	ARKAJAIN University Jharkhand		END TERM EXAMINATION
Branch	Mechanical Engineering / Electrical & Electronic Engineering	Program	B.TECH
Course Name	Biology for engineers	Semester	IV
Course Code	BTE23018	Year	2022/Even
Time: 3 Hour Maximum Marks : 70	• Start writing from 2nd page onwards; **don't Write On The 1st Page Backside** • **Answer all Questions of Section A (Compulsory)** • **Answer Any Four out of Six of Section B** • **Answer Any Three out of Five of Section C** • **Possession of Mobile Phones** or any kind of **Written Material, Arguments with the Invigilator or Discussing with Co-Student** will comes under **Unfair Means** and will **Result** in the **Cancellation of the Papers**.		
Knowledge Level (KL)	**K1 :** Remembering	**K3 :** Applying	**K5 :** Evaluating
	K2 : Understanding	**K4 :** Analysing	**K6 :** Creating

Section A (Each question Carry 02 Marks from Q1a to Q1j) – 20 Marks

Q. No.1	Questions	Marks	COs	KL	PO
1a.	Give two examples of engineering designs inspired by examples in biology	2	4	K3	1
1b.	What is biomimicry?	2	4	K2	1
1c.	Write start and stop genetic codon	2	1	K1	6
1d.	What are enzymes?	2	3	K1	6
1e.	Define Phenotype and Genotype	2	3	K1	6
1f.	Draw structure of any two amino acids	2	1	K2	6
1g.	Write the example of a reducing and a non reducing sugar	2	1	K1	2
1h.	A student made monosaccharide, disaccharide and polysaccharide	2	2	K4	2

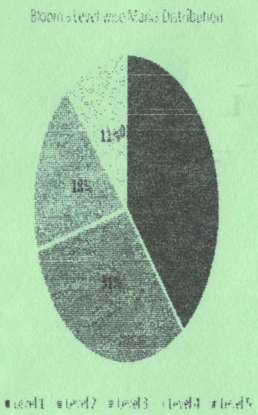
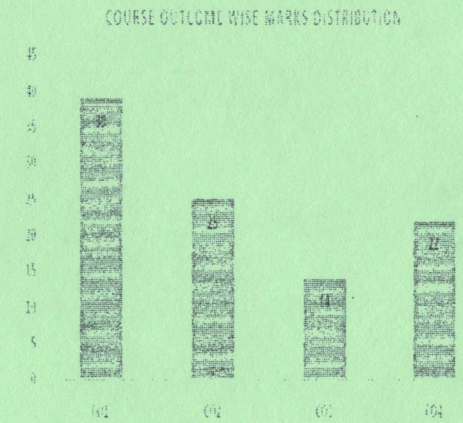
	solution. But forgot to label them. He added a drop of iodine in all the solution. One solution turned blue/ black. Write the type of solution.				
1i.	Defined aminotelic with a example	2	1	K1	6
1j.	Write first law of thermodynamics	2	1	K1	1

Section B (Answer any FOUR out of SIX) – 20 Marks (Each question Carry 5 Marks)

Q NO	Questions	Marks	COs	KL	PO
2.	Explain aminotelic, uricoteliec, ureotelic animals with example.	5	1	K2	6
3.	Write the importance of biology for engineers.	5	2	K4	5
4.	Describe the mechanism of action of enzyme	5	3	K4	6
5.	Describe three major kingdoms of life	5	1	K1	7
6.	Describe the structure of DNA	5	1	K2	6
7.	Describe Mendel's Law of segregation and independent assortment	5	3	K1	6

Section C (Answer any THREE out of FIVE) – 30 Marks-(Each question Carry 10 Marks)

Q NO	Questions	Marks	COs	KL	PO
8a.	Define Genetic code	2	1	K2	6
8b..	Write properties of genetic code	8	2	K1	6
9a.	What is enzyme?	2	1	K1	6
9b.	Write the properties of enzymes.	8	4	K2	6
10a.	Defined Biosafety.	2	2	K1	6
10b.	Write the different Biosafety measurement in the laboratories.	8	2	K3	6
11a.	What is model organism?	4	4	K2	5
11b.	Describe any three model organisms.	6	4	K2	5
12.	Write the difference between prokaryotic and eukaryotic cell	10	1	K1	7

CO- Course Outcomes, KL- Knowledge Level, PO – Program Outcome

Course Outcomes	CO1	Understand the biological concepts from an engineering perspective
	CO2	Understand the concepts of biological sensing and its challenges
	CO3	Understand development of artificial systems mimicking human action
	CO4	Integrate biological principles for developing next generation technologies