Volume 1 - One Mark Questions with Answer Key

12th Standard

Chemistry

1) Which one of the following reaction represents calcinations?

(a) $2Zn + O_2 \rightarrow 2ZnO$ (b) $2ZnS + 3O_2 \rightarrow 2ZnS + 3O_2 \rightarrow 2ZnO_2 \rightarrow 2ZnO + 2SO_2$ (c) $MgCO_3 \rightarrow MgO + CO_2$ (d) Both (a) and (c)

2) Which one of the following ores is best concentrated by froth – floatation method?

(a) Magnetite (b) Hematite (c) Galena (d) Cassiterite

3) Extraction of gold and silver involves leaching with cyanide ion. silver is later recovered by (NEET-2017)

(a) Distillation (b) Zone refining (c) Displacement with zinc (d) liquation

4) The following set of reactions are used in refining Zirconium

$(impure) + 2I_2 \xrightarrow{523k} ZrI_4$

$ZrI_4 \xrightarrow{1800K} Zr(pure) + 2I_2$ This method is known as

(a) Liquation (b) van Arkel process (c) Zone refining (d) Mond's process

5) Which of the following plot gives Ellingham diagram

(a) $\Delta SVsT$ (b) $\Delta G^0 VsT$ (c) $\Delta G^0 Vs\frac{1}{T}$ (d) $\Delta G^0 VsT^2$

6) Which of the following mineral contains calcium as well as magnesium?

(a) Zinc bien de (b) Aragonite (c) Dolomite (d) Carnalite

7) The process of heating of copper pyrites to remove sulphur is called

(a) froth flotation (b) roasting (c) calcination (d) smelling

8) Ignition mixture used in aluminothermite process is

(a) Cr + AI_2O_3 (b) Mg + BaO_2 (c) AI + Cr2O_3 (d) Ba+MgO

9) Magnetic separation it is based on the difference in the_____ of the ore and the impurities.

(a) magnetic properties (b) chemical properties (c) physical properties (d) melting point

10) Na[Ag(CN)$_2$] is _____.

(a) Sodium aurocyanide (b) Sodium meta aluminate (c) Aluminosilicate (d) Sodium dicyano argentate

11) An aqueous solution of borax is

(a) neutral (b) acidic (c) basic (d) amphoteric

12) Which among the following is not a borane?

(a) B_2H_6 (b) B_3H_6 (c) B_4H_{10} (d) none of these

13) In diborane, the number of electrons that accounts for banana bonds is

(a) six (b) two (c) four (d) three

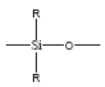
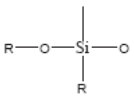
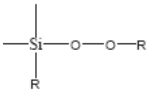
14) Carbon atoms in fullerene with formula C_{60} have

(a) sp^3 hybridised (b) sp hybridised (c) sp^2 hybridised (d) partially sp^2 and partially sp^3 hybridised

15) Oxidation state of carbon in its hydrides

(a) +4 (b) -4 (c) +3 (d) +2

16) The repeating unit in silicone is v

(a) SiO_2 (b)  (c)  (d) 

17) The geometry at which carbon atom in diamond are bonded to each other is

(a) Tetrahedral (b) graphene (c) Fullerene (d) dry ice

18) Duralumin is an alloy of

(a) Cu,Mn (b) Cu,Al,Mg (c) Al,Mn (d) Al,Cu,Mn,Mg

19) Thermodynamically the most stable form of carbon is

(a) Diamond (b) graphite (c) Fullerene (d) none of these

20) The compound that is used in nuclear reactors as protective shields and control rods is

(a) Metal borides (b) metal oxides (c) Metal carbonates d) metal carbide (d) none of these

21) Which one of the following compounds has similar structure to that of graphite?
(a) Boron nitride (b) Boron Carbide (c) Aluminium Carbide (d) Aluminium Oxide

22) Graphite has
(a) 2-d sheet structure (b) Vander waals force between successive layers of carbon sheets (c) Sp^2 hybridised carbon linked with other three carbon atoms in hexagonal planar structure (d) all the above

23) Which one is correct statement for zeolite?
(a) Zeolites are aluminosilicates having three dimensional framework (b) Hydrate zeolites are used as ion exchangers in hardening of soft water (c) Zeolites are alumino silicates (d) all the above

24) Boron compounds behave as Lewis acid, because of their
(a) ionisation property (b) acidic nature (c) covalent nature (d) electron deficient nature

25) On moving down the group 13, density _____
(a) decreases (b) increases (c) First decreases then increases (d) remains same

26) Oxidation state exhibited by group 13 elements is _____
(a) +1, +2 and +3 (b) +1 and +3 (c) +1 and +4 (d) +2 +3 and +4

27) All elements except carbon have the tendency to show maximum covalency of six _____
(a) due to presence of vacant d-orbitals (b) due to absence of vacant d-orbitals (c) due to presence of partially filled d-orbitals (d) due to presence of completely filled d-orbitals

28) Aluminium is used for making alloys because of its _____
(a) resistance to corrosion (b) poor conductivity (c) heaviness (d) all of these

29) Group 14 elements have general electronic configuration _____
(a) ns^2 (b) ns^2np^4 (c) ns^2np^6 (d) ns^2np^2

30) Which is true regarding nitrogen?
(a) least electronegative element (b) has low ionisation enthalpy than oxygen (c) d- orbitals available (d) ability to form $p\pi$-$p\pi$ bonds with itself

