

(1) Elements with similar properties are present in vertical columns called

- (a) Periodic table (b) Periods (c) Groups (d) Columns

Ans: (c)

(2) What was the basis of classification of elements in Triads by Johann Dobereiner?

- (a) Atomic number (b) Atomic mass
(c) Physical and chemical properties (d) Atomic weight

Ans: (c)

(3) Which of the following is not a triad?

- (a) Li, Na, K (b) Ca, Sr, Ba (c) Cl, Br, I (d) Cs, Sr, Ba

Ans: (d)

Hint: The atomic weight of second element is not a mean of first and third.

(4) Which group was added later in the Mendeleev's periodic table?

- (a) Zero group (b) Halogen group (c) Alkali group (d) Seventh group

Ans: (a)

(5) The plot of $\sqrt{\nu}$ was a straight line in Moseley's experiment.

- (a) $\sqrt{\nu} \rightarrow Z$ (b) $\sqrt{\nu} \rightarrow A$ (c) both (d) none

Ans: (a)

(6) Elements belonging to same subgroup of periodic table have generally the same;

- (a) Electronic configuration

- (b) Number of electrons in the outer most shell
- (c) Chemical properties
- (d) Physical properties

Ans: (b)

(7) Modern periodic table is based on the atomic number of the elements. The experiment which proved the significance of the atomic number was;

- (a) Mulliken's oil drop experiment
- (b) Moseley's work on X-ray spectra
- (c) Bragg's work on X-ray diffraction
- (d) Discovery of X-rays by Rontgen

Ans: (b)

(8) In the long form of periodic table, elements are arranged according to

- (a) Increasing atomic number
- (b) Decreasing atomic number
- (c) Increasing atomic mass
- (d) Decreasing atomic mass

Ans: (a)

(9) Which of the following is ununennium?

- (a) 111
- (b) 115
- (c) 118
- (d) 119

Ans: (d)

Hint: 119 = Ununennium

(10) State the name of element whose atomic number is 110?

- (a) Rontgenium
- (b) Darmstadtium
- (c) Meitnerium
- (d) Dubnium

Ans: (b)

(11) An element of atomic mass 40 has 2, 8, 8, 2 as the electronic configuration. Which one of the following statements regarding this element is not correct?

- (a) It forms an amphoteric oxide (b) It belongs to IIa group
(c) It belongs to IV period (d) It has 20 neutrons

Ans: (a)

Hint: It will form basic oxides.

(12) The most predominantly electrovalent compound will be obtained from the combination of elements belonging to:

- (a) I and VII groups (b) II and VI groups
(c) III and V groups (d) None of these

Ans: (a)

(13) The electronic configuration of an element C is $1s^2 2s^2 2p^6$. The formula of substance containing only C will be:

- (a) C_8 (b) C_4 (c) C_2 (d) C

Ans: (d)

Hint: Being an inert gas configuration, the element will exist in mono atomic form.

(14) The electronic configuration of an element A is $1s^2 2s^2 2p^5$. The formula of substance containing only A will be:

- (a) A (b) A_2 (c) A_5 (d) A_7

Ans: (b)

Hint: Due to presence of 7 electron it will share only one electrons with other atom, hence exists in diatomic state.

(15) The electronic configuration of element is $1s^2 2s^2 2p^6 3s^2$ while that of element B is $1s^2 2s^2 2p^5$. The formula of the compound containing A and B will be:

- (a) AB_2 (b) A_2B (c) A_2B_3 (d) A_3B_2

Ans: (a)

(16) In a group of periodic table, the ionisation enthalpies of element decreases from top to bottom because of

- (a) Increase in densities (b) Decrease in chemical activities
(c) Increase in atomic size (d) Decrease in electro–negativities

Ans: (a)

(17) The order in which the following oxides are arranged according to decreasing basic nature is:

- (a) CuO, Na_2O, MgO, Al_2O_3 (b) Al_2O_3, MgO, CuO, Na_2O
(c) MgO, Al_2O_3, CuO, Na_2O (d) Na_2O, MgO, Al_2O_3, CuO

Ans: (d)

Hint: Basicity of oxides decreases across the period.

