

NEETUG-2018

NEETUG-2018 TEST PAPER WITH ANSWER
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CHEMISTRY

- 46 A mixture of 23 g formic acid and 45 g oxalic acid is treated with conc H_2SO_4 . The evolved gaseous mixture is passed through KOH pellets. Weight in g of the remaining product at STP will be
- 1 14 2 30 3 28 4 44

Ans 3

- 47 Nitration of aniline in strong acidic medium also gives m-nitroaniline because
- 1 In spite of substituents nitro group always goes to only m-position
 - 2 In electrophilic substitution reactions amino group is meta directive.
 - 3 In absence of substituents nitro group always goes to m-position
 - 4 In acidic strong medium aniline is present as anilinium ion

Ans 4

- 48 Which of the following oxides is most acidic in nature?
- 1 MgO 2 BeO 3 BaO 4 CaO

Ans 2

- 49 The difference between amylose and amylopectin is
- 1 Amylopectin have 1 → 4 α-linkage and 1 → 6 α-linkage
 - 2 Amylose have 1 → 4 α-linkage and 1 → 6 α-linkage
 - 3 Amylopectin have 1 → 4 β-linkage and 1 → 6 α-linkage
 - 4 Amylose is made up of glucose and galactose

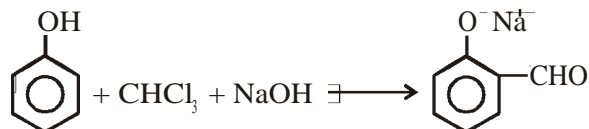
Ans 1

- 50 Regarding cross-linked or network polymers, which of the following statements is correct?
- 1 They contain covalent bonds between various linear polymer chains
 - 2 They are formed from bi- and tri-functional monomers.
 - 3 Examples are bakelite and melamine.
 - 4 They contain strong covalent bonds in their polymer chains

Ans 4

6

- 51 In the reaction



the electrophile involved is

- 1 dichloro ethyl cation CHCl_2^+
- 2 formyl cation CHO^+
- 3 dichloro ethyl anion CHCl_2^-
- 4 dichlorocarbene $:\text{CCl}_2$

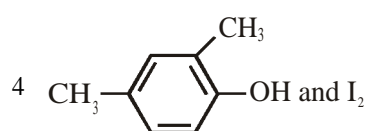
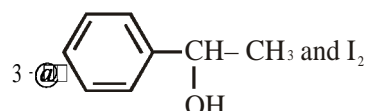
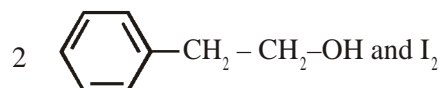
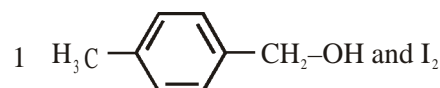
Ans 4

- 52 Carboxylic acids have higher boiling points than aldehydes, ketones and even alcohols of comparable molecular mass. It is due to their
- 1 formation of intramolecular H-bonding
 - 2 formation of carboxylate ion
 - 3 more extensive association of carboxylic acid via van der Waals force of attraction
 - 4 formation of intermolecular H-bonding

Ans 4

- 53 Compound A, $\text{C}_8\text{H}_{10}\text{O}$, is found to react with NaOI produced by reacting Y with NaOH and yields a yellow precipitate with characteristic smell.

A and Y are respectively



Ans 3

54 The correct difference between first- and second-order reaction is that

- 1 the rate of a first-order reaction does not depend on reactant concentration; the rate of a second-order reaction does depend on reactant concentrations
- 2 the half-life of a first-order reaction does not depend on $[A]_0$; the half-life of a second-order reaction does depend on $[A]_0$
- 3 a first-order reaction can be catalyzed; a second-order reaction cannot be catalyzed
- 4 the rate of a first-order reaction does depend on reactant concentrations; the rate of a second-order reaction does not depend on reactant concentrations

