Biochemi

BNBUSBC501/02/2022

Duration: 3 hours **Total marks: 100**

N.B. All questions are compulsory
Numbers to the right indicate marks
Draw neat labelled diagram wherever necessary

Q.1 A Fill in the Blanks (Any three) 3

1. ______ is called sun-shine vitamin.
2. _______are responsible for dim light vision.
3. __________ mineral is a constituent of the enzyme xanthine oxidase.
4. ___________ is a coenzyme form of Thiamine.

Q.1 B Define and Explain (Any one) 3

1. Calcitriol
2. Biotin

Q.1 C Attempt Any one 6

1. Write down any 3 enzymatic reactions involving magnesium as a coenzyme.
2. Justify: Vitamin D is a hormone not a vitamin.

Q.1 D Attempt Any one 8

1. Explain wald's visual cycle.
2. Elaborate on the physiological role of vitamin E & K.

Q.2 A Fill in the Blanks (Any three) 3

1. Photosystem I (PS-I) - absorbs light at a wavelength of ___________
2. ________components of ETC contain ubiquinone.
3. Dark reaction takes place in _______ of chloroplast.
4. ATP synthase is located in _________ of Mitochondria.

Q.2 B Define and Explain (Any one) 3

1. Bioluminescence
2. Photorespiration

Q.2 C Attempt Any one 6

1. Write a note on uncoupler with its significance.

	2	Describe the Calvin cycle with diagrammatic representation.	
Q.2	D	**Attempt Any one**	8
	1	Explain in detail electron Carriers involved in ETC.	
	2	Elaborate on Z scheme photophosphorylation.	
Q.3	A	**Fill in the Blanks (Any three)**	3
	1	________ATP are produced from one acetyl CoA.	
	2	_______is the end product of Embden-Meyerhof pathway under anaerobic condition.	
	3	_______ enzyme converts pyruvate to acetyl-co.	
	4	_________is the site of the TCA cycle.	
Q.3	B	**Define and Explain (Any one)**	3
	1	Gluconeogenesis	
	2	Glycogenin	
Q.3	C	**Attempt Any one**	6
	1	Write a note on a) Glyoxylate cycle and b) Cori cycle.	
	2	Explain the irreversible steps of glycolysis.	
Q.3	D	**Attempt Any one**	8
	1	Describe HMP pathway.	
	2	Discuss the reaction of glycogenolysis.	
Q.4	A	**Fill in the Blanks (Any three)**	3
	1	Cellulose used in ______ chromatography.	
	2	________ can be used as a mobile phase in GC.	
	3	Spacer arm is used in ________ chromatography	
	4	Stationary phase used in HPLC is _______.	
Q.4	B	**Define and Explain (Any one)**	3
	1	Rf value	
	2	Reverse phase chromatography.	

Q.4 C Attempt Any one 6

1 Write a short note on Adsorption chromatography with advantages and disadvantages.

2 Explain the working & principle of GLC using a suitable diagram.

Q.4 D Attempt Any one 8

1 Write the short note on
a. Paper chromatography
b. Thin Layer Chromatography

2 Discuss the working principle, application, advantages and disadvantages of HPLC.

Q.5 A Attempt in brief 16

1 Write down chemistry and one biochemical role of
a) Lipoic acid b) Pyridoxine

OR

1 Describe the visual cascade with the role of cGMP.

2 Enlist the applications of bioluminescence.

OR

2 Write a note on glycerol phosphate shuttle.

3 Justify: Citric acid cycle is the final common metabolic pathway for oxidation of food.

OR

3 Elaborate on lactose intolerance metabolic disorder.

4 A mixture was resolved by paper chromatography into 3 spots. The solvent front (10.0 cm) and the distance moved by the 3 spots is A (1.4 cm) , B (2.8 cm) and C (3.26 cm) calculate the Rf value.

OR

4 Explain column chromatography

Q.5 B State TRUE or FALSE. (Any Four) 4

1 Biotin is a fat soluble as well as water soluble vitamin.

2 Iodopsin is a conjugated protein present in rods.

3 Van Niel proved that plants release oxygen from splitting of carbon dioxide.

4 Gluconeogenesis is also carried out in the brain.

5 Glycolysis in erythrocytes leads to lactate production.

6 Chromatography is a technique which is used to separate the components from a mixture.

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