

**University of Mumbai**  
**Online Examination 2020**

Program: BE Chemical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VIII

Course Code: CHE805

Course Name: Advanced Separation Technology

Time: 1 hour

Max. Marks: 50

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

Q1.	A statement that is false for the adsorption of organic contaminants using activated carbon
Option A:	High surface area
Option B:	High adsorption capacity
Option C:	Hydrophilic nature
Option D:	Fast adsorption kinetics
Q2.	Which of the following is not a feature of carrier gas used in gas chromatography?
Option A:	It must be chemically inert
Option B:	It should be suitable for the detector employed
Option C:	It should not be completely pure
Option D:	It should be cheap
Q3.	Which of the following is the disadvantage of hydrogen, which can be used as carrier gas in gas chromatography?

Option A:	Dangerous to us
Option B:	Expensive
Option C:	Reduced sensitivity
Option D:	High density
Q4.	Which of the following methods are liquid samples injected into the column in gas chromatography?
Option A:	Gas tight syringe
Option B:	Micro-syringe
Option C:	Rotary sample valve
Option D:	Solid injection syringes
Q5.	Activated carbon can be manufactured from
Option A:	Magnesite
Option B:	Peat
Option C:	Bauxite
Option D:	silica
Q6.	A rotary valve can be used to change the locations of feed entry, desorbent entry, extract removal, and raffinate removal, for the operation in
Option A:	Moving bed adsorption
Option B:	Fixed bed adsorption
Option C:	Adsorption in simulated moving bed using fixed bed
Option D:	Fixed bed absorption

Q7.	Which of the following is not an ideal characteristic of a detector used in gas chromatography?
Option A:	Linear response to the solutes
Option B:	Short response time
Option C:	High reliability
Option D:	Sensitive to the changes in the flow rate of a carrier gas
Q8.	Which of the following is not a type of detector used in gas chromatography?
Option A:	Argon ionisation detector
Option B:	Thermal conductivity detector
Option C:	UV visible spectrometric detector
Option D:	Electron capture detector
Q9.	Which of the following is not the advantage of thermal conductivity detector used in gas chromatography?
Option A:	Simple in construction
Option B:	High sensitivity
Option C:	Large linear dynamic range
Option D:	Non-destructive character
Q10.	Which statement is not true for moving bed adsorption
Option A:	The adsorbent can be regenerated as soon as its role in the adsorption step has been completed
Option B:	Heat transfer is better than in fixed bed
Option C:	The equipment required will be more complex than fixed bed

Option D:	Attrition of the adsorbent is not an issue
Q11.	_____ are important because they are utilized in froth flotation deinking and because they are detrimental in many other aspects of pulping and papermaking.
Option A:	Foams
Option B:	Froth
Option C:	Monolayer
Option D:	Brown stock washing
Q12.	Froth flotation of minerals uses a surfactant to attach to the mineral particles, making them _____ and a foaming agent to stabilize the foam that is formed.
Option A:	Hydrophilic
Option B:	Hydrophobic
Option C:	Deinking
Option D:	Evaporate
Q13.	Which of the following is not true about High pressure liquid chromatography (HPLC)?
Option A:	It requires high pressure for the separation of the specious
Option B:	There is no need to vaporise the samples
Option C:	It is performed in columns
Option D:	It has high sensitivity
Q14.	Antifoams are surface active agents that

Option A:	Reduce the surface tension
Option B:	Increase the surface tension
Option C:	Stabilize the surface tension
Option D:	Neutralize the surface tension
Q15.	Which of the following prevents foaming of oils?
Option A:	Depressants
Option B:	Foam Inhibitors
Option C:	Rust Inhibitors
Option D:	Oxide Inhibitors
Q16.	Name of the compound that acts to stabilize air bubbles in froth flotation?
Option A:	Frothers
Option B:	Modifier
Option C:	Activators
Option D:	Depressants
Q17.	What is the effect of reduced bubble diameter on flotation rate?
Option A:	Flotation rate increases
Option B:	Flotation rate decreases
Option C:	Remains constant
Option D:	First decreases and then increases
Q18.	Which of the following cannot be done to reduce ripple in High pressure liquid

	chromatography?
Option A:	Using bellows
Option B:	Using restrictors
Option C:	Using long nylon tube between pump and column
Option D:	Avoiding the use of the solvent pump
Q19.	Which of the following is not true about Hydraulic capacitance flow control system used in HPLC?
Option A:	It can be used only for liquids with low viscosity
Option B:	It is irrespective of solvent compressibility
Option C:	It maintains a constant flow
Option D:	It smoothens high pressure pump pulsations
Q20.	Which of the following will improve the efficiency of the separation process in liquid chromatography?
Option A:	Increase in sample size, increase in column diameter
Option B:	Reduction in sample size, increase in column diameter
Option C:	Increase in sample size, reduction in column diameter
Option D:	Reduction in sample size, reduction in column diameter
Q21.	Which of the following are the practical problems that arise due to the decrease in column diameter?
Option A:	Requirement of large particle size and high pressure drop
Option B:	Requirement of large particle size and low pressure drop
Option C:	Requirement of small particle size and high pressure drop

Option D:	Requirement of small particle size and low pressure drop
Q22.	Which part acts as a kidney in dialysis?
Option A:	Dialyzer
Option B:	Nephrolyzer
Option C:	Kidneylyzer
Option D:	Hemolyzer
Q23.	What is perporometry used for?
Option A:	To determine the size distribution of active pores
Option B:	To determine the size distribution of the dead pores
Option C:	To determine the size distribution of the membrane
Option D:	To see the permeability of the solvent through the membrane
Q24.	The selection of membrane does not depend on which property?
Option A:	Pore size distribution
Option B:	Water permeability
Option C:	Perporometry
Option D:	Film thickness formed
Q25.	What is the driving force in Microfiltration?
Option A:	Pressure difference
Option B:	Pervaporation
Option C:	Difference in fugacity

Option D:	Concentration difference
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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	C
Q2.	C
Q3.	A
Q4	B
Q5	B
Q6	C
Q7	D
Q8.	C
Q9.	B
Q10.	D
Q11.	A
Q12.	B

Q13.	B
Q14.	A
Q15.	B
Q16.	A
Q17.	A
Q18.	D
Q19.	A
Q20.	D
Q21.	C
Q22.	A
Q23.	A
Q24.	D
Q25.	A