(18) Which of the following is an amphoteric oxide?

- (a) MgO (b) Al_2O_3 (c) SiO_2 (d) P_2O_5

Ans: (b)

(19) Ionisation energy of nitrogen is more than oxygen because:

- (a) Nucleus has more attraction for electrons
- (b) Half filled p-orbitals are more stable
- (c) Nitrogen atom is small
- (d) More penetration effect

Ans: (b)

(20) Al^{3+} has lower ionic radius than Mg^{2+} because

- (a) Mg atom has less number of neutrons than Al
- (b) Al^{3+} has higher nuclear charge than Mg^{2+}
- (c) Their electronegativities are different
- (d) Al has a lower ionization enthalpy than Mg atom

Ans: (b)

Hint: Answer in the reason.

(21) Which one of the following is correct order of the size?

- (a) $\text{I} > \text{I}^- > \text{I}^+$ (b) $\text{I} > \text{I}^+ > \text{I}^-$ (c) $\text{I}^+ > \text{I}^- > \text{I}$ (d) $\text{I}^- > \text{I} > \text{I}^+$

Ans: (d)

Hint: Cation < Atom < Anion

(22) According to recommendation's of IUPAC, how many groups are there in the modern periodic table?

- (a) 7 (b) 8 (c) 9 (d) 18

Ans: (d)

Hint: According to recommendation's of IUPAC, modern periodic table consists of 7 periods & 18

groups.

(23) The horizontal rows in periodic table are known as:

- (a) Groups (b) Periods (c) Columns (d) Series

Ans: (b)

(24) How many elements are present in period 3?

- (a) 2 (b) 8 (c) 18 (d) 32

Ans: (b)

Hint: The 2nd and 3rd periods have 8 elements each.

(25) Which period is known as long period?

- (a) 1 (b) 2 (c) 3 (d) 4

Ans: (d)

Hint: 4th and 5th periods are called the Long Period.

(26) The lanthanide series belongs to which period?

- (a) 4 (b) 5 (c) 6 (d) 7

Ans: (c)

Hint: Lanthanide series belongs to 6th period.

(27) The number of elements in fifth period of periodic table is:

- (a) 8 (b) 32 (c) 18 (d) 19

Ans: (c)

Hint: 4th and 5th periods of periodic table have 18 elements.

(28) Which one of the following is a d-block element?

- (a) Fr (b) Al (c) Zn (d) Ge

Ans: (c)

(29) Mark the group which has maximum number of elements in mendeleev's periodic table

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

Ans: (c)

(30) In modern periodic table, which one of the following does not have appropriate positions:

- (a) Inert gas (b) Inner-transition elements
(c) Transition elements (d) Fluorine

Ans: (b)

Hint: Elements of inner transition series does not have appropriate position.

(31) Which one of the following configuration represents a metallic character?

- (a) 2, 8, 2 (b) 2, 8, 4 (c) 2, 8, 7 (d) 2, 8, 8

Ans: (a)

Hint: Metallic elements have 1 or 2 electrons in outer most orbits.

(32) The element having electronic configuration $[\text{Kr}]4d^{10}4f^{14}5s^25p^65d^16s^2$ belongs to:

- (a) s-block (b) p-block (c) d-block (d) f-block

Ans: (d)

Hint: The correct order is $[\text{Kr}]4d^{10}4f^{14}5s^25p^65d^16s^2$ $[\text{Kr}]4d^{10}4f^{14}5s^25p^66s^24f^{14}5d^1$. As the valence electron lies in 4f-orbital, it is an element of f-block.

(33) The elements with atomic number 10, 18, 36, 54 and 86 are all:

- (a) Light metals (b) Inert gases (c) Halogens (d) Rare-earth

Ans: (b)

Hint: All of them have completely filled valence shell.