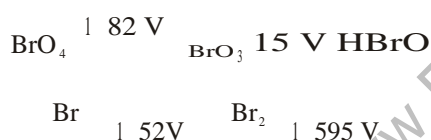
Ans 2

Along CaH_2 , BeH_2 , BaH_2 , the order of ionic character is

- 1 $\text{BeH}_2 < \text{CaH}_2 < \text{BaH}_2$
- 2 $\text{CaH}_2 < \text{BeH}_2 < \text{BaH}_2$
- 3 $\text{BeH}_2 < \text{BaH}_2 < \text{CaH}_2$
- 4 $\text{BaH}_2 < \text{BeH}_2 < \text{CaH}_2$

Ans 1

56 Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below



Then the species undergoing disproportionation is:-

- 1 BrO_3^-
- 2 BrO_4^-
- 3 Br_2
- 4 HBrO

Ans 4

57 In which case is the number of molecules of water maximum?

- 1 18 mL of water
- 2 0.18 g of water
- 3 0.00224 L of water vapours at 1 atm and 273 K
- 4 10^{-3} mol of water

Ans 1

58 Magnesium reacts with an element X to form an ionic compound. If the ground state electronic configuration of X is $1s^2 2s^2 2p^3$, the simplest formula for this compound is

- 1 Mg_2X_3
- 2 MgX_2
- 3 Mg_2X
- 4 Mg_3X_2

Ans 4

9 Iron exhibits bcc structure at room temperature. Above 900°C , it transforms to fcc structure. The ratio of density of iron at room temperature to that at 900°C assuming molar mass and atomic radii of iron remains constant with temperature is

- 1 $\frac{3}{2}$
- 2 $\frac{4}{3}$
- 3 $\frac{3}{4}$
- 4 $\frac{2}{3}$

Ans 3

60 Which one is a wrong statement?

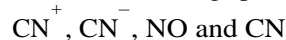
- 1 Total orbital angular momentum of electron in 's' orbital is equal to zero
- 2 An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers
- 3 The electronic configuration of N atom is



- 4 The value of m for d_z^2 is zero

Ans 3

61 Consider the following species:



Which one of these will have the highest bond order?

- 1 NO
- 2 CN^-
- 3 CN^+
- 4 CN

Ans 2

62 Which of the following statements is not true for halogens?

- 1 All form monobasic oxyacids
- 2 All are oxidizing agents
- 3 All but fluorine show positive oxidation states
- 4 Chlorine has the highest electron-gain enthalpy

Ans Bonus

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- 63 Which one of the following elements is unable to form MF_6^{3-} ion ?
1 Ga 2 Al 3 B 4 In

Ans 3

- 64 In the structure of ClF_3 , the number of lone pairs of electrons on central atom 'Cl' is
1 one 2 two 3 four 4 three

Ans 2

- 65 Considering Ellingha diagram, which of the following metals can be used to reduce alumina ?
1 Fe 2 Zn 3 Mg 4 Cu

Ans 3

- 66 The correct order of atomic radii in group 13 elements is
1 $\text{B} < \text{Al} < \text{In} < \text{Ga} < \text{Tl}$
2 $\text{B} < \text{Al} < \text{Ga} < \text{In} < \text{Tl}$
3 $\text{B} < \text{Ga} < \text{Al} < \text{Tl} < \text{In}$
4 $\text{B} < \text{Ga} < \text{Al} < \text{In} < \text{Tl}$

Ans 4

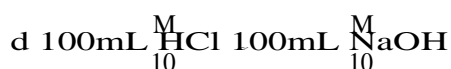
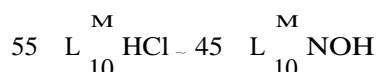
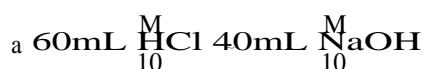
- 67 The correct order of N-compounds in its decreasing order of oxidation states is
1 $\text{HNO}_3, \text{NO}, \text{N}_2, \text{NH}_4\text{Cl}$
2 $\text{HNO}_3, \text{NO}, \text{NH}_4\text{Cl}, \text{N}_2$
3 $\text{HNO}_3, \text{NH}_4\text{Cl}, \text{NO}, \text{N}_2$
4 $\text{NH}_4\text{Cl}, \text{N}_2, \text{NO}, \text{HNO}_3$

