School of Biomedical Science

Bachelor of Science in Medical Biotechnology
Semester End Examination - Jul 2024

Duration : 180 Minutes
Max Marks : 100

Sem IV - Q1UG404T - Fermentation technology

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	List majorly produced fermented biomass products.	K1(2)
2)	Interpret the impact of utilising GMO on the economics of the fermentation processes.	K2(4)
3)	Explain 'Warburg effect' in tumour cells.	K2(6)
4)	Calculate: A Lactobacillus cell culture with a doubling time of 20 min reaches cell density of 2×10^8 cells/ml in 3 hrs. How much time would it take to reach the cell density of 1×10^8 cells/ml?	K3(9)
5)	Calculate the value of 'n' if a cell culture experiment started with 4 numbers of cells and after 'n' generation, number of cells became 128.	K3(9)
6)	Explain space-time and space-velocity with suitable numerical expressions.	K5(10)
7)	Explain with two suitable examples how a non-recombinant DNA derived fermentation product can be obtained in a better way with the intervention of recombinant DNA technology.	K4(12)
8)	Determine how would you select a suitable yeast strain if (a) you want to produce high amount of Baker's yeast (b) you want to maximise yield of alcohol and discuss all the relevant parameters.	K5(15)
9)	Classify fermentation products with examples depending on the fermentation substrates used.	K5(15)
10)	Create a mathematical expression to establish death kinetics of cells and develop an equation for decimal reduction time.	K6(18)