31) An element belongs to group 15 and 3 rd period of the periodic table, its electronic configuration would be
(a) $1s^2\ 2s^2\ 2p^4$ (b) $1s^2\ 2s^2\ 2p^3$ (c) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^2$ (d) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$

32) In the brown ring test, brown colour of the ring is due to
(a) a mixture of No and NO_2 (b) Nitroso ferrous sulphate (c) Ferrous nitrate (d) Ferric nitra

33) The basicity of pyrophosphorous acid ($H_4P_2O_5$) is
(a) 4 (b) 2 (c) 3 (d) 5

34) The molarity of given orthophosphoric acid solution is 2M. its normality is
(a) 6N (b) 4N (c) 2N (d) none of these

35) Among the following, which is the strongest oxidizing agent?
(a) Cl_2 (b) F_2 (c) Br_2 (d) l_2

36) The correct order of the thermal stability of hydrogen halide is
(a) HI > HBr > HCl > HF (b) HF > HCl > HBr > HI (c) HCl > HF > HBr > HI (d) HI > HCl > HF > HBr

37) Which one of the following compounds is not formed?
(a) $XeOF_4$ (b) XeO_3 (c) XeF_2 (d) NeF_2

38) XeF_6 on complete hydrolysis produces
(a) $XeOF_4$ (b) XeO_2F_2 (c) XeO_3 (d) XeO_2

39) On oxidation with iodine, sulphite ion is transformed to
(a) $S_4O_6^{2-}$ (b) $S_2O_6^{2-}$ (c) SO_4^{2-} (d) SO_3^{2-}

40) Which of the following is strongest acid among all?
(a) HI (b) HF (c) HBr (d) HCl

41) Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?
(a) $Br_2 > I_2 > F_2 > Cl_2$ (b) $F_2 > Cl_2 > Br_2 > l_2$ (c) $I_2 > Br_2 > Cl_2 > F_2$ (d) $Cl_2 > Br_2 > F_2 > I_2$

42) Among the following the correct order of acidity is
(a) $HClO_2 < HClO < HClO_3 < HClO_4$ (b) $HClO_4 < HClO_2 < HClO < HClO_3$ (c) $HClO_3 < HClO_4 < HClO_2 < HClO$ (d) $HClO < HClO_2 < HClO_3 < HClO_4$

43) Catenation property of group 15 elements, follow the order
(a) N < P < As < Sb < Bi (b) P > > N > As > Sb > Bi (c) P < N < As < Sb < Bi (d) N > > P > As > Sb > Bi

44) Which of the following halides of group 15 is not hydrolysed?
(a) NF_3 (b) PF_3 (c) NI_3 (d) Both (a) and (b)

45) Which is dibasic?
(a) Orthophosphoric acid (b) Pyrophosphoric acid (c) Orthophosphorus acid (d) Hypophosphorus acid

46) S-S bond is present in
(a) $H_2S_2O_7$. (b) H_2SO_5 (c) $H_2S_2O_6$ (d) $H_2S_2O_6$

47) Pick the wrong one among the following
(a) F_2 - Yellow (b) Br_2 - Red (c) Cl_2 - Colourless (d) I_2- Violet

48) When Copper is heated with cone HNO_3 it produces
(a) Cu $(NO_3)_2$ and N_20 (b) Cu $(NO_3)_2$ and NO_2 (c) Cu $(NO_3)_2$ and NO (d) Cu $(NO_3)_2$ NO and N_2O

49) Oxalic acid on heating with cone H_2SO_4 gives
(a) CO only (b) CO_2 only (c) CO_2+ H_20 (d) CO + CO_2 + H_2O

50) Which one of the following orders is not in accordance with the property stated against it?
(a) F_2 > CI_2 > Br_2 > I_2:Bond dissociation energy (b) HI > HBr > HCI > HF : Acidic property in water (c) F_2 > Cl_2 > Br_2 > l_2: Oxidising power (d) F_2 > Cl_2 > Br_2 > l_2: Electronegativity

51) Orthophosphorus acid on heating gives_____
(a) Hypophosphorus (b) Orthophosphoric acid (c) Phosphine gas (d) both (b) and (c)

52) The incorrect statement among the following is_____
(a) Reducing character of hydrides of group 15 increases down the group (b) Basicity of hydrides of group 15 increases down the group (c) NCl_5 does not exist (d) Phosphorus and arsenic can form Pπ-drt bond but not nitrogen

53) Strong reducing behaviour of H_3PO_2 is due to_____
(a) High oxidation state of phosphorus (b) High electro gain enthalpy of phosphorus (c) Presence of two-OH groups and one P-H bond (d) Presence of one-OH groups and two P-H bonds

54) Repeated use of which one of the following fertilizers would increase the activity of the soil_____
(a) Ammonium sulphate (b) Superphosphate of lime (c) Urea (d) Potassium nitrate

55) Which reaction is not feasible_____
(a) $2H_2O + 2F_2 \longrightarrow 4HF + O_2$ (b) $2H_2O + 2F_2 \longrightarrow 4HF + O_2$ (c) $2KBr + Cl_2 \longrightarrow 2KCl + Br_2$ (d) $2KBr + Cl_2 \longrightarrow 2KCl + Br_2$

56) The ionisation energy of Ga is higher than that of Al because of_____
(a) more effective nuclear charge of Ga (b) smaller atomic size of Ga (c) larger size ofGa (d) both (a) and (b)