Ans 1

- 68 On which of the following properties does coagulating power of an ion depend ?
1 The magnitude of the charge on the alone
2 Size of the ion alone
3 Both magnitude and sign of the charge the ion
4 The sign of charge on the ion alone

Ans 3

- 69 Following solutions were prepared by mixing different volumes of NaOH and HCl of different concentrations :



- pH of which one of them will be equal to 1 ?
1 b 2 a
3 d 4 c

Ans 4

- 70 The solubility of BaSO_4 in water $242 \times 10^{-3} \text{ gL}^{-1}$ at 298 K The value of solubility product K_{sp} will be

Given molar mass of $\text{BaSO}_4 = 233 \text{ g mol}^{-1}$

- 1 $1.08 \times 10^{-10} \text{ mol}^2 \text{ L}^{-2}$
2 $1.08 \times 10^{-12} \text{ mol}^2 \text{ L}^{-2}$
3 $1.08 \times 10^{-14} \text{ mol}^2 \text{ L}^{-2}$
4 $1.08 \times 10^{-8} \text{ mol}^2 \text{ L}^{-2}$

Ans 1

- 71 Given van der Waals constant for NH_3 , H_2 and CO_2 are respectively 417, 0244, 136 and 359, which one of the following gases is most easily liquefied?
1 NH_3 2 H_2
3 O_2 4 CO_2

Ans 1

- 72 The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether A, B and C are in the order
1 $\text{C}_2\text{H}_5\text{OH}, \text{C}_2\text{H}_6, \text{C}_2\text{H}_5\text{Cl}$
2 $\text{C}_2\text{H}_5\text{OH}, \text{C}_2\text{H}_5\text{Cl}, \text{C}_2\text{H}_5\text{ONa}$
3 $\text{C}_2\text{H}_5\text{Cl}, \text{C}_2\text{H}_6, \text{C}_2\text{H}_5\text{OH}$
4 $\text{C}_2\text{H}_5\text{OH}, \text{C}_2\text{H}_5\text{ONa}, \text{C}_2\text{H}_5\text{Cl}$

Ans 4

- 73 Hydrocarbon A reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atoms A is
1 CH_3CH_3 2 $\text{CH}_2=\text{CH}_2$
3 $\text{CH}_3\text{CH}_2\text{CH}_3$ 4 CH_4

Ans 4

- 74 The compound C_7H_8 undergoes the following reactions :



The product 'C' is

- 1 m-bromotoluene
2 o-bromotoluene
3 3-bromo-2,4,6-trichlorotoluene
4 p-bromotoluene

Ans 1

75 Which oxide of nitrogen is a common pollutant introduced into the atmosphere both due to natural and human activity ?

- 1 N_2O_5
- 2 NO_2
- 3 N_2O
- 4 NO

Ans 1

76 For the redox reaction

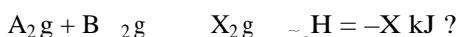
$$\text{MnO}_4^- + \text{C}_2\text{O}_4^{2-} + \text{H}^+ \rightarrow \text{Mn}^{2+} + \text{CO}_2 + \text{H}_2\text{O}$$

the correct coefficients of the reactants for the balanced equation are

- | | MnO ₄ ⁻ | C ₂ O ⁴²⁻ | H ⁺ |
|---|-------------------------------|---------------------------------|----------------|
| 1 | 16 | 5 | 2 |
| 2 | 2 | 5 | 16 |
| 3 | 2 | 16 | 5 |
| 4 | 5 | 16 | 2 |

Ans 2

77 Which one of the following conditions will favour axi u formation of the product in the reaction,



- 1 Low temperature and high pressure
- 2 Low temperature and low pressure
- 3 High temperature and high pressure
- 4 High temperature and low pressure

Ans 1

78 The correction factor 'a' to the ideal gas equation corresponds to

- 1 density of the gas molecules
- 2 volue of the gas molecules
- 3 electric field present between the gas molecules
- 4 forces of attraction between the gas molecules

