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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E.

Branch: Aerospace Engineering

Course Code: 23AS3BSBFE

Course: Biology for Engineers

Semester: III

Duration: 1hr

Max Marks: 50

Instructions: 1. Answer all 20 questions from Part A and any THREE full questions from Part B.
2. Missing data, if any, may be suitably assumed

PART -A			CO	PO	Marks
Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.	1	Thylakoids are present in a. Mitochondria b. Nucleus c. Chloroplast d. Ribosomes	CO 1	PO 1	1
	2	The components of DNA are a. Purines. b. Pyrimidines c. Nitrogen bases d. Phosphate group e. All of the above	CO 1	PO 1	1
	3	The sonic boom problem was addressed by developing a. Shinkansen b. SONAR c. Sharklet d. Windmill	CO 3	PO 3	1
	4	The occipital lobe in the brain controls a. Problem solving, judgment and motor function. b. Sensation, handwriting, and body position. c. Memory and hearing d. Visual processing system.	CO 1	PO 1	1
	5	Myopathy refers to a. Brain disorder b. Nerve disorder c. Muscle disorder d. None of the above	CO 2	PO 2	1
	6	Soft bone tissue is called a. Cancellous b. Trabeculae c. Compact d. Both a and b	CO 1	PO 1	1

	7	The structural and functional unit of muscle fiber is a. Myofibril b. Sarcomere c. Actin d. ATP	CO 1	PO 1	1
	8	Myofibrils contains myofilaments called _____ and _____ filaments	CO 1	PO 1	1
	9	Cardiac Muscles are under the control of Central nervous system. a. True. b. False	CO 1	PO 1	1
	10	Sarcoplasmic Reticulum is storage sink of _____ a. Calcium b. Magnesium c. Sodium d. None of the above	CO 1	PO 1	1
	11	Electromyogram is a test used to detect _____ a. Muscle disorder b. Bone disorder c. Neuromuscular disorder d. None of the above	CO 3	PO 3	1
	12	In Anaerobic respiration glucose will be converted into _____ a. Lactic acid b. Ethanol c. Both a and B d. Pyruvate	CO 1	PO 1	1
	13	Miller /Urey experiment showed the presence of _____ organic compounds.	CO 2	PO 2	1
	14	LEMUR is an Biomimetic instrument designed to maintain space stations inspired from _____ a. Eagle b. Harbour seal c. Gecko d. Shark	CO 3	PO 3	1
	15	Intramembranous ossification starts form _____ type of cells a. Mesenchymal cells b. Cartilage cells c. Phagocytic cells d. None of the above	CO 1	PO 1	1
	16	Synapse contains neurotransmitters. a. True b. False	CO 1	PO 1	1
	17	Forward energy deposition concept was used by taking inspiration from _____ to reduce sonic boom.	CO 3	PO 3	1

	18	Example of ISRU a project by European space agency called _____ is adapted to Recycle consumables waste in space.	CO 3	PO 3	1
	19	_____ and _____ are bioinspired applications to tackle ice phobe mitigation in Aircrafts.	CO 3	PO 3	1
	20	Shortest bone in humans a. Stapes b. Femur c. Radius d. Ulna	CO 1	PO 1	1
PART - B					
1.	a)	Explain the structure and function of nucleus with diagram.	CO 1	PO 1	5
	b)	Briefly explain the components required for protein synthesis.	CO 1	PO 1	5
2	a)	Define ossification. Explain intramembranous ossification.	CO 1	PO 1	6
	b)	What are three ways muscle get ATP? Explain Creatine phosphate metabolism.	CO 1	PO 1	4
3	a)	Define Action potential. Illustrate the process of nerve impulse conduction.	CO 1	PO 1	7
	b)	With one example explain the application of electromyogram in ergonomics.	CO 3	PO 3	3
4	a)	Explain the process of endosymbiosis in formation of Eukaryotes.	CO 2	PO 2	4
	b)	Write a note on Albatross ONE project from AIRBUS	CO 3	PO 3	6
5	a)	Give an insight of Bioinspired insulating materials that can be used in Aerospace industry applications	CO 3	PO 3	4
	b)	Bioinspired application of Plantae vascules self-healing property in manufacturing composite materials. Explain the application and advantage.	CO 3	PO 3	6
