

University of Mumbai
Examination 2020 under cluster 3 (FCRIT)

Program: BE Biotechnology

Curriculum Scheme: Revised 2016

Examination: Fourth Year Semester VII

Course Code: BTC 701 and Course Name: Bioseparation and Downstream Processing
Technology-I

Time: 1 hour

Max. Marks: 50

=====

Note to the students: - All the Questions are compulsory and carry equal marks.

Q1.	Which of the following is considered as a pretreatment to the biological feeds?
Option A:	Heating to denature the proteins
Option B:	Addition of filter aids to increase the porosity
Option C:	Addition of electrolytes
Option D:	All of the above
Q2.	The scale-up process is preferred to which condition?
Option A:	The migration of a process from the lab-scale to the pilot plant-scale
Option B:	The migration of a process from the bench-scale to the lab-scale
Option C:	The migration of a process from the small-scale to the lab-scale
Option D:	The migration of a process from the bench-scale to the small-scale
Q3.	Precipitation is done by
Option A:	Ammonium and Sodium Sulphate
Option B:	Acetate Buffer
Option C:	EDTA
Option D:	Nutrient Broth
Q4.	Which of the following is also a process for penicillin recovery?
Option A:	Adsorption on activated carbon
Option B:	Direct crystallization
Option C:	Degumming
Option D:	Distillation
Q5.	Which method is used to separate compounds on the basis of their relative solubilities in two different immiscible liquids?
Option A:	Filtration
Option B:	Liquid liquid extraction
Option C:	Centrifugation
Option D:	Chromatography

University of Mumbai
Examination 2020 under cluster 3 (FCRIT)

Q6.	The action of Cetyl Trimethyl Ammonium Bromide (CTAB) in DNA extraction from plant tissue is
Option A:	CTAB complex with nucleic acids and form precipitate
Option B:	CTAB complex with proteins and form precipitate
Option C:	CTAB complex with polysaccharides and form precipitate
Option D:	CTAB complex with secondary metabolites and form precipitate
Q7.	Which enzyme can be used for lysis of plant cells?
Option A:	Ligase
Option B:	Glucanase
Option C:	Pectinase
Option D:	Lysozyme
Q8.	Which one is the chemical used for cell disruption
Option A:	Toluene
Option B:	Sodium chloride
Option C:	Buffer
Option D:	Lysozyme
Q9.	Which enzyme is frequently used to break the bacterial cell wall?
Option A:	Amylase
Option B:	Protease
Option C:	Lysozyme
Option D:	Lipase
Q10.	How Detergents damage the cell?
Option A:	By interacting with the lipoproteins of the microbial cell membrane
Option B:	By interfering with protein synthesis
Option C:	By interfering with nucleic acid synthesis
Option D:	By all above means
Q11.	Alkali Treatment is applied for the cell disruption when the enzyme can tolerate is
Option A:	pH up to at least 11.5
Option B:	pH up to at most 2.5
Option C:	pH 7
Option D:	None of these
Q12.	Which of the following is not the application of filtration?
Option A:	Sterilization of media
Option B:	Removal of debris
Option C:	Plasma clarification
Option D:	Off-gas analysis
Q13.	Which of the following statements about the basic principle of sedimentation is

University of Mumbai
Examination 2020 under cluster 3 (FCRIT)

	False?
Option A:	The denser a biological structure is, the faster it sediments in a centrifugal field
Option B:	The more massive a biological particle is, the slower it moves in a centrifugal field
Option C:	The denser the buffer system is, the slower the particle will move in a centrifugal field
Option D:	The greater the centrifugal force is, the faster the particle sediments
Q14.	In this type of rotors, the sample tubes are loaded into individual buckets that hang vertically while the rotor is at rest. When the rotor begins to rotate the buckets swing out to a horizontal position
Option A:	swinging-bucket
Option B:	fixed angle
Option C:	vertical
Option D:	none of the above
Q15.	Which of the following centrifugation is used to separate certain organelles from whole cell?
Option A:	Rate-zonal centrifugation
Option B:	Normal centrifugation
Option C:	Differential centrifugation
Option D:	Isopycnic centrifugation
Q16.	Cross flow Filtrationis consist of
Option A:	A media storage tank
Option B:	A pump
Option C:	A system of packs of membrane
Option D:	All of these
Q17.	Which is the preferred method of clarification of wine?
Option A:	Centrifugation
Option B:	Precipitation
Option C:	Chromatography
Option D:	Foam separation
Q18.	The slurry is _____
Option A:	A suspension to be filtered
Option B:	A porous membrane used to retain the solids
Option C:	The solids which are present on the filter
Option D:	A clear liquid passing through the filter
Q19.	The disk centrifuge is the type of centrifuge used most often for bio separations due to its
Option A:	continuous operation
Option B:	lesser cost

University of Mumbai
Examination 2020 under cluster 3 (FCRIT)

Option C:	higher speed
Option D:	ease in operation
Q20.	The boundary line between (liquid) and (liquid+solid) regions must be part of
Option A:	Solvus
Option B:	Solidus
Option C:	Liquidus
Option D:	Tie-line
Q21.	The change of solubility by adding other component gives rise to
Option A:	Binodal solubility curve
Option B:	Temperature curve
Option C:	Solution curve
Option D:	Pressure curve
Q22.	The ether layer is used to separate
Option A:	Fiber
Option B:	Inorganic impurities
Option C:	Organic impurities
Option D:	Gases
Q23.	Two phase aqueous extraction requires,
Option A:	Low water content and low surface tension.
Option B:	Low water content and high surface tension.
Option C:	High water content and low surface tension.
Option D:	High water content and high surface tension.
Q24.	Which of the following can be used for selective precipitation of proteins?
Option A:	Alcohol
Option B:	Phenol
Option C:	Ammonium sulfate
Option D:	Sodium acetate
Q25.	Which of the following statements about column chromatography is correct?
Option A:	Resolution increases as the length of the column increases
Option B:	Mobile phase is a porous solid material with appropriate chemical properties held in the column
Option C:	Stationary phase is a buffered solution that percolates through mobile phase
Option D:	Large proteins emerge from the column sooner than small ones

University of Mumbai
Examination 2020 under cluster 3 (FCRIT)

Program: BE Biotechnology Engineering

Curriculum Scheme: Revised 2016

Examination: Fourth Year Semester VII

Course Code: BTC 701 and Course Name: Bioseparation and Downstream Processing
Technology-I

Time: 1 hour

Max. Marks: 50

Question	Correct Option
Q1.	D
Q2.	A
Q3.	A
Q4	A
Q5	B
Q6	A
Q7	C
Q8.	A
Q9.	C
Q10.	A
Q11.	A
Q12.	D
Q13.	B
Q14.	A
Q15.	C
Q16.	D

University of Mumbai
Examination 2020 under cluster 3 (FCRIT)

Q17.	A
Q18.	A
Q19.	B
Q20.	C
Q21.	A
Q22.	C
Q23.	C
Q24.	C
Q25.	A