


Name:			
Enrolment No:			
UPES End Semester Examination, December 2024			
Course: Biosciences		Semester : I	
Program: B.Sc. Microbiology		Duration : 3 Hours	
Course Code: HSMB1010		Max. Marks: 100	
Instructions: Read all questions carefully.			
S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	Part of the brain controls balance and coordination: a) Cerebrum b) Hypothalamus c) Cerebellum d) Medulla oblongata	1.5	CO2
Q 2	The Kingdom includes unicellular organisms without a nucleus: a) Protista b) Animalia c) Monera d) Fungi	1.5	CO1
Q 3	In C3 plants, the Calvin cycle occurs in the: a) Stomata b) Mesophyll cells c) Guard cells d) Roots	1.5	CO1
Q 4	Synaptic signaling in cells involves: a) Direct physical contact b) Hormone release into the bloodstream c) Neurotransmitter release across a synaptic cleft d) All of the above	1.5	CO2
Q 5	Hormone regulates metabolism: a) Adrenaline b) Insulin c) Thyroxine d) Estrogen	1.5	CO2

Q 6	Type of tissue covers body surfaces and lines organs: a) Nervous tissue b) Muscular tissue c) Connective tissue d) Epithelial tissue	1.5	CO2
Q 7	Select the most efficient photosynthetic pathways in hot, dry environments: a) C3 b) C4 c) CAM d) Both b and c	1.5	CO3
Q 8	In binomial nomenclature, the first part of the name represents the: a) Genus b) Species c) Family d) Order	1.5	CO1
Q 9	Identify the option that does NOT represent a tissue type: a) Epithelial b) Nervous c) Cardiac d) Muscular	1.5	CO2
Q 10	The system of naming organisms with a two-part name is called: a) Binary classification b) Binomial nomenclature c) Taxonomy d) Classification hierarchy	1.5	CO2
Q 11	Protista includes both unicellular and multicellular organisms: (True or False)	1.5	CO2
Q 12	Darwinism emphasizes the inheritance of acquired traits: (True or False)	1.5	CO1
Q 13	Arteries carry blood away from the heart: (True or False)	1.5	CO3
Q 14	Kidneys filter blood and produce bile: (True or False)	1.5	CO2
Q 15	Bryophytes lack vascular tissues: (True or False)	1.5	CO2
Q 16	Excretion involves the removal of undigested food: (True or False)	1.5	CO3
Q 17	The pulmonary vein carries oxygenated blood: (True or False)	1.5	CO2
Q 18	Monera are prokaryotic organisms: (True or False)	1.5	CO1
Q 19	Arteries have thinner walls than veins: (True or False)	1.5	CO3
Q 20	The ECG is used to record heart sounds: (True or False)	1.5	CO2

Section B (4Qx5M=20 Marks)			
Q 21	Summarize the process of digestion and absorption of ingested food in the human body.	5	CO3
Q 22	Explain how a nerve impulse is generated and conducted along a neuron.	5	CO3
Q 23	Discuss the significance of an electrocardiogram (ECG) in diagnosing heart disorders.	5	CO2
Q 24	Explain the key habitat and structure differences between Cryptogams and Phanerogams.	5	CO1
Section C (2Qx15M=30 Marks)			
Q 25	A patient has been diagnosed with peripheral artery disease (PAD), leading to reduced blood flow to the legs. a) Explain the pathway of blood flow through arteries, veins, and capillaries in normal circulation. b) Describe how reduced blood flow in the arteries could affect the patient's extremities. c) List the lifestyle changes and treatments could help improve blood flow in this patient.	5+5+5	CO3
Q 26	A patient presents with abdominal discomfort and bloating after consuming dairy products. Tests indicate lactose intolerance. a) Explain the role of lactase in the digestion of lactose. b) Describe how a deficiency of lactase leads to the patient's symptoms. c) Discuss possible dietary modifications and treatments to manage lactose intolerance.	5+5+5	CO3
Section D (2Qx10M=20 Marks)			
Q 27	Explain the stages of urine formation, including filtration, reabsorption, secretion, and discuss the physiological significance of each stage.	10	CO2
Q 28	Discuss the feedback mechanisms that control hormone levels in the body, using the hypothalamus-pituitary-thyroid axis as an example to illustrate negative feedback loop.	10	CO3