57) Helium is used in balloons in the place of, hydrogen because it is_____
(a) incombustible (b) radioactive and detected easily (c) lighter than hydrogen (d) both (a) and(c)

58) Which of the following compounds is colourless?
(a) Fe^{3+} (b) Ti^{4+} (c) Co^{2+} (d) Ni^{2+}

59) Which of the following statements is not true?
(a) on passing H_2S, through acidified $K_2Cr_2O_7$ solution, a milky colour is observed (b) $Na_2Cr_2O_7$ is preferred over $K_2Cr_2O_7$ in volumetric analysis (c) $K_2Cr_2O_7$ solution in acidic medium is orange in colour (d) $K_2Cr_2O_7$ solution becomes yellow on increasing the P^H beyond 7

60) Which of the following lanthanoid ions is diamagnetic?
(a) Eu^{2+} (b) Yb^{2+} (c) Ce^{2+} (d) Sm^{2+}

61) Which of the following oxidation states is most common among the lanthanoids?
(a) 4 (b) 2 (c) 5 (d) 3

62) The actinoid elements which show the highest oxidation state of +7 are
(a) Np, Pu ,Am (b) U, Fm, Th (c) U, Th, Md (d) Es, No, Lr

63) Which of the following is wrong with respect to lanthanide contraction?
(a) Decrease in ionic radii (b) Increase in tendency to act as reducing agents (c) Decrease in basic character (d) Resembles second and third row of d-block elements

64) Identify the paramagnetic species
(a) Cu^+ (b) Cr^+ (c) MnO_4 (d) Zn^{2+}

65) The trend in ionisation enthalpy of a transition element is not regular because,
(a) removal of one electron (b) due to different (c) Poor (d) due to

alters the relative energies of 4s and 3d orbitals | electronic configuration (stability) | screening of 3p-orbital | decrease in effective nuclear charge

66) Which one of the following exhibits highest oxidation state?
(a) Ni (b) Mn (c) V (d) Zr

67) Which of the following is coloured due to charge transfer?
(a) MnO_4^- (b) CrO_4^{2-} (c) Cu_2O (d) All of these

68) The general electronic configuration of d-block elements can be written as _____
(a) [Noble gas]n - $1d^{1-10}$ ns^{1-2} (b) [Noble gas]n - $1d^{-10}$ n^{1-6} (c) [Noble gas]n - 2 d^{10} ns^{1-2} (d) [Noble gas]n - 2 d^{10} ns^{1-6}

69) _____ is known as Bayer's reagent.
(a) Hot dilute alkaline $KMnO_4$ (b) Cold dilute alkaline $KMnO_4$ (c) Hot Conc. acidic $KMnO_4$ (d) Cold Conc. acidic $KMnO_4$

70) The sum of primary valance and secondary valance of the metal M in the complex $[M(en)_2(Ox)]Cl$ is$_L$
(a) 3 (b) 6 (c) -3 (d) 9

71) An excess of silver nitrate is added to 100ml of a 0.01M solution of pentaaquachloridochromium(III)chloride. The number of moles of AgCl precipitated would be
(a) 0.02 (b) 0.002 (c) 0.01 (d) 0.2

72) A complex has a molecular formula MSOCl. 6HO42.The aqueous solution of it gives white precipitate with Barium chloride solution and no precipitate is obtained when it is treated with silver nitrate solution. If the secondary valence of the metal is six, which one of the following correctly represents the complex?
(a) $[M(H2O)_4Cl]SO_42H_2O$ (b) $[M(H_2O)_6]SO_4$ (c) $[M(H_2O)_5Cl]SO_4H_2O$ (d) $[M(H_2O)_3Cl]SO_4.3H_2O$

73) IUPAC name of the complex $K_3[Al(C_2O_4)_3]$ is
(a) potassiumtrioxalatoaluminium(III) (b) tassiumtrioxalatoaluminate(II) (c) potassiumtrisoxalatoaluminate(III) (d) potassiumtrioxalatoal

74) Crystal field stabilization energy for high spin d5 octahedral complex is
(a) $-0.6\triangle$ (b) 0 (c) $2(P-\Delta_0)$ (d) $2(P+\Delta_0)$

75) In which of the following coordination entities the magnitude of Δ_0 will be maximum?
(a) $[Co(CN)_6]^{3-}$ (b) $[Co(C_2O_4)]^{3-}$ (c) $[Co(H_2O)_6]^{3+}$ (d) $[Co(NH_3)_6]^{3+}$

76) Which one of the following will give a pair of enantiomorphs?
(a) $[Cr(NH_3)_6][Co(CN)_6]$ (b) $[Co(en)_2Cl_2]cl$ (c) $[pt(NH_3)_4][ptcl_4]$ (d) $[Co(NH_3)4Cl_2]NO_2$

77) Which type of isomerism is exhibited by $[Pt(NH_3)_2Cl_2]$?
(a) Coordination isomerism (b) Linkage isomerism (c) Optical isomerism (d) Geometrical isomerism

78) Which one of the following pairs represents linkage isomers?
(a) $[Cu(NH_3)4][ptCl_4]$ and $[pt(NH_3)_4][CuCl_4]$ (b) $[Co(NH_3)_5(NO_3)]SO_4$ and $[Co(NH_3)_5(ONO)]$ (c) $[Co(NH_3)_4(NCS)_2]ct$ and $[Co(NH_3)_4(SCN)_2]Cl$ (d) both (b) and (c)

