



Faculty of Science

End Semester Examination May 2025

BT3CO06 Mammalian Physiology

Programme	: B.Sc.	Branch/Specialisation	: -
Duration	: 3 hours	Maximum Marks	: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary.

Notations and symbols have their usual meaning.

Section 1 (Answer all question(s))		Marks	CO	BL
Q1.	Which of the following acid is secreted in the stomach?	1	1	1
	<input type="radio"/> Sulphuric acid <input type="radio"/> Nitric acid <input type="radio"/> Phosphoric acid <input checked="" type="radio"/> Hydrochloric Acid			
Q2.	Which part of the human lungs provide surface for the exchange of gases?	1	1	1
	<input checked="" type="radio"/> Alveoli <input type="radio"/> Bronchioles <input type="radio"/> Bronchi <input type="radio"/> Diaphragm			
Q3.	Which blood vessel carry pure blood from the lungs to the heart?	1	2	1
	<input type="radio"/> Cardiac vein <input checked="" type="radio"/> Pulmonary veins <input type="radio"/> Pulmonary arteries <input type="radio"/> Cardiac artery			
Q4.	What is the opening between the left auricle and the left ventricle called?	1	1	1
	<input checked="" type="radio"/> Mitral valve <input type="radio"/> Aortic valve <input type="radio"/> Tricuspid valve <input type="radio"/> Pulmonary valve			
Q5.	What is the significance of the 'A' band during muscle contraction?	1	1	1
	<input type="radio"/> It shortens during muscle contraction as the actin filament slides past the myosin filaments <input checked="" type="radio"/> It remains unchanged in length during contraction as the thick and thin filaments overlap <input type="radio"/> It is where the Z-lines are attached to the thin filaments <input type="radio"/> It is the area where only thin (actin) filaments are found			
Q6.	Which of the following required for the breaking of cross-bridge during muscle contraction?	1	1	1
	<input type="radio"/> ATP and Ca^{++} <input type="radio"/> ADP and Ca^{++} <input type="radio"/> Only Ca^{++} <input checked="" type="radio"/> Only ATP			
Q7.	A membrane potential is the difference in electrical charge between.	1	1	1
	<input type="radio"/> Potassium and sodium ions <input checked="" type="radio"/> The inside and outside of the cell <input type="radio"/> Phosphoric acid and glycolipid layers <input type="radio"/> Resting and action potentials			
Q8.	Thyroid gland produces a hormone called 'thyroxin' which-	1	1	1
	<input type="radio"/> Controls blood glucose levels <input type="radio"/> Control ovulation <input checked="" type="radio"/> Control metabolic rate <input type="radio"/> More than one of the above			
Q9.	What changes are included in circadian rhythms?	1	1	1
	<input type="radio"/> Physical <input type="radio"/> Mental <input type="radio"/> Behavioural <input checked="" type="radio"/> All of the above			

Q10. Caisson's disease' occurs in-

1 1 1

- ☐ Person living on high altitude
 ☐ Person who smokes heavily
☒ A diver who has been beneath the sea for a long period
 ☐ Person whose alveoli are acutely inflamed

Section 2 (Answer all question(s))

Marks CO BL

Q11. Give brief overview of outline of respiratory system.

2 1 1

Rubric	Marks
Outline of respiratory system	2

Q12. Explain the function of different parts of the respiratory system.

3 2 2

Rubric	Marks
Name of parts of reparatory system- 1 mark,Function - 2 marks	3

Q13. (a) What is digestion? Explain about the mechanism of digestion.

5 2 2

Rubric	Marks
Digestion definition-2 mark, Mechanism of digestion-3	5

(OR)

(b) What is absorption? Give brief explanation about the absorption of carbohydrate, protein, lipid and nucleic acid in digestive tract.

Rubric	Marks
Absorption introduction- 1 mark, Absorption of carbohydrate, protein, lipid and nucleic acid in digestive tract-4marks	5

Section 3 (Answer all question(s))

Marks CO BL

Q14. What is cardiac output?

2 2 2

Rubric	Marks
cardiac output	2

Q15. (a) What are the plasma proteins and also explain their role in detail.

8 2 2

Rubric	Marks
Plasma proteins- 2 marks, Explanation of their role in detail- 6	8

(OR)

(b) Explain working mechanism of heart with well-labelled diagram.

Rubric	Marks
well-labelled diagram of heart with nomenclature-4 marks, Explanation of their role in detail- 4 marks	8

Section 4 (Answer all question(s))

Marks CO BL

Q16. What is muscle contraction? Explain All or None rule of muscle contraction?

3 2 1

Rubric	Marks
muscle contraction-1 marks, All or None rule of muscle contraction- 2 marks	3

Q17. (a) What is the mechanism of muscle contraction? Explain physical, chemical and electrical events of muscle contraction.

7 2 2

Rubric	Marks
mechanism of muscle contraction- 3 marks, physical, chemical and electrical events of muscle contraction- 4 marks	7

(OR)

(b) Draw the structure of smooth muscles with nomenclature. Explain about Isotonic and Isometric contraction of muscles.

Rubric	Marks
structure of smooth muscles with nomenclature - 3 marks, Explain about Isotonic and Isometric contraction of muscles - 4 marks	7

Section 5 (Answer all question(s))

Marks CO BL
4 4 1

Q18. Describe the detailed structure of neuron.

Rubric	Marks
detailed structure of neuron.	4

Q19. (a) What is endocrine gland? Explain the thyroid gland and its releasing hormones in detail.

6 2 2

Rubric	Marks
endocrine gland- 2 mark, Explanation the thyroid gland and its releasing hormones in detail- 4 marks	6

(OR)

(b) What is mixed gland? Explain its exocrine & endocrine functions.

Rubric	Marks
Mixed gland Introduction- 2 marks, Also its exocrine and endocrine functions- 4 marks	6

Section 6 (Answer any 2 question(s))

Marks CO BL
5 2 2

Q20. Explain effects & preventive measures of hypobaric & hyperbaric environment.

Rubric	Marks
effects of hypobaric and hyperbaric environment-2.5 marks, Explain the preventive measures of hypobaric and hyperbaric environment in detail- 2.5 marks	5

Q21. What is stress? Describe the role of endocrine system in managing stress.

5 2 2

Rubric	Marks
Introduction to stress - 2 marks, Role of endocrine system in managing stress- 3 marks	5

Q22. What is hormone? Explain the role of adrenocortical and penial hormones.

5 2 2

Rubric	Marks
Hormone definition- 2 marks, Role of adrenocortical and penial hormones- 3 marks	5