(34) The elements on the right side of the periodic table are:

- (a) Non metals (b) Metals (c) Transition metals (d) Metalloids

Ans: (a)

(35) The most non metallic element among the following is:

- (a) $1s^2 2s^2 2p^6$ (b) $1s^2 2s^2 2p^5$ (c) $1s^2 2s^2 2p^4$ (d) $1s^2 2s^2 2p^3$

Ans: (b)

Hint: $1s^2 2s^2 2p^5$, element have 7 electrons in valence shell, i.e. highest tendency to gain electrons.

(36) Which of the following elements belongs to halogen group?

- (a) $1s^2 2s^2 2p^6 3s^2 3p^3$ (b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
(c) $[\text{Ar}]3d^{10} 4s^2 4p^5$ (d) $[\text{Kr}]4d^{10} 5s^2 5p^4$

Ans: (c)

Hint: Halogens have valence shell configuration of $ns^2 np^5$.

(37) Which group contains elements that exist as monoatomic molecules?

- (a) 1 (b) 2 (c) 14 (d) 18

Ans: (d)

(38) Which of the p-block elements are not representative elements?

- (a) Alkali metals (b) Group-14 elements
(c) Group-18 elements (d) Halogens

Ans: (c)

(39) Which of the following represents the electronic configuration of d-block elements?

- (a) $(n-1)s^2nd^{1-10}$ (b) $(n-1)d^{1-10}ns^{1-2}$ (c) $(n-1)d^{1-10}ns^2np^4$ (d) $(n-1)p^4ns^2$

Ans: (b)

(40) The valence shell electronic configuration of an element is ns^2np^5 . The element will belong to the group of

- (a) Alkali metals (b) Inert metals (c) Noble gases (d) Halogens

Ans: (d)

(41) Which of the following elements has the maximum electron gain enthalpy?

- (a) Oxygen (b) Chlorine (c) Fluorine (d) Nitrogen

Ans: (b)

(42) If we go from Li to F in the second period, there would be decrease in:

- (a) Atomic mass (b) Atomic radii
(c) Ionisation energy (d) Electro-negativity

Ans: (b)

Hint: Atomic radius decreases across the period.

(43) In going from left to right in a period:

- (a) The basic nature of the oxides increases
- (b) Acidic nature increases
- (c) The basic nature of the oxides decreases
- (d) No gradation in the nature of oxides is observed

Ans: (c)

(44) An element R forms the highest oxide R_2O_5 . R belongs to:

- (a) IV group
- (b) V group
- (c) VI group
- (d) VII group

Ans: (b)

Hint: In oxide R_2O_5 , the oxidation state of R is (+5), hence it must have 5 valence electrons, hence group -V

(45) Which elements have the electronic configuration $ns^2 np^6$ in their outermost orbit?

- (a) Alkali metals
- (b) Transition metals
- (c) Noble gases
- (d) Inner transition metals

Ans: (c)

Hint: Noble gases have completely filled valence shell configuration i.e. $ns^2 np^6$.

(46) What is not consistent for atomic radius?

- (a) Decreases when we move from left to right
- (b) Increases when we go from top to bottom
- (c) Increases with increase in principal quantum number
- (d) Increases with increase in positive charge of nucleus

Ans: (d)

Hint: As the positive charge of nucleus increases, the attraction between nucleus and electrons become stronger as a result, the orbit shrinks, i.e. its size decreases.

(47) Which is true from the following?

- (a) Size of Al^{3+} < Size of Al (b) Size of Al^{3+} > Size of Al
(c) Size of F^- < Size of F (d) Size of Na^+ = Size of Na

Ans: (a)

Hint: Size of cations is always smaller than its corresponding atom, due to increased nuclear charge and nuclear attraction.

(48) For which element the highest shielding effect for outermost electron is observed?

- (a) Element of group 13 and period 2 (b) Element of group 13 and period 3
(c) Element of group 13 and period 4 (d) Element of group 13 and period 5

Ans: (d)

Hint: The shielding effect increases as the atomic size increases, hence element of 5th period will have highest among the others given.

(49) Which one is descending order of atomic radius of elements of third period.

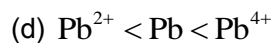
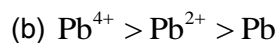
Na ($Z = 11$), Mg ($Z = 12$), Al ($Z = 13$) and Si ($Z = 14$)?