79) Which kind of isomerism is possible for a complex< < EVA039.eps > > ?
(a) geometrical and ionization (b) geometrical and optical (c) optical and ionization (d) geometrical only

80) Which one of the following complexes is not expected to exhibit isomerism?
(a) $[Ni(NH_3)_4(H_2O)2]^{2+}$ (b) < > (c) $[Co(NH_3)_5SO_4]Cl$ (d) $[Fe(en)_3]^{3+}$

81) A complex in which the oxidation number of the metal is zero is
(a) $K_4[fe(CN)_6]$ (b) $[Fe(CN)_3(NH_3)_5]$ (c) $[Fe(CO)_5]$ (d) both (b) and (c)

82) Formula of tris(ethane-1,2-diamine)iron(II)phosphate
(a) $[Fe(CH_3-CH(NH_2)_2)_3](PO_4)_3$ (b) $[Fe(H_2N-CH-CH_2-NH_2)_3](PO_4)$ (c) $[Fe(H_2N-CH_2-CH_2-NH_2)_3](PO_4)_2$ (d) $[Fe(H_2N-CH_2-CH_2-NH_2-NH_2)_3]_3(PO_4)_2$

83) Which of the following is paramagnetic in nature?
(a) $[Zn(NH_3)_4]^{2+}$ (b) $[Co(NH_3)_6]^{3+}$ (c) $[Ni(H_2O)_6]^{2+}$ (d) $[Ni(CN)_4]^{2-}$

84) Fac-mer isomerism is shown by
(a) $[CO(en)3]^{3+}$ (b) $[Co(NH_3)4(Cl)_2]^+$ (c) $[Co(NH_3)_3(Cl)_3]$ (d) $[Co(NH_3)5Cl]SO_4$

85) Structural formula of tetra aquadichlorideo Chromium (III) chloride.
(a) $[Cr(H_2O)_4Cl_2]Cl_2$ (b) $[Cr(H_2O)_4Cl_3]$ (c) $[(H_2O)_4Cl_2Cr]Cl_2$ (d) $[Cl_2(H_2O)_4Cr]Cl_3$

86) Which of the following octahedral complexes do not show geometrical isomerism?
(a) $[Co(NH_3)_3Cl_3]$ (b) $[PtCl_2(NH_3)_4]$ (c) $[Pt(NH_3)_2Cl_2]$ (d) $[Co(en)_3]^{3+}$

87) According to CFT, five d-orbitals of an octahedral complex split to give
(a) One orbital with (b) Two orbitals wi.t:h (c) Three orbitals (d) Four orbitals with

lower energy and four orbitals with higher energy	lower energy and three orbitals with higher energy	with lower energy and two orbitals with higher energy	lower energy and one orbital with higher energy.

88) Ligand which is used to treat hard water
(a) NH_3 (b) Ox (c) en (d) EDTA

89) Among the following complexes the one which shows zero crystal field stabilisation energy is
(a) $[Mn(H_2O)_6]^{3+}$ (b) $[Fe(H_2O)_6]^{3+}$ (c) $[CO(H_2O)_6]^{2+}$ (d) $[CO(H_2O)_6]^{3+}$

90) The hypothetical complex triamminediaqua chloridocobalt (III)chloride can be represented as
(a) $[Co(NH_3)_3(H_2O)_2Cl]Cl_2$ (b) $[Co(NH)_3(H_2O)Cl_3]$ (c) $[Co(NH_2)_3(H_2O)_2Cl]$ (d) $[Co(NH_3)_3(H_2O)_3]Cl_3$

91) Which among the following square planar complexes will exhibet geometrical isomerism?
(a) $[Ma_2B_2]^{n\pm}$ (b) $[MA_2BC]^{n\pm}$ (c) $[M(xy)]^{n\pm}$ (d) all the above

92) Predict the geometry and hybridisation of $Fe(Co)_5$
(a) Trigonal planar, dsp^3 (b) Trigonal bipyramidal, dsp^3 (c) Square planar dsp^2 (d) Octahedral d^2sp^3

93) In $[Fe^{11}(CN)_6]^{4-}$, the central metal ion is
(a) Fe (b) Fe^{2+} (c) Fe^{3+} (d) CN^-

94) For a compound $K_4[Fe(CN)_6] \rightarrow 4K^+ + [Fe(CN)_6]^{4-}$, the complex ion is
(a) K^+ (b) CN^- (c) Fe^{II} (d) $[Fe(CN)_6]^{4-}$

95) Which of the following complexes does not give white precipitate with $AgNO_3$?
(a) $[Co(NH_3)_6]Cl_3$ (b) $[Co(NH_3)_3Cl_3]$ (c) $[Co(NH_3)_{5Cl}]Cl_3$ (d) $[Co(NH_3)_4Cl_2]Cl_3$

96) Werner's theory was not able to explain_____ of coordination compounds
(a) colour (b) magnetic properties (c) both (a) and (b) (d) neither (a) nor (b)

97) The primary and secondary valencies of $[CoCl_2(en)_2]SO_4$ are respectively_____
(a) 4, 6 (b) 2, 4 (c) 4, 4 (d) 6, 4

98) According to IUPAC, No is _____
(a) nitro (b) nitrosyl (c) nitrato (d) nitrito

99) In an octahedral complex, the (n-1) d orbital are involved in hybridization. The complex is called _____ complex
(a) inner orbital (b) low spin (c) spin paired (d) all the above