Ans 4

79 When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

- 1 is halved
- 2 is doubled
- 3 is tripled
- 4 remains unchanged

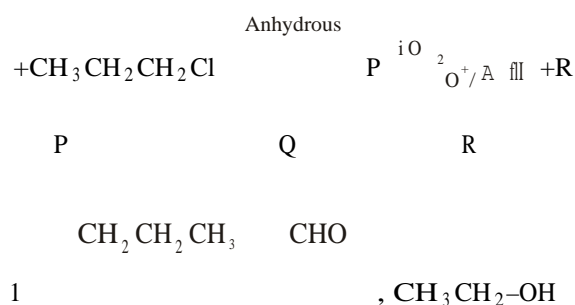
Ans 2

80 The bond dissociation energies of X_2 , Y_2 and XY are in the ratio of 1 : 05 : 1. ΔH for the formation of XY is -200 kJ mol^{-1} . The bond dissociation energy of X_2 will be

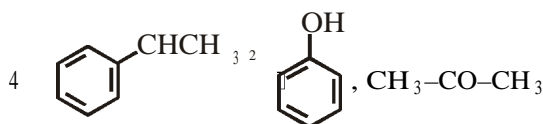
- 1 200 kJ mol⁻¹
- 2 100 kJ mol⁻¹
- 3 800 kJ mol⁻¹
- 4 400 kJ mol⁻¹

Ans 3

81 Identify the major products P, Q and R in the following sequence of reaction :



2



Ans 4

82 Which of the following compounds can form a zwitterion?

- | | |
|----------------|---------------|
| 1 Aniline | 2 Acetanilide |
| 3 Benzoic acid | 4 Glycine |

Ans 4

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83 The type of isomerism shown by the complex $[\text{CoCl}_2\text{en}_2]$ is

- 1 Geometrical isomerism
- 2 Coordination isomerism
- 3 Ionization isomerism
- 4 Linkage isomerism

Ans 1

84 Which one of the following ions exhibits d-d transition and paramagnetism as well?

- 1 CrO_4^{2-}
- 2 $\text{Cr}_2\text{O}_7^{2-}$
- 3 MnO_4^-
- 4 MnO_4^{2-}

Ans 4

85 The geometry and magnetic behaviour of the complex $[\text{NiCO}_4]$ are

- 1 square planar geometry and diamagnetic
- 2 tetrahedral geometry and diamagnetic
- 3 square planar geometry and paramagnetic
- 4 tetrahedral geometry and paramagnetic

Ans 2

86 Iron carbonyl, FeCO_5 is

- 1 tetranuclear
- 2 mononuclear
- 3 trinuclear
- 4 dinuclear

Ans 2

87 Match the metal ions given in Column I with the spin magnetic moments of the ions given in Column II and assign the 1/2/3/4 code:

Column I	Column II
a Co^{3+}	i 8 BM
b Cr^{3+}	ii 3.5 BM
c Fe^{3+}	iii 3 BM
d Ni^{2+}	iv $\sqrt{15}$ BM
	v $\sqrt{10}$ BM

	a	b	c	d
1	iv	v	ii	i
2	i	ii	iii	iv
3	iv	i	ii	iii
4	iii	v	i	ii

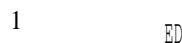
Ans 1

88 Which of the following is correct with respect to -I effect of the substituents? R = alkyl

- 1 $-\text{NH}_2 < -\text{OR} < -\text{F}$
- 2 $-\text{NR}_2 < -\text{OR} < -\text{F}$
- 3 $-\text{NH}_2 > -\text{OR} > -\text{F}$
- 4 $-\text{NR}_2 > -\text{OR} > -\text{F}$

Ans 1/2

89 Which of the following carbocations is expected to be most stable?



2



3



4 Y

Ans 3

90 Which of the following molecules represents the order of hybridisation sp^2 , sp^2 , sp, sp from left to right atoms?

- 1 $\text{HC} \sim \text{C} - \text{C} \equiv \text{CH}$
- 2 $\text{CH}_2 = \text{CH} - \text{C} \sim \text{CH}$
- 3 $\text{CH}_2 = \text{CH} - \text{CH} = \text{CH}_2$
- 4 $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3$

Ans 2