

Q.1 Which of the following spectral series comes in Uv/Vis region:

- (a) Lyman
- (b) Balmer
- (c) Paschen
- (d) Brackett

Q.2 Shape of SF₄ is

- (a) Tetrahedral
- (b) Square planar
- (c) Trigonal bipyramid
- (d) Octahedral

Q.3 Cardice is

- (a) Liquified CO₂
- (b) Liquified Ca(OH)₂
- (c) Solid Ca(OH)₂
- (d) Solid CO₂

Q.4 Fe₃(CO)₁₂ has

- (a) 10 terminal CO, 2 bridging CO
- (b) 11 terminal CO, 1 bridging CO
- (c) 8 terminal CO, 4 bridging CO
- (d) 9 terminal CO, 3 bridging CO

Q.5 The blue colour of ultramarine is due to

- (a) Copper
- (b) Aluminium
- (c) Polysulphide ion
- (d) Copper ion

Q.6 In upper atmosphere, Freons damage ozone layer due to reaction between

- (a) Fluorine free radical and ozone
- (b) ClO radical and ozone
- (c) Carbon free radical and ozone
- (d) Chlorine free radical and ozone

Q.7 Which of the following can be used as lubricants

- (a) Phosphate esters
- (b) Graphite
- (c) Ionic liquids
- (d) All the above (a), (b) and (c)

Q.8 Which of the following is a superfluid

- (a) Helium I
- (b) Helium II
- (c) Hydrogen
- (d) All the above (a), (b) and (c)

Q.9 Styx number for B_4H_{10} is

- (a) (2 0 0 2) (b) (4 1 2 0)
(c) (4 2 2 0) (d) (4 0 1 2)

Q.10 Oxygenated hemoglobin and oxygenated myoglobin are

- (a) both are diamagnetic in nature
(b) diamagnetic and paramagnetic in nature respectively
(c) paramagnetic and diamagnetic in nature respectively
(d) both are paramagnetic in nature

Q.11 Which of the following is not a Maxwell relation:

- (a) $(\partial S/\partial P)_T = -(\partial V/\partial T)_S$ (b) $(\partial T/\partial V)_S = -(\partial P/\partial S)_V$
(c) $(\partial T/\partial P)_S = (\partial V/\partial S)_P$ (d) $(\partial S/\partial V)_T = (\partial P/\partial T)_V$

Q.12 Ground state term symbol for d^3 configuration is

- (a) 3F_4 (b) $^4F_{3/2}$
(c) $^4F_{9/2}$ (d) 3F_2

Q.13 Number of crests present in radial probability distribution curve of 2s orbital is/are

- (a) 0 (b) 1
(c) 2 (d) 3

Q.14 On adding catalyst, the equilibrium of a reversible reaction shows shift in

- (a) forward direction (b) backward direction
(c) no effect (d) depends on the nature of reaction

Q.15 In which of the following case residual entropy is not zero at 0K

- (a) CO_2 (b) NO_2
(c) NO_3 (d) CO

Q.16 Photographic image formed on exposure of photographic plate to light is due to

- (a) Schottky defect
- (b) Frenkel defect
- (c) F-centre
- (d) Line defect

Q.17 Reaction between A and B is second-order. Which of the following is/are possible rate law expressions for the reaction

- (a) Rate = $k[A][B]$
- (b) Rate = $k[A]^2$
- (c) Rate = $k[B]^2$
- (d) All the above

18. Milk is an example of colloidal system where

- (a) Solid is dispersed in liquid
- (b) Liquid is dispersed in liquid
- (c) Liquid is dispersed in solid
- (d) Gas is dispersed in liquid

19. Which of the following statement is correct according to Maxwell-Boltzmann statistics

- (a) particles are indistinguishable, any number of particle can occupy a given energy level
- (b) particles are indistinguishable, only one particle can occupy a given energy level
- (c) particles are distinguishable, any number of particle can occupy a given energy level
- (d) particles are distinguishable, only one particle can occupy a given energy level

Q.20 For KCl-NaBr-H₂O system, the phase rule can be written as

- (a) $F + P = 4$
- (b) $F + P = 5$
- (c) $F + P = 6$
- (d) $F + P = 7$

Q.21 Equivalent conductance

- (a) increases with dilution
- (b) increases with concentration
- (c) remains unchanged
- (d) may increase or decrease with dilution

Q.22 The full form of TMS is

- (a) Trimethylsulphate
- (b) Tetramethylsulphate
- (c) Trimethylsilane
- (d) Tetramethylsilane

- Q.23 Which of the following is correct according to Stark-Einstein law
- (a) One molecule must react for each photon absorbed
 - (b) All the incident light is effective in bringing about a chemical change
 - (c) One molecule is activated for each quantum of radiation absorbed in primary step of a photochemical reaction
 - (d) Only that light which is absorbed by a system can bring about a chemical change

- Q.24 Polymer having regular alternation of *d*- and *l*- configurations in molecular chain are called
- (a) isotactic polymer
 - (b) atactic polymer
 - (c) syndiotactic polymer
 - (d) Such an arrangement is not possible