100) _____ valencies are directional in nature.
(a) primary (b) secondary (c) teriary (d) None

101) An ionic compound AxBy crystallizes in fcc type crystal structure with B ions at the centre of each face and A ion occupying entre of the cube. the correct formula of AxBy is
(a) AB (b) AB_3 (c) A_3B (d) A_8B_6

102) Assertion : monoclinic sulphur is an example of monoclinic crystal system
Reason: for a monoclinic system, $a \neq b \neq c$ and $\alpha = \gamma = 90^0, \beta \neq 90^0$

(a) Both assertion and reason are true and reason is the correct explanation of assertion	(b) Both assertion and reason are true but reason is not the correct explanation of assertion.	(c) Assertion is true but reason is false.	(d) Both assertion and reason are false.

103) In calcium fluoride, having the flurite structure the coordination number of Ca^{2+} ion and F- Ion are (NEET)
(a) 4 and 2 (b) 6 and 6 (c) 8 and 4 (d) 4 and 8

104) The number of carbon atoms per unit cell of diamond is
(a) 8 (b) 6 (c) 1 (d) 4

105) A solid compound XY has NaCl structure. if the radius of the cation is 100pm , the radius of the anion will be
(a) $\left(\frac{100}{0.414}\right)$ (b) $\left(\frac{0.732}{100}\right)$ (c) 100X0.414 (d) $\left(\frac{0.414}{100}\right)$

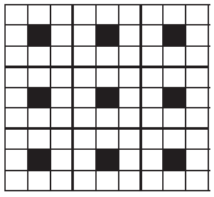
106) The fraction of total volume occupied by the atoms in a simple cubic is
(a) $\left(\frac{\pi}{4\sqrt{2}}\right)$ (b) $\left(\frac{\pi}{6}\right)$ (c) $\left(\frac{\pi}{4}\right)$ (d) $\left(\frac{\pi}{3\sqrt{2}}\right)$

107) The yellow colour in NaCl crystal is due to
(a) excitation of (b) reflection of light from Cl- (c) refraction of light (d) all of

electrons in F centers ion on the surface from Na^+ ion the above

108) The cation leaves its normal position in the crystal and moves to some interstitial position, the defect in the crystal is known as
(a) Schottky defect (b) F center (c) Frenkel defect (d) non-stoichiometric defect

109) A two dimensional solid pattern formed by two different atoms X and Y is shown below. The black and white squares represent atoms X and Y respectively. the simplest formula for the compound based on the unit cell from the pattern is



(a) XY_8 (b) X_4Y_9 (c) XY_2 (d) XY_4

110) An example of metal deficiency defect
(a) NaCl (b) AgCl (c) CsCl (d) FeS

111) Which of the following statement is correct?
(a) On increasing temperature, the coordination number of solid remains unchanged. (b) On increasing pressure, the co-ordination number of solid increases. (c) On increasing pressure, the co-ordination number of solid decreases. (d) On increasing temperature, the coordination number of solid increases

112) Which of the following is incorrect statement about the Bragg's equation $n\lambda = 2d \sin\theta$?
(a) n, represents order of reflection (b) λ, represents wave length of uv-rays used (c) θ, represents angle of incidence (d) d, represents distance between two parallel planes

113) Schottky defects contains
(a) Cation vacancies only (b) Cation vacancies and interstitial cations (c) Equal number of cation and anion vacancies (d) Anion vacancies and interstitial anions

114) A regular three dimensional arrangement of identical points in space is called
(a) Unit cell (b) Space lattice (c) Primitive (d) Crystallography

115) Pick out the example for covalent and molecular crystal.
(a) Ice,Diamond (b) Diamond,Ice (c) NaCl, FeS (d) FeS,Ice

116) The wavelength of X-ray is in the order of
(a) 10^{-8}cm (b) 10^{-10}c (c) 10^{-8} m (d) 10^{-10} nm

117) The defect arising due to an ion occupying interstitial position is called
(a) Schottky defect (b) Metal excess defect (c) Frenkel defect (d) Metal deficiency defect

118) Which among the following is an amorphous solid?
(a) Graphite (b) SiO_2 (c) Sic (d) Diamond

119) Which one of the following is a network solid?
(a) diamond (b) silicon carbide (c) naphthalene (d) both (a) and (b)

120) The crystal structure of CsCI is _____
(a) Simple cubic (b) Face-centred cubic (c) Tetragonal (d) Body centred cubic

121) The number of cesium ion per unit cell in CsCI crystal system is_____.
(a) 4 (b) 8 (c) 6 (d) 1

122) Crystals of NaCI has yellow colour due the presence of_____.
(a) cation vaccancy (b) F centres (c) both (a) and (b) (d) neither (a) nor (b)

123) The structure of ionic compound depends upon _____ of the ions.
(a) stoichiometry (b) Size (c) both (a) and (b) (d) neither (a) nor (b)

124) The correct order of packing efficiency in different types of unit cells is_____.
(a) fcc > bcc > sc (b) sc < fcc < bcc (c) fcc < bcc > sc (d) bcc < fcc < sc

125) For a first order reaction A ⟶ product with initial concentration x mol L^{-1}, has a half life period of 2.5 hours. For the same reaction with initial concentration $\left(\frac{x}{2}\right)$ mol L-1 the half life is
(a) (2.5 x 2) hours (b) $\left(\frac{2.5}{2}\right)$ hours (c) 2.5 hours (d) Without knowing the rate constant, $t_{1/2}$ cannot be determined from the given data

