprehensive information on each one.	**(14)**
	2	Write the principle, method, applications, advantages, and limitations of the Ames test.	
		OR	
	1	Explain free radical toxicity in brief.	
	2	Enumerate the various routes of administration that are helpful to evaluate the toxicity of the test substances and explain them in detail.	
Q-V		**Answer any SEVEN out of TWELVE.**	**(14)**
	1	Explain any 2 physical factors considered in maintenance of the animal house.	**02**
	2	State the significance of IBC for an animal facility.	**02**
	3	Mention the accepted methods for necropsy and restraint of animals.	**02**
	4	State examples of Category 1 and 2 reproductive toxicity.	**02**
	5	What is benchmark dose approach?	**02**
	6	What are category 3 toxic substances?	**02**
	7	Write about the penetration properties of the alpha particle, beta particle, and gamma rays.	**02**
	8	Write the general composition of venom.	**02**
	9	Give four examples of plant-origin pesticides.	**02**
	10	Write the advantages and disadvantages of the trypan blue dye exclusion test.	**02**
	11	Give a diagrammatic representation of the differences between apoptosis and necrosis.	**02**
	12	Define LD_{50} and LC_{50}.	**02**