- Q.25 If total current for a solution of NaCl is 10 nA and current due to sodium ion is 3nA, what will be the transport number of chloride ion?
- (a) 0.1
 - (b) 0.3
 - (c) 0.7
 - (d) 1

- Q.26 Equation $i_d = 607nCD^{1/2}m^{2/3}t^{1/6}$ is called as
- (a) Randle-Sevcik equation
 - (b) Ilkovic equation
 - (c) Nernst equation
 - (d) van Deemeter equation

- Q. 27 Which of the following is strongest acid
- (a) Phenol
 - (b) p- aminophenol
 - (c) p- nitrophenol
 - (d) 2,4,6 -trinitrophenol

- Q. 28 An optically active compound (dextro form) undergoes SN^1 substitution with aqueous alkali. The product will be
- (a) Dextro
 - (b) Leavo
 - (c) Racemic mixture
 - (d) mixture (75 dextro:25 leavo)

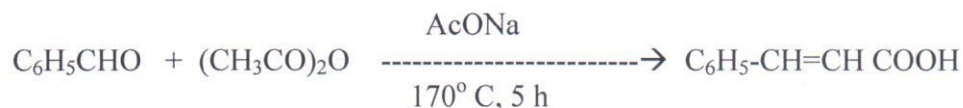
Q 29 A mixture of gaseous propylene and chlorine at 500° C chiefly gives

- (a) 1,2 -Dichloropropane (b) 1,3- Dichloropropane
(b) 3- Chloro-1 propene (d) 3- Chloro - 1- propyne

Q 30 Aldehydes and ketones exhibit strong band in IR in the region

- (a) 1680 – 1760 cm⁻¹ (b) 1550 - 1670 cm⁻¹
(c) 1450 -1550 cm⁻¹ (d) 1350 – 1440 cm⁻¹

Q 31. The reaction



is an example of

- (a) Michael Reaction (b) Perkin Reaction
(c) Reformatsky Reaction (d) Schmidt Reaction

Q 32 The reagent/s required for the conversion



- (a) Na BH₄/ether (b) NH₃
(c) CH₃NH₂ (d) NaNH₂/Liq NH₃

Q 33 Acetophenone on treatment with Zn-Hg in HCl chiefly gives

- (a) Benzene (b) Benzoic acid
(c) Ethyl chloride (d) Ethylbenzene

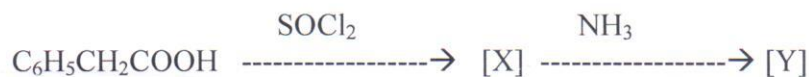
Q 34 The order of reactivity of catalysts in Friedal Crafts reaction is

- (a) AlBr₃ > AlCl₃ > FeCl₃ > BF₃ (b) AlCl₃ > AlBr₃ > FeCl₃ > BF₃
(b) BF₃ > AlBr₃ > AlCl₃ > FeCl₃ (d) FeCl₃ > AlBr₃ > AlCl₃ > BF₃

Q 35 The treatment of 3- Hexyne with Lindlar catalyst will chiefly give

- (a) n- Hexane
(b) cis – 3- Hexene
(c) trans – 3- Hexene
(d) isohexane

Q 36 The product [Y] in the reaction sequence



is

- (a) $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_2\text{NH}_2$
(b) $\text{C}_6\text{H}_5\text{CH}_2\text{NH}_2$
(c) $\text{C}_6\text{H}_5\text{CH}_2\text{CONH}_2$
(d) $\text{C}_6\text{H}_5\text{CH}_2\text{CH}(\text{Cl})\text{NH}_2$

Q 37 Most of the big planes fly in the following segment of environment

- (a) Troposphere
(b) Mesosphere
(c) Thermosphere
(d) Stratosphere

Q 38 Which of the following statement is NOT correct about Buckminsterfullere?

- (a) The structure is truncated icosahedron.
(b) Oxidation with OsO_4 is possible
(c) They can not be hydrogenated.
(d) They reach as electrophiles with a host of nucleophiles.

Q 39 Quinine, a well known anti malarial drug was initially isolated from

- (a) Neem plant
(b) Cinchona bark
(c) Fenugreek
(d) Tulsi

Q 40 Which of the following is NOT a greenhouse gas?

- (a) Nitrogen
(b) CFCs
(c) Methane
(d) CO_2

XXXXXXXXXXXXXXXXXXXX

Chemistry

Answer Key

- 1 (b)
- 2 (c)
- 3 (d)
- 4 (a)
- 5 (c)
- 6 (d)
- 7 (d)
- 8 (b)
- 9 (d)
- 10 (a)
- 11 (a)
- 12 (b)
- 13 (c)
- 14 (c)
- 15 (d)
- 16 (b)
- 17 (d)
- 18 (b)
- 19 (c)
20. (c)
21. (a)
- 22 (d)
- 23 (c)
- 24 (c)
- 25 (c)
- 26 (b)
- 27 (d)
- 28 (c)
- 29 (c)
- 30 (a)
- 31 (b)
- 32 (d)
- 33 (d)
- 34 (a)
- 35 (b)
- 36 (c)
- 37 (d)
- 38 (c)
- 39 (b)
- 40 (a)