126) For the reaction, $2NH_3 \rightarrow N_2 + 3H_2$, if $\frac{-d[NH_3]}{dt} = k_1[NH_3]$, $\frac{d[N_2]}{dt} = k_2[NH_3]$, $\frac{d[H_2]}{dt} = k_3[NH_3]$ then the relation between k_1, k_2 and k_3 is
(a) $k_1=k_2=k_3$ (b) $k_1=3k_2=2k_3$ (c) $1.5k_1=3k_2=k_3$ (d) $2k_1=k_2=3k_3$

127) The decomposition of phosphine (PH3) on tungsten at low pressure is a first order reaction. It is because the (NEET)

(a) rate is proportional to the surface coverage | (b) rate is inversely proportional to the surface coverage | (c) rate is independent of the surface coverage | (d) rate of decomposition is slow

128) For a reaction Rate = kacetone[]32 then unit of rate constant and rate of reaction respectively is

(a) (mol L^{-1} S^{-1}), (mol$^{1/2}L^{1/2}$S-1) | (b) (mol$^{-1/2}L^{1/2}s^{-1}$), (mol $L^{-1}s^{-1}$) | (c) (mol$^{1/2}L^{1/2}s^{-1}$), (mol$L^{-1}s^{-1}$) | (d) (molLs^{-1}), (mol$^{1/2}L^{1/2}$s)

129) The addition of a catalyst during a chemical reaction alters which of the following quantities? (NEET)

(a) Enthalpy (b) Activation energy (c) Entropy (d) Internal energy

130) In a reversible reaction, the enthalpy change and the activation energy in the forward direction are respectively −x kJ mol^{l-4} and kJ mol^{-1} Therefore , the energy of activation in the backward direction is

(a) (y-x)kJ mol-^{1} (b) (x+y)J mol^{-1} (c) (x-y)KJ mol^{-1} (d) (x+y)X10^{3}Jmol^{-1}

131) For a first order reaction, the rate constant is 6.909 min^{-1}.the time taken for 75% conversion in minutes is

(a) $\left(\frac{3}{2}\right) log^2$ (b) $\left(\frac{2}{3}\right) log2$ (c) $\left(\frac{3}{2}\right) log\left(\frac{3}{4}\right)$ (d) $\left(\frac{2}{3}\right) log\left(\frac{4}{3}\right)$

132) In a first order reaction $x \longrightarrow y$ if k is the rate constant and the initial concentration of the reactant x is 0.1M, then, the half life is

(a) $\left(\frac{log2}{k}\right)$ (b) $\left(\frac{0.693}{(0.1)k}\right)$ (c) $\left(\frac{In2}{k}\right)$ (d) none of these

133) **Assertion:** rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.

Reason: rate constant also doubles

(a) Both assertion and reason are true and reason is the correct explanation of assertion. | (b) Both assertion and reason are true but reason is not the correct explanation of assertion. | (c) Assertion is true but reason is false | (d) Both assertion and reason are false.

134) The rate constant of a reaction is 5.8X10^{-2}. The order of the reaction is

(a) First order (b) zero order (c) Second order (d) Third order

135) For the reaction $N_2O_5\,(g) \longrightarrow 2NO_2\,(g) + \frac{1}{2}O_2\,(g)$ value of rate of disappearance of $N_2O_5$is given as 6.5X10-^{2} molL^{-1}s^{-1} The rate of formation of NO_2 and O_2 is given respectively as

(a) (3.25X10^{-2} mol L^{-1}S^{-1}) and (1.3 X 10^{-2} mol L^{-1}s^{-1}) (b) (1.3X10^{-2} mol L^{-1}s^{-1}) and (3.25 X10^{-2} mol L^{-1}s^{-1}) (c) (1.3X10^{-1} mol L^{-1}s^{-1}) and (3.25 X10-2 mol L^{-1}s^{-1}) (d) None of these

136) During the decomposition of H_2O_2 to give dioxygen, 48 g O_2 is formed per minute at certain point of time. The rate of formation of water at this point is

(a) 0.75 mol min^{-1} (b) 1.5 mol min^{-1} (c) 2.25 mol min^{-1} (d) 3.0 mol min^{-1}

137) In a homogeneous reaction $A \longrightarrow B + C + D$ the initial pressure was P_0 and after time t it was P. expression for rate constant in terms of P_0, P and t will be

(a) $k = \left(\frac{2.303}{t}\right) log\left(\frac{2P_0}{3P_0 - P}\right)$ (b) $k = \left(\frac{2.303}{t}\right) log\left(\frac{2P_0}{P_0 - P}\right)$ (c) $k = \left(\frac{2.303}{t}\right) log\left(\frac{3P_0 - P}{2P_0}\right)$ (d) $k = \left(\frac{2.303}{t}\right) log\left(\frac{2P_0}{3P_0 - 2P}\right)$

138) If 75% of a first order reaction was completed in 60 minutes , 50% of the same reaction under the same conditions would be completed in

(a) 20 minutes (b) 30 minutes (c) 35 minutes (d) 75 minutes

139) The depletion of ozone involves the following steps:

Step 1: $O_2 + O \underset{k_2}{\overset{k_1}{\rightleftharpoons}} O_3$ (fast)

