(15/A-14) SEAT No._____ NO. OF PRINTED PAGES: 02

Sardar Patel University

B.Sc. Biotechnology Sixth Semester
Wednesday, 3rd April 2019
10:00 a.m. to 1:00 p.m.
US06CBIT05 (Industrial Biotechnology)

Total Marks: 70

Note: Figures to the right indicates marks.

Q.I Multiple Choice Questions **[10]**

1) Carbon sources used in media formulation are following except _____.
a) Carbohydrates b) Oils and fats c) Hydrocarbons d) Peptones

2) Rheology means _____.
a) Nature of fermentation broth.
b) Variation of viscosity in fermentation broth.
c) Flow of liquids and deformation of solids.
d) All of these.

3) Giant colony techniques are used during _____.
a) Primary screening. b) Downstream processing
c) Secondary screening d) Inoculums development

4) Airlift fermenters are _____.
a) Highly energy efficient.
b) Oftenly used in large scale fermentation.
c) Contain high mass and heat transfer ability.
d) All of these.

5) OTR stands for _____.
a) Oxygen transfer required b) Optimum temperature required
c) Oxygen transfer rate d) Optimum temperature rate.

6) Tangential filtration is also known as _____.
a) Cross flow filtration b) Pressure leaf filtration
c) Rotatory vaccum filtration d) None of these.

7) _____ is not a technique for cell disruption.
a) Ultra sonication b) High pressure homogenization
c) Impingement d) Reverse osmosis.

8) The yeast generated during the fermentation of beer is generally separated by _____.
a) Centrifugation b) Chromatography
c) Filtration d) All of these.

9) Which of the following organism is used for fermentation of grapes?
a) *Rhizopus stolonifer* b) *Lactobacillus vermiforme*
c) *Aspergillus oryzae* d) *Saccharomyces cerevisiae*

10) Wart is _____.
a) An aqueous extract of malt
b) Malted barley
c) Coagulated protein obtain during boiling.
d) None of these

P.T.O

Q.II	**Answer the following questions in short. (Attempt any 10)**	**[20]**
a)	Give the definition and applications of fermentation.	
b)	Mention in brief batch sterilization.	
c)	Give the importance of screening in fermentation.	
d)	Write the significance of aeration in fermentation process.	
e)	Draw and labelled various structural components of fermenter.	
f)	Write a brief note on different types of spargers used in fermenter.	
g)	Write a brief note on osmotic shock method for cell disruption.	
h)	Why aeration and agitation are essential for fermentation?	
i)	What is the effect of pH on fermentation process?	
j)	Differentiate between red wine and white wine.	
k)	Write the importance of standardization of milk.	
l)	What do you mean by spoilage of food?	
Q.III a)	Define media. Explain the types of media in detail.	**[05]**
b)	Give an account on secondary screening.	**[05]**
	OR	
Q.III a)	Explain sterilization of media.	**[05]**
b)	Write a short note on recombinant technique used for strain improvement.	**[05]**
Q.IV	Write a detail note on downstream processing.	**[10]**
	OR	
Q.IV a)	Explain in detail cell disruption methods.	**[06]**
b)	Enlist different types of agitators. Explain its types in detail.	**[04]**
Q.V a)	Derive KLa and Ccrit as effect of aeration and agitation.	**[06]**
b)	Discuss in detail factors affecting KLa value.	**[04]**
	OR	
Q.V a)	Describe sulfite oxidation and gassing out techniques for determination of KLa value.	**[06]**
b)	Write a short note on measurement of temperature during fermentation.	**[04]**
Q.VI a)	Discuss in detail industrial production of ethyl alcohol.	**[05]**
b)	Write about stepwise production of beer.	**[05]**
	OR	
Q.VI a)	Write a short note on cheese production.	**[05]**
b)	Discuss different techniques used for food preservation.	**[05]**

— x —