

University of Mumbai
Examination 2020

Program: FE (REV. -2016) (Choice Based)Engineering

Curriculum Scheme: Rev2016

Examination: First Year Semester I

Course Code: FEC104 and Course Name: AC-I

Time: 2 hour

Max. Marks: 80

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

Q1.	What is the characteristic smell for ester?
Option A:	Fruity like smell
Option B:	Fish like smell
Option C:	Rotten egg smell
Option D:	Alcoholic smell
Q2.	Which one is correctly matched?
Option A:	Acids – pH range above 7
Option B:	Acids – pH range below 7
Option C:	Acids – pH range 7 (neutral)
Option D:	Acids – pH range 8-9
Q3.	Which of the following is wrongly mapped?
Option A:	Sodium carbonate – Washing soda
Option B:	Sodium chloride – common salt
Option C:	Calcium carbonate – slaked lime
Option D:	Sodium hydroxide – caustic soda
Q4.	What will be the X in the following equation? $MgO + 2HCl \rightarrow X + H_2O$
Option A:	Mg_2Cl
Option B:	$2MgCl$
Option C:	$MgCl$
Option D:	$MgCl_2$
Q5.	Which one will change from red litmus to blue?
Option A:	NaCl
Option B:	HCl
Option C:	KOH
Option D:	LiOH
Q6.	Which of the following is not a category of catalysis?
Option A:	Homogeneous

Option B:	Heterogeneous
Option C:	Artificial
Option D:	Enzymatic
Q7.	Which of the following step is the rate determining step of contact theory?
Option A:	Diffusion of reactants to surface
Option B:	Adsorption of reactants at the surface
Option C:	Chemical reaction at the surface
Option D:	Desorption of products from the surface
Q8.	The factor which determines the activity of a heterogeneous catalyst is
Option A:	Total surface area only
Option B:	The number of active sites per unit amount of catalyst only
Option C:	Method of preparation, prior treatment only
Option D:	Total surface area, number of active sites and method of preparation
Q9.	An _____ is a sol with the continuous phase a gas. Fog is an _____ of water droplets.
Option A:	Aerosol
Option B:	Emulsion
Option C:	Agglomerate
Option D:	Electrophoresis
Q10.	_____ is the movement of charged surfaces with corresponding ions and H ₂ O in the stationary liquid induced by an external field.
Option A:	Colloidal suspension
Option B:	Emulsion
Option C:	Sedimentation potential
Option D:	Electrophoresis
Q11.	_____ is the generation of an electric field by locomotion of the liquid along stationary charged surfaces) Colloidal suspension
Option A:	Colloidal suspension
Option B:	Streaming potential
Option C:	Sedimentation potential
Option D:	Electrophoresis
Q12.	If the interstitial velocity is 40 and the length is 40 units what is the time required for displacement?(assume SI units)
Option A:	1

Option B:	2
Option C:	3
Option D:	4
Q13.	If the interstitial velocity is 50 and the length is 40 units what is the time required for displacement?(assume SI units)
Option A:	0.5
Option B:	0.7
Option C:	0.8
Option D:	0.6
Q14.	What is the wavelength range for UV spectrum of light?
Option A:	400 nm - 700 nm
Option B:	700 nm to 1 mm
Option C:	0.01 nm to 10 nm
Option D:	10 nm to 400 nm
Q15.	Which of the following is the principle of Flame emission photometers?
Option A:	Radiation is absorbed by non-excited atoms in vapour state and are excited to higher states
Option B:	Medium absorbs radiation and transmitted radiation is measured
Option C:	Colour and wavelength of the flame is measured
Option D:	Only wavelength of the flame is measured

Q2.	Solve any Three out of Five 5 marks each
------------	--

(20 Marks)	
A	Give the Kekule structure for benzene. Discuss the problems with (5) the structure.
B	What are aromatic Orbitals? Explain the s-orbitals and p-orbitals
C	Distinguish between thermoplastic and thermosetting resins.
D	What is real gas?
E	Write note on BOD and COD

Q3. (20 Marks)	Solve any Three out of Five 5 marks each
A	Write notes on: supercritical fluids and critical temperature
B	Write the applications of CNT's
C	Write Short note on Reverse osmosis.
D	What are advantages of RCC over Concrete
E	Discuss the advantages and limitations of phase rule