

Program: FE (All branches)

Curriculum Scheme: Revised 2012

Examination: First Year Semester I

Course Code: FEC103

Course Name: Applied Chemistry

Time: 1-hour

Max. Marks: 50

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

Q1.	The residual hardness of a zeolite process is about
Option A:	0 ppm
Option B:	10 ppm
Option C:	15-30 ppm
Option D:	50-60 ppm
Q2.	The substance used as a coagulant in lime soda process is
Option A:	Sodium carbonate
Option B:	Ferric chloride
Option C:	Calcium hydroxide
Option D:	Sodium aluminate
Q3.	A sample of water on analysis gave the following results: $\text{CaCO}_3 = 10\text{mg/lit}$, $\text{MgSO}_4 = 4\text{ mg/lit}$, $\text{CaSO}_4 = 21\text{ mg/lit}$, $\text{MgCl}_2 = 1\text{ mg/lit}$, $\text{Fe}_2\text{O}_3 = 0.04\text{ mg/lit}$, $\text{SiO}_2 = 1\text{ mg/lit}$. Calculate the temporary hardness.
Option A:	10 ppm
Option B:	20 ppm
Option C:	100 ppm
Option D:	0.1 ppm
Q4.	Which of the following is not a pressure membrane process?
Option A:	Reverse osmosis
Option B:	Ultrafiltration
Option C:	Microfiltration
Option D:	Electrodialysis
Q5.	What is total hardness of sample of water which has the following impurities in mg/l – $\text{Ca}(\text{HCO}_3)_2 = 162$, $\text{CaCl}_2 = 22.2$, $\text{MgCl}_2 = 95$, $\text{KCl} = 20$
Option A:	220ppm
Option B:	222ppm
Option C:	212ppm
Option D:	221ppm
Q6.	The process of removing of common salt (NaCl) from sea water (Brackish water) is known as _____
Option A:	Desalination

Option B:	Ultrafiltration
Option C:	Osmosis
Option D:	Reverse Osmosis
Q7.	If a hydrostatic pressure in excess of osmotic pressure is applied on higher concentration solution side, solvents starts moving from higher concentration to the lower concentration side compartment through semipermeable membrane, this is the principle of_____
Option A:	Reverse Osmosis
Option B:	Osmosis
Option C:	Desalination
Option D:	Ultrafiltration
Q8.	To determine BOD incubation period is for ___ days at _____°C
Option A:	5, 20
Option B:	10,25
Option C:	15,20
Option D:	5,25
Q9.	Thermosetting (TS) contains _____ dimensional array of network
Option A:	Three
Option B:	four
Option C:	Linear
Option D:	Homoliner
Q10.	Important function of plasticizer is to improve _____ & _____ so as to reduce temperature & pressure required for molding.
Option A:	Plasticity, flexibility
Option B:	Hardness, Strength
Option C:	Plasticity, brittleness
Option D:	Plasticity, Strength
Q11.	The temperature at which polymer becomes soft and rubbery is the _____ temperature
Option A:	Glass transition
Option B:	Melting point
Option C:	Freezing point
Option D:	Boiling point
Q12.	Natural rubber is very weak having tensile strength only_____ kg/cm ²
Option A:	200
Option B:	220
Option C:	240
Option D:	300
Q13.	Particle size of nanomaterial's _____
Option A:	1000nm
Option B:	1nm-100nm

Option C:	10⁻⁹nm
Option D:	100 ⁻⁹ nm
Q14.	Thermosetting (TS) contains _____ dimensional array of network
Option A:	Three
Option B:	four
Option C:	Linear
Option D:	Homoliner
Q15.	_____ contains alternate silicon oxygen structure which has organic radicals attached to silicone atoms.
Option A:	Silicon resins.
Option B:	Raw Rubber
Option C:	Vulcanized Rubber
Option D:	Silicon oxide
Q16.	2 gm of oil required 4.0 ml 0.025N KOH in the titration of free fatty acids. What would be the acid value of oil sample?
Option A:	2.8mg /g
Option B:	1.4mg /g
Option C:	0.05mg /g
Option D:	0.0125mg /g
Q17.	A corn oil sample weighing 1.5 gm was saponified with 25 ml of 0.4 N KOH required 8.0 ml of 0.4 N HCl to titrate the excess KOH. Calculate saponification value of oil.
Option A:	373.33mg/g
Option B:	119.46mg/g
Option C:	4.5mg/g
Option D:	253.86 mg/g
Q18.	What is the point at which all the three phases of a system exist?
Option A:	Triple point
Option B:	Sublimation point
Option C:	Vapor point
Option D:	Eutectic point
Q19.	What type of lubrication is used in delicate machines like watches, sewing machines, etc.?
Option A:	Fluid film lubrication
Option B:	Extreme lubrication
Option C:	Boundary lubrication
Option D:	Thin film lubrication
Q20.	Special additives added to mineral oils are known as,
Option A:	Extreme pressure additives
Option B:	Special additives
Option C:	Mineral additives

Option D:	Lubricating additives
Q21.	What is the number of phases and components in the following reaction? $\text{Fe} + \text{H}_2\text{O (Gas)} \rightarrow \text{FeO} + \text{H}_2 \text{ (Gas)}$
Option A:	3, 3
Option B:	2, 3
Option C:	1, 3
Option D:	2, 2
Q22.	21. What is the degree of freedom for a water system?
Option A:	1
Option B:	2
Option C:	4
Option D:	0
Q23.	What is raw materials of Silica bricks?
Option A:	92-95% silica and 5 % lime
Option B:	92-95% silica and 2 % lime
Option C:	92-95% silica and 7 % lime
Option D:	92-95% silica and 6 % lime
Q24.	Which ingredient is added to regulate setting time of cement?
Option A:	Gypsum
Option B:	lime
Option C:	Silica
Option D:	Alkalis
Q25.	What is tensile strengths range of Single walled nanotubes?
Option A:	200-250 GPa
Option B:	250-300 GPa
Option C:	50-200 GPa
Option D:	300-350 GPa