- (a) $\text{Si} > \text{Al} > \text{Mg} > \text{Na}$ (b) $\text{Na} > \text{Mg} > \text{Al} > \text{Si}$
(c) $\text{Na} < \text{Mg} < \text{Al} < \text{Si}$ (d) $\text{Na} > \text{Al} > \text{Mg} > \text{Si}$

Ans: (b)

Hint: Atomic radius decreases from left to right in a period.

(50) Which order is true with reference to size of species?



Ans: (c)

Hint: As the positive charge of cations increases its atomic radius decreases.

(51) Reduction involves:

(a) Loss of electrons

(b) Gain of electrons

(c) Increase in the valency of positive part

(d) Decrease in the valency of negative part

Ans: (b)

(52) Oxidation involves:

(a) Loss of electrons

(b) Gain of electrons

(c) Increase in the valency of negative part

(d) Decrease in the valency of positive part

Ans: (a)

(53) What is the substance that gives hydrogen or accepts oxygen known as?

(a) Oxidant

(b) Reluctant

(c) Oxidation

(d) Reduction

Ans: (b)

Hint: A substance which gives hydrogen or accepts oxygen is undergoing oxidation, hence it must be a reductant.

(54) A reducing agent is a substance which can:

- (a) accept electron (b) donate electrons (c) accept protons (d) donate protons

Ans: (b)

Hint: A reducing agent undergoes oxidation, hence donate electrons.

(55) A redox reaction is:

- (a) proton transfer reaction (b) ion combination reaction
(c) a reaction in solution (d) electron transfer reaction

Ans: (d)

Hint: When both oxidation and reduction reactions occurs simultaneously, i.e. one loses electrons and other gains electrons, hence electron transfer reaction.

(56) Which of the following is not a redox reaction?

- (a) Burning of candle (b) Rusting of iron
(c) Dissolving of salt in water (d) Dissolving Zn in dil. H_2SO_4

Ans: (c)

Hint: When a salt is dissolved in water, it undergoes dissociation reaction, so there is no change observed in its oxidation states.

(57) Oxidizing agent has tendency to,

- (a) become electrically neutral (b) become inert element
(c) gain electrons (d) lose electrons

Ans: (c)

Hint: Oxidizing agent oxidizes others but reduces itself, hence gains electrons

(58) Which of the following statements is correct?

- (e) Oxidation of a substance is followed by reduction of another
(f) Reduction of a substance is followed by oxidation of another
(g) Oxidation and reduction are complementary reactions
(h) It is not necessary that both oxidation and reduction should take place in the same reaction

Ans: (c)

Oxidation Number: Rules, Calculation and Nomenclature

(59) State the oxidation number of Al in AlCl_3

- (a) -3 (b) +3 (c) 0 (d) ± 3

Ans: (b)

Hint: $x + 3(-1) = 0$, $\therefore x = +3$

(60) What is the name of Cr_2O_7 according to stock notation?

- (a) Chromium (VII) oxide (b) Dichromium (VII)
(c) Chromium (VII) dioxide (d) Chromium (V) oxide

Ans: (a)

Hint: In stock notation, the oxidation number of the metal is written in Roman numerals inside parenthesis.

(61) What is the oxidation number of O in O_2F_2 ?

- (a) -2 (b) -1 (c) +1 (d) +2

Ans: (c)

Hint: Fluorine being the most electro-negative element, will always possess -1 oxidation number hence, $2x + 2(-1) = 0$. $\therefore x = +1$

(62) What is the oxidation number of carbon underlined in $CH_3\underline{C}OOH$?

- (a) +1 (b) +4 (c) +3 (d) +2

Ans: (c)

Hint: $x + 2(-2) + (+1) = 0$

$$\therefore x - 4 + 1 = 0$$

$$\therefore x = (+3)$$

(63) What is the oxidation number of carbon in methanal?

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

Ans: (a)

Hint: $\therefore x + 2(+1) + (-2) = 0 \quad \therefore x = 0$

(64) What is the oxidation number of carbon in ethanal?

