University of Mumbai

Curriculum Scheme: Rev-2016

All Programs

Examination: FE Semester I

Course Code: FEC103 Course Name: Applied Chemistry I

Time: 2 hours **Max. Marks: 60**

NOTE: All questions are compulsory

Atomic weights: - H=1, C= 12, O=16, N=14, S=32, Ca= 40, Mg=24, K= 39, Si= 28

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry 2 marks each.**
1.	Which of the following is the eutectic composition of Ag-Pb system?
Option A:	2.6% Pb + 97.4% Ag
Option B:	26% Pb + 74 %Ag
Option C:	74 %Pb + 26% Ag
Option D:	97.4% Pb + 2.6% Ag
2.	Which of the following dissolved salt does not contribute to any kind of hardness to the water?
Option A:	KCl
Option B:	$Mg(HCO_3)_2$
Option C:	$CaCl_2$
Option D:	$Mg(NO_3)_2$
3.	The chemical reaction between which of the following can give Kevlar Polymer?
Option A:	Hexamethylenediamine + adipic acid
Option B:	Ethylene glycol + Adipic acid
Option C:	Terephthalic acid + p-Amino aniline
Option D:	1,4 phenylenediamine + terephthaloyl chloride
4.	. Extrusion molding cannot be used for manufacture of which of the following?
Option A:	Telephone
Option B:	Buckets
Option C:	Pipes
Option D:	Tubes
5.	Which of the following is not a thermoplast?
Option A:	Polyethylene
Option B:	Polyvinyl chloride
Option C:	Bakelite
Option D:	PMMA
6.	In Reverse Osmosis the flow of solvent is through semi permeable membrane from
Option A:	Higher concentration to lower concentration solution
Option B:	Lower concentration to higher concentration solution
Option C:	Equal concentration of solutions
Option D:	Independent of concentration

Q2	**Solve any 4 questions out of 6**	**4 marks each**
A	Draw a neat diagram and explain the ion exchange process of demineralization of hard water	
B	Draw a neat diagram and explain compression moulding	
C	Explain phase diagram for one component system	
D	Explain Thin film Lubrication mechanism	
E	a) A water sample contains Ca $(HCO_3)_2$ = 32.4mg/L $Mg(HCO_3)_2$ = 29.2 mg/L CaSO4 =13.6 mg/L Calculate Temporary, Permanent and Total Hardness of the given sample of the water	
F	Explain Vulcanization of rubber	
Q3	**Solve any 4 questions out of 6**	**4 marks each**
A	What is the function of plasticizers ,fillers and catalyst in compounding of plastics	
B	Give the preparation, properties and uses of PMMA	
C	Write a brief note on Electro dialysis process of purification of water	
D	Give the advantages and limitations of phase rule	
E	A 50 ml water sample contain 840 ppm of dissolved oxygen. After 5 days the dissolved oxygen value becomes 230 ppm after the sample has been diluted to80 ml .Calculate the BOD of the water sample.	
F	Explain :- 1) viscosity and viscosity index 2) flash point and fire point	
Q4	**Solve any 4 questions out of 6**	**4 marks each**
A	Write four points of comparison between COD and BOD.	
B	What are factors that affect glass transition temperature?	
C	State Gibbs phase rule and explain the terms involved in it by giving two examples.	
D	Give characteristic of good paint	
E	Give comparison between thermoplastic and thermosetting plastic	
F	Explain Setting and hardening of cement	