Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 90022

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
Third Semester
Biotechnology
U23BT305 – BIOCHEMISTRY AND BIOENERGETICS
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	What is isoelectric point?	2	K1	CO1
2.	Sketch the structure of fructose and galactose.	2	K2	CO1
3.	Classify lipids.	2	K1	CO2
4.	Define saponification number.	2	K1	CO2
5.	List out metabolic disorders of amino acids.	2	K1	CO3
6.	Name the aromatic amino acids.	2	K2	CO3
7.	Recall Chargaff's rule.	2	K1	CO4
8.	Draw the structure of tRNA and mention its parts.	2	K2	CO4
9.	Calculate the total ATP produced by one mole of glucose.	2	K3	CO5
10.	Define coupling reaction.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Describe the steps involved in the Krebs cycle.	13	K2	CO1
		(OR)			
	b)	i. Summarize the chemical properties of reducing sugars.	7	K1	CO1
		ii. Discuss the types of functional group with an example.	6		
12.	a)	Discuss the steps involved in synthesis of cholesterol.	13	K2	CO2
		(OR)			
	b)	Write a short note on: i. Hydrogenation ii. Fatty acid oxidation	5+8	K1	CO2
13.	a)	Explain pathway for the synthesis of GABA from Glutamate.	13	K2	CO3
		(OR)			
	b)	With the neat diagram explain the structures of protein.	13	K1	CO3
14.	a)	Discuss the biochemical pathway involved in synthesis of AMP from ATP .	13	K3	CO4
		(OR)			
	b)	Analyze the key feature of Watson-Crick model of DNA with neat diagram.	13	K3	CO4
15.	a)	Examine the various respiratory complexes and elaborate on the process of electrons transportation from NADH to O_2.	13	K3	CO5
		(OR)			
	b)	Schematically explain the structure of ATP synthase and mechanism of ATP synthesis.	13	K3	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Elaborate the steps involved in the elimination of ammonia from mitochondria.	15	K4	CO3
		(OR)			
	b)	Illustrate the metabolic pathway for the production glucose under starvation condition.	15	K3	CO1