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

Ans: (b)

Hint: Ethanal is CH_3CHO

$$\therefore 0 + x + (+1) + (-2) = 0$$

$$\therefore x = (+1)$$

(65) What is the oxidation number of carbon in methanoic acid?

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

Ans: (c)

Hint: Methanoic acid is HCOOH or H_2CO_2

$$\therefore 2(+1) + x + 2(-2) = 0$$

$$\therefore x - 2 = 0 \quad \therefore x = (+2)$$

(66) What is the oxidation number of underlined nitrogen in $\text{NH}_4\underline{\text{N}}\text{O}_3$?

- (a) -3 (b) +3 (c) +5 (d) -1

Ans: (c)

Hint: $\text{NH}_4^+ + \text{N} + 3(\text{O}) = 0$,

$$\therefore +1 + x + 3(-2) = 0$$

$$x = +5$$

(67) What is the name of Cu_2O according to stock notation?

- (a) copper (II) oxide (b) cuprous (II) oxide
(c) cupric (II) oxide (d) copper (I) oxide

Ans: (d)

(68) For what stock notation is used?

- (a) metals (b) non-metals (c) silicon (d) ideal gas

Ans: (a)

(69) Give the stock notation for CuSO_4 .

- (a) Copper sulphate (b) Copper (I) sulphate
(c) Copper (II) sulphate (d) Copper (II) sulphur (VI) oxide

Ans: (c)

(70) What is the oxidation number of hydrogen in LiAlH_4 ?

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

Ans: (c)

Hint: Here, LiAlH_4 is Lithium Aluminium Hydride. In hydrides the oxidation number of hydrogen is (-1).

(71) What is the oxidation number of oxygen in hydrogen peroxide?

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

Ans: (c)

(72) How many electrons are gained when 1 mole of $\text{Cr}_2\text{O}_7^{2-}$ is reduced to Cr^{3+} ?

- (a) 3 (b) 6 (c) 9 (d) 12

Ans: (b)

Hint: $\text{Cr}_2\text{O}_7^{2-} + 6e^- \rightarrow \text{Cr}^{3+}$

(73) Give the stock notation of $\text{K}_2\text{Cr}_2\text{O}_7$.

(a) Potassium dichromate

(b) Potassium (II) dichromate

(c) Potassium (I) dichromate

(d) Potassium dichromate (VI)

Ans: (d)

(74) What is the oxidation number of Fe in Fe_3O_4 ?

(a) +2

(b) +3

(c) +2.66

(d) 0

Ans: (c)

Hint: $3x + 4(-2) = 0$

$$x = 8/3 = +2.66$$

(75) Is the oxidation number in CO_2 and CH_4 same?

(a) Yes

(b) No

(c) Partially same

(d) can't comment

Ans: (b)

Hint: Here the oxidation number of carbon in CO_2 is +4 while in CH_4 it is -4.

(76) Can phosphorus have a negative oxidation state?

(a) Yes

(b) No

(c) Yes but up to -1 only

(d) Yes but up to -2 only

Ans: (a)

Hint: In PH_3 phosphine, the oxidation state of phosphorous is (-3).

(77) The process in which oxidation number increases is known as

(a) Oxidation

(b) Reduction

(c) Auto-oxidation

(d) None of the above

(78) $\text{Zn}_{(\text{aq})}^{2+} + 2\text{e}^- \rightarrow \text{Zn}(\text{s})$. This is

(a) Oxidation

(b) Reduction

(c) Redox reaction

(d) None

Ans: (b)

Hint: Gain of electrons is called reduction.

(79) In which of the following reactions there is no change in valency?

(a) $4\text{KlCO}_3 \rightarrow 3\text{KClO}_4 + \text{KCl}$

(b) $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$

(c) $\text{BaO}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + \text{H}_2\text{O}_2$

(d) $2\text{BaO} + \text{O}_2 \rightarrow 2\text{BaO}_2$

Ans: (c)

Hint: Here the oxidation number of any of the components are not changing.

