Total No. of Questions: 6

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Enrollment No.....



Faculty of Science End Sem Examination May-2024

BT3CO06 Mammalian Physiology

Programme: B.Sc. Branch/Specialisation: Biotechnology

Duration: 3 Hrs. Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

ecessa	ry. No	tations and symbols have their	usual meaning.								
Q.1	i.	Bile juice is formed in-									
		(a) Liver (b) Kidney	(c) Lung (d) Salivary Gland								
	ii.	Which of the following fun mucus and dirt away from ou	ctions by filtering and keeping the	1							
		(a) Cilia	(b) Bronchioles								
		(c) Hairs in the lungs	(d) All of these								
	iii.	` '		1							
	iii. Which of the following is a condition where a blood clot forms the circulatory system?										
		(a) Hamatama (d) None of these									
	•	(a) Thrombus (b) Strombus (c) Hematoma (d) None of these									
	iv.	genated blood to the lungs from the	1								
		right ventricle?	(I) D. I								
		(a) Pulmonary artery	(b) Pulmonary vein								
		(c) Aorta	(d) None of these	1							
	v.	Which is most likely to extend the entire length of a muscle fibre?									
		(a) Sarcomere	(b) Myofibril								
		(c) Myosin filament	(d) M-line								
	vi.	does NOT:	1								
		(a) Surround each myofibril									
		(b) Release Ca ²⁺ in response to a muscle action potential									
		(c) Has a Ca ²⁺ "pump" in its	membrane								
		(d) Make up about 85% of the	e contents of a muscle fibre								
	vii.	Which of the following neurotransmitter?	structure at a synapse has the	1							
		(a) Schwan cells	(b) Axonal terminal								
		(c) Synaptic cleft	(d) Synaptic vesicles								
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	viii.	viii. Pituitary hormone triggering the male testes to generate sperm				
		in females, triggering follicular development on a monthly basis is-				
		(a) Prolactin				
		(b) Growth hormone				
		(c) Follicle-stimulating hormone				
		(d) Luteinizing hormone				
	ix.	Body Circadian rhythm is primarily regulated by-	1			
		(a) Pineal gland (b) Thymus				
		(c) Thyroid (d) None of these				
	х.	Below are four evaluative statements about general adaptation	1			
		syndrome (GAS). Which statement is TRUE?				
		(a) It correctly explains how everyone responds in different ways				
		to different sources of stress.				
		(b) It fails to explain what happens when a person is repeatedly				
		exposed to stress.				
		(c) It is better at explaining female responses to stress than male				
		responses to stress.				
		(d) It wrongly assumes that the body responds in the same way to				
		different sources of stress.				
Q.2	i.	State the main functions of digestive system.	2			
	ii.	Draw a well labelled diagram of respiratory organ.				
	iii.	Explain in detail about digestion and absorption of carbohydrates.	5			
OR	iv.	What is chloride shift? Give its significance.	5			
		_				
Q.3	i.	Name the components of blood.	2			
	ii.	Explain the mechanism of coagulation of blood.	8			
OR	iii. Illustrate cardiac cycle with necessary diagram.					
Q.4	i.	Compare the different types of muscles.	3			
	ii.	Explain all and none rule with the help of an example.	7			
OR	iii.	Discuss the mechanism of muscle contraction of any muscle type.	7			
Q.5	i.	Illustrate the structure of synapse?	2			
	ii.	What is endocrine system? Explain any one endocrine gland in	3			
		detail.				
	iii.	Briefly explain the mechanism of generation and propagation of	5			
		nerve impulse.				

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OR	iv.	Defend the statement that hypothalamus is the master regulator of the body.	5
Q.6	i.	Attempt any two: Explain sleep physiology in detail, including a brief explanation of circadian rhythms and the role of the pineal gland in regulating them.	5
	ii.	Explain the types of stress and the role of cortisol in dealing with it.	5
	iii.	Define hyperbaric and hypobaric environment. Also, state the effects and preventive measures of hyperbaric and hypobaric environment.	5

Marking Scheme

Mammalian Physiology (T) - BT3CO06 (T)

		Mammalian Physiology (T) - BT3CO06 (T)					
Q.1	i)	a	1	Q.4	i.	Comparison between cardiac, skeletal and smooth muscle-1 mark each	3
	ii)	a	1		ii.	All and none rule along with example- 5 Marks	7
	iii)	a	1			Action potential-1mark	
	111)	u	1			Diagram-1 mark	
	iv)	a	1	OR	iii.	Mechanism of Muscle contraction-5 mark	7
	v)	b	1			Action potential-1 mark	
	v)		1			Diagram-1 mark	
	vi)	d	1	0.5	:	Standard of armong with a most label 2 montes	2
	vii)	d	1	Q.5	i.	Structure of synapse with correct label – 2 marks	2
	V11)	G	•		ii.	Definition of endocrine system-0.5 marks	3
	viii)	d	1			Explanation of endocrine gland with one example -2 marks	
	ix)	d	1			Diagram-0.5 marks	
	111)		-		iii.	Generation of nerve impulse, Depolarisation, Action potential.	5
	x)	b	1			repolarisation, -3.5 marks	
						Propagation- 1 marks Diagram - 0.5 marks	
				OR	iv.	Hypothalamus function-4 marks	5
Q.2	i.	4 function of digestive system -0.5 mark for each function	2	OR	1,,	Digram-1 mark	·
	ii.	Diagram – 2 marks	3				
		Correct Label- 1 mark		Q.6			
	iii.	Digestion of carbohydrate – 3 marks	5		:	Sleep physiology 2 mortes	5
		Absorption of carbohydrate – 2 marks			i.	Sleep physiology-2 marks Circadian rhythm-1 marks	5
OR	iv.	Chloride shift – 3 marks	5			Role of pineal gland-2 marks	
		Diagram -1 mark			ii.	Types of stresses -1 marks	5
		Significance -1 mark				Role of cortisol -4 marks	
					iii.	Definition-1 marks	5
Q.3	i.	Name of blood components	2			Effects-2 marks	
	ii.	Machanism of accordation of blood 6 mores	Q			Preventive measure-2 marks	
	11.	Mechanism of coagulation of blood-6 marks Diagram-2 marks	8				
		Diagram 2 marks				*****	

OR iii. Correct Stages of cardiac cycle – 4 marks

Diagram - 4 marks

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