Step 2: $O_3 + O \xrightarrow{k} 2O_2$ (slow)

The predicted order of the reaction will be

(a) I (b) II (c) III (d) Zero

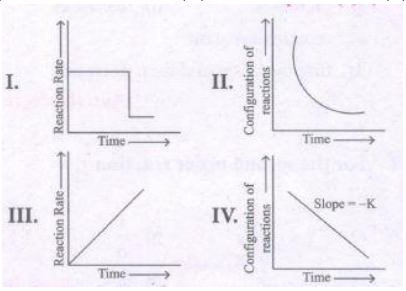
140) The graph between. the log K verrus $\frac{1}{T}$ is a straight line. The slope of the line is

(a) $\frac{-2.303R}{Ea}$ (b) $\frac{Ea}{2.303R}$ (c) $\frac{2.303R}{Ea}$ (d) $\frac{Ea}{2.303R}$

141) A reaction having equal activation energies for forward and reverse reactions has

(a) ΔG = 0 (b) ΔH = 0 (c) ΔH = ΔG = ΔS = 0 (d) ΔS = 0

142)



Which of the above graphs is correct for zero order reactions?

(a) I, II (b) I, III (c) I, IV (d) II, III

143) The term A in Arrhenius equation is called as

(a) Probability factor (b) Activation energy (c) Collision factor (d) Frequency factor

144) For a reaction: aA ⟶ bB, the rate of reaction is doubled when the concentration of A is increased by four times. The rate of reaction is equal to

(a) k[A]^a (b) $k[A]^{\frac{1}{2}}$ (c) $k[A]^{\frac{1}{a}}$ (d) K[A]

145) In any unimolecular reaction _____

(a) Only two reacting species is involved in the rate determining step.
(b) The order and the molecularity of slowest step are equal to one.
(c) The molecularity of the reaction is one and order is zero.
(d) Both molecularity and order of the reaction are one.

146) Rate law cannot be determined from balanced chemical equation if _____

(a) Reverse reactions is not involved
(b) It is an elementary reaction
(c) It is a sequence of elementary reactions
(d) All of the reactants is in excess. Rate law can be determined from balanced chemical equation if it is an elementary reaction.

147) Activation energy is equal to _____

(a) Threshold energy + Energy of colloding molecules
(b) Threshold energy
(c) Threshold energy x Energy of colloiding molecules
(d) Threshold energy - Energy of colloiding molecules

148) For the reaction $N_{2(g)} + 3H_{2(g)} \longrightarrow 2NH_{3(g)}$ the rate of the reaction in terms of ammonia is _____

(a) $+\frac{1}{2}\frac{-d[NH_3]}{dt}$ (b) $-\frac{1}{2}\frac{d[NH_3]}{dt}$ (c) $\frac{-d[NH_3]}{dt}$ (d) $\frac{+d[NH_3]}{dt}$

149) The time required for 50%completion of the reaction is known as _____

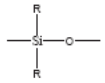
(a) Average life period (b) Half-life period (c) Rate (d) None of these

150) If [A] is the concentration of A at any time t and [A_o]is the concentration at t = 0, then for the first order reaction, the rate equation can be written as _____

(a) $k = \frac{2.303}{t}\log\left[\frac{A}{A_0}\right]$ (b) $k_t = 2.303\log\left[\frac{A_0}{[A]}\right]$ (c) $k = 2.303\log\left[\frac{A_0}{[A_0]-[A]}\right]$ (d) $k = \frac{2.303}{t}\log\left[\frac{A_0}{A}\right]$

****

1) (c) $MgCO_3 \rightarrow MgO + CO_2$
2) (c) Galena
3) (c) Displacement with zinc
4) (b) van Arkel process
5) (b) $\Delta G^0 Vs T$
6) (c) Dolomite
7) (b) roasting
8) (b) Mg + BaO_2
9) (a) magnetic properties
10) (d) Sodium dicyano argentate
11) (c) basic
12) (b) B_3H_6

13)
(c) four
14)
(c) sp^2 hybridised
15)
(a) +4
16)
(b) 
17)
(a) Tetrahedral
18)
(d) Al,Cu,Mn,Mg
19)
(b) graphite
20)
(a) Metal borides
21)
(a) Boron nitride
22)
(d) all the above
23)
(d) all the above
24)
(d) electron deficient nature
25)
(b) increases
26)
(b) +1 and +3
27)
(a) due to presence of vacant d-orbitals
28)
(a) resistance to corrosion
29)
(d) ns^2np^2
30)
(d) ability to form pπ-pπ bonds with itself
31)
(d) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$
32)
(b) Nitroso ferrous sulphate
33)
(b) 2
34)
(a) 6N
35)
(b) F_2
36)
(b) HF > HCl > HBr > HI
37)
(d) NeF_2
38)
(c) XeO_3
39)
(c) SO_4^{2-}
40)
(a) HI
41)
(d) $Cl_2 > Br_2 > F_2 > I_2$
42)
(c) $HClO_3 < HClO_4 < HClO_2 < HClO$

