University of Mumbai

Examination 2020 under cluster ___ (Lead College Short name)

Program: Chemical Engineering

Curriculum Scheme: Rev2012

Examination: Second Year Semester III

Course Code: CHC302 and Course Name: Engineering Chemistry I

Time: 1 hour Max. Marks: 50

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

Q1.	Carbon monoxide bonds to transition metals using ---- .
Option A:	Pure sigma bonding
Option B:	pi back bonding
Option C:	Only pi bonding
Option D:	Double bond
Q2.	Naphthalene sulphonic acid is obtained on treatment of naphthalene with ---
Option A:	Sulphuric acid
Option B:	Sulpur gas
Option C:	Ammonium sulphate
Option D:	Sulphur dioxide
Q3.	SN2 reaction is----reaction
Option A:	Bimolecular
Option B:	Unimolecular
Option C:	Trimolecular
Option D:	More than 2 molecules involved
Q4.	Toluene to methylated toluene is ----
Option A:	Friedal crafts reaction
Option B:	Polymerisation
Option C:	Acylation
Option D:	Michael reaction
Q5.	---- are in defence system of our body
Option A:	Vacuoles
Option B:	RBC
Option C:	Cytochrome P450
Option D:	Cytochrome a
Q6.	Effective atomic number should match with that of -----configuration
Option A:	Noble gas
Option B:	Biogas
Option C:	Transition metals
Option D:	Actinides
Q7.	Multi-step reactions have ---- transition states (TS).
Option A:	Single
Option B:	Many

Option C:	Two
Option D:	Zero
Q8.	-----reaction involves 2 steps.
Option A:	SN1
Option B:	SN2
Option C:	Decomposition
Option D:	Elimination
Q9.	The oxygen molecule is paramagnetic. It can be explained by
Option A:	Resonance
Option B:	Molecular orbital theory
Option C:	Valence bond theory
Option D:	Hybridisation
Q10.	The structure of BF3 molecule is
Option A:	Tetrahedron
Option B:	Trigonal pyramid
Option C:	Trigonal planar
Option D:	Linear
Q11.	The oxidation state of iron in hemoglobin is
Option A:	2
Option B:	3
Option C:	1
Option D:	4
Q12.	The hybridisation of carbocation is _____
Option A:	sp
Option B:	sp3
Option C:	sp2
Option D:	sp3d
Q13.	The Michael reaction is nucleophilic addition of-----with another nucleophile
Option A:	Carbocation
Option B:	Carbanion
Option C:	Free radicals
Option D:	Carbene
Q14.	The correct increasing order of splitting power of ligands according to spectrochemical series is
Option A:	$Cl^- < OH^- < CN^-$
Option B:	$Cl^- < CN^- < OH^-$
Option C:	$OH^- < Cl^- < CN^-$
Option D:	$OH^- < CN^- < Cl^-$
Q15.	E2 (elimination reaction) is ----step reaction.

Option A:	One
Option B:	Two
Option C:	One or two
Option D:	More than one
Q16.	------carry fresh oxygen throughout the body.
Option A:	Red blood cells
Option B:	White blood cells
Option C:	Erythrocytes
Option D:	Enzymes
Q17.	The rate of nucleophilic substitution reactions are higher in the presence of _____
Option A:	Electron withdrawing groups
Option B:	Electron releasing groups
Option C:	Both electron withdrawing and releasing groups
Option D:	Lone pair
Q18.	A Friedel-Crafts reaction is an organic coupling reaction involving an ----aromatic substitution
Option A:	Nucleophilic
Option B:	Free radical
Option C:	Concentrated
Option D:	Electrophilic
Q19.	Conversion of diols to ketone is---
Option A:	Michael reaction
Option B:	Free radical reaction
Option C:	Pinacol pinacolone
Option D:	Alkylation reaction
Q20.	Which step in S_N1 reaction is a slow rate determining step?
Option A:	Lone pair donor
Option B:	Attack of nucleophile
Option C:	Formation of a racemic mixture
Option D:	Formation of a transition state
Q21.	(Crystal Field Theory) Which one of the following statements is FALSE?
Option A:	In an octahedral crystal field, the d electrons on a metal ion occupy the eg set of orbitals before they occupy the t2g set of orbitals
Option B:	Diamagnetic metal ions cannot have an odd number of electrons
Option C:	Low spin complexes can be paramagnetic
Option D:	Low spin complexes contain strong field ligands
Q22.	Menke’s disease is due to -----deficiency.
Option A:	Zinc
Option B:	Copper
Option C:	Iron
Option D:	Potassium

Q23.	Nitro group gets attached at -- & -- position to chlorine, in chlorobenzene
Option A:	2 &4
Option B:	1&3
Option C:	1&4
Option D:	2&5
Q24.	Transition elements exhibit variable valency because they release electrons from
Option A:	ns orbitals
Option B:	(n-1) d orbitals
Option C:	(n-1) d & ns orbitals
Option D:	np orbitals
Q25.	Nonbonding orbitals do not change------- involved atoms.
Option A:	Bond order
Option B:	Dipole moment
Option C:	Charges involved
Option D:	Distance between two atoms