43)
(b) P >> N > As > Sb > Bi
44)
(d) Both (a) and (b)
45)
(c) Orthophosphorus acid
46)
(d) $H_2S_2O_6$
47)
(c) Cl_2 - Colourless
48)
(b) Cu $(NO_3)_2$ and NO_2
49)
(d) CO + CO_2 + H_2O
50)
(a) F_2> Cl_2> Br_2> I_2:Bond dissociation energy
51)
(d) both (b) and (c)
52)
(d) Phosphorus and arsenic can form Pπ-drt bond but not nitrogen
53)
(d) Presence of one-OH groups and two P-H bonds
54)
(a) Ammonium sulphate
55)
(b) $2H_2O + 2F_2 \longrightarrow 4HF + O_2$
56)
(d) both (a) and (b)
57)
(d) both (a) and(c)
58)
(b) Ti^{4+}
59)
(b) $Na_2Cr_2O_7$ is preferred over $K_2Cr_2O_7$ in volumetric analysis
60)
(b) Yb^{2+}
61)
(c) 5
62)
(a) Np, Pu ,Am
63)
(b) Increase in tendency to act as reducing agents
64)
(b) Cr^+
65)
(a) removal of one electron alters the relative energies of 4s and 3d orbitals
66)
(b) Mn
67)
(d) All of these
68)
(a) [Noble gas]n - $1d^{1-10}$ ns^{1-2}
69)
(b) Cold dilute alkaline $KMnO_4$
70)
(d) 9
71)
(b) 0.002
72)
(c) $[M(H_2O)_5Cl]SO_4H_2O$
73)
(d) potassiumtrioxalatoaluminate(III)

74)
(b) 0
75)
(a) $[Co(CN)_6]^{3-}$
76)
(b) $[Co(en)_2Cl_2]cl$
77)
(d) Geometrical isomerism
78)
(c) $[Co(NH_3)_4(NCS)_2]ct$ and $[Co(NH_3)_4(SCN)_2]Cl$
79)
(a) geometrical and ionization
80)
(d) $[Fe(en)_3]^{3+}$
81)
(c) $[Fe(CO)_5]$
82)
(d) $[Fe(H_2N\text{-}CH_2\text{-}CH_2\text{-}NH_2\text{-}NH_2)_3]_3(PO_4)_2$
83)
(c) $[Ni(H_2O)_6]^{2+}$
84)
(c) $[Co(NH_3)_3(Cl)_3]$
85)
(a) $[Cr(H_2O)_4Cl_2]Cl_2$
86)
(d) $[Co(en)_3]^{3+}$
87)
(c) Three orbitals with lower energy and two orbitals with higher energy
88)
(d) EDTA
89)
(b) $[Fe(H_2O)_6]^{3+}$
90)
(a) $[Co(NH_3)_3(H_2O)_2Cl]Cl_2$
91)
(d) all the above
92)
(b) Trigonal bipyramidal, dsp^3
93)
(b) Fe^{2+}
94)
(d) $[Fe(CN)_6]^{4-}$
95)
(b) $[Co\ (NH_3)_3\ Cl_3]$
96)
(c) both (a) and (b)
97)
(a) 4, 6
98)
(b) nitrosyl
99)
(d) all the above
100)
(d) None
101)
(b) AB_3
102)
(a) Both assertion and reason are true and reason is the correct explanation of assertion
103)
(c) 8 and 4
104)
(a) 8

105)

(a) $\left(\frac{100}{0.414}\right)$

106)

(b) $\left(\frac{\pi}{6}\right)$

107)

(a) excitation of electrons in F centers

108)

(c) Frenkel defect

109)

(a) XY_8

110)

(d) FeS

111)

(b) On increasing pressure, the co-ordination number of solid increases.

112)

(b) λ, represents wave length of uv-rays used

113)

(c) Equal number of cation and anion vacancies

114)

(b) Space lattice

115)

(b) Diamond,Ice

116)

(a) 10^{-8}cm

117)

(c) Frenkel defect

118)

(a) Graphite

119)

(d) both (a) and (b)

120)

(d) Body centred cubic

121)

(d) 1

122)

(b) F centres

123)

(c) both (a) and (b)

124)

(a) fcc> bcc >sc

125)

(d) Without knowing the rate constant, $t_{1/2}$ cannot be determined from the given data

126)

(c) $1.5k_1=3k_2=k_3$

127)

(c) rate is independent of the surface coverage

128)

(b) $(mol^{-1/2}L^{1/2}s^{-1})$,$(mol\ L^{-1}s^{-1})$

129)

(b) Activation energy

130)

(d) $(x+y)X10^3Jmol^{-1}$

131)

(b) $\left(\frac{2}{3}\right) log2$

132)

(c) $\left(\frac{In2}{k}\right)$

133)

(c) Assertion is true but reason is false

134)

(a) First order

135)

(c) ($1.3X10^{-1}$ mol $L^{-1}s^{-1}$) and (3.25 X10-2 mol $L^{-1}s^{-1}$)

136)

(d) 3.0 mol min^{-1}

137)

(a) $k = \left(\frac{2.303}{t}\right) log\left(\frac{2P_0}{3P_0 - P}\right)$

138)

(b) 30 minutes

139)

(a) I

140)

(b) $\frac{Ea}{2.303R}$

141)

(b) $\Delta H = 0$

142)

(c) I, IV

143)

(d) Frequency factor

144)

(b) $k[A]^{\frac{1}{2}}$

145)

(d) Both molecularity and order of the reaction are one.

146)

(c) It is a sequence of elementary reactions

147)

(a) Threshold energy + Energy of colloding molecules

148)

(a) $+\frac{1}{2}\frac{-d[NH_3]}{dt}$

149)

(b) Half-life period

150)

(b) $k_t = 2.303 \log\left[\frac{A_0}{[A]}\right]$