(80) When P reacts with caustic soda, the products are PH_3 and NaH_2PO_2 . This reaction is an example of:

(a) Oxidation

(b) Reduction

(c) Oxidation and reduction (Redox)

(d) Neutralization

Ans: (c)

Hint: The oxidation number of P in PH_3 is -3 and in NaHPO_2 is $+1$.

(81) The conversion of PbO to $\text{Pb}(\text{NO}_3)_2$ is:

(a) Oxidation

(b) Reduction

(c) Neither oxidation nor reduction

(d) Both oxidation and reduction



Ans: (b)

Hint: Here hydrogen is oxidized and chlorine is reduced.

(86) In the chemical reaction



- (a) Manganese ion is oxidized (b) Manganese ion is reduced
(c) Chloride ion is oxidized (d) Chloride ion is reduced

Ans: (b)

Hint: Oxidation number of Mn is decreased from +4 to +2 hence reduction.

(87) Which of the following is not a redox reaction?

- (a) $2\text{Rb} + 2\text{H}_2\text{O} \rightarrow 2\text{RbOH} + \text{H}_2$ (b) $2\text{CuI}_2 \rightarrow 2\text{CuI} + \text{I}_2$
(c) $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$ (d) $4\text{KCN} + \text{Fe}(\text{CN})_2 \rightarrow \text{K}_4\text{Fe}(\text{CN})_6$

Ans: (d)

Hint: Oxidation number does not change

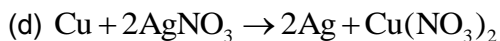
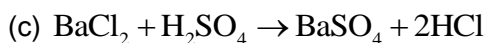
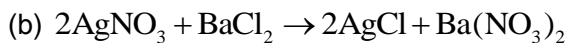
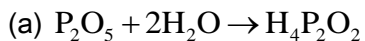
(88) Which of the following is a redox reaction?

- (a) $\text{NaCl} + \text{KNO}_3 \rightarrow \text{NaNO}_3 + \text{KCl}$
(b) $\text{CaC}_2\text{O}_4 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{C}_2\text{O}_4$
(c) $\text{Mg}(\text{OH})_2 + 2\text{NH}_4\text{Cl} \rightarrow \text{MgCl}_2 + 2\text{NH}_4\text{OH}$
(d) $\text{Zn} + 2\text{AgCN} \rightarrow 2\text{Ag} + \text{Zn}(\text{CN})_2$

Ans: (d)

Hint: Here Zn is oxidised and Ag is reduced.

(89) Which of the following reaction is a redox reaction?



Ans: (d)

Hint: Here Cu is oxidized and Ag is reduced.

(90) When Fe^{2+} changes to Fe^{3+} in a reaction:

(a) It loses an electron

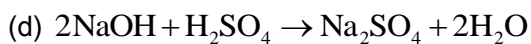
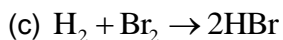
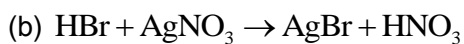
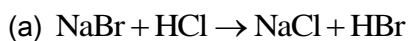
(b) It gains an electron

(c) It loses a proton

(d) It gains a proton

Ans: (a)

(91) Which of the following reactions involves oxidation–reduction both?



Ans: (c)

(92) When Sn^{2+} changes to Sn^{4+} in a reaction:

- (a) It loses two electrons (b) It gains two electrons
(c) It loses two protons (d) It gains two protons

Ans: (a)

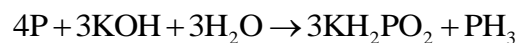
(93) The conversion of sugar $\text{C}_{12}\text{H}_{22}\text{O}_{11} \rightarrow \text{CO}_2$ is:

- (a) Oxidation (b) Reduction (c) Both (a), (b) (d) None of these

Ans: (a)

Hint: Here the oxidation number of carbon increases from 0 to +4, hence oxidation.

(94) In the following reaction,



- (a) P is oxidized as well as reduced (b) P is reduced only
(c) P is oxidised only (d) None of these

Ans: (a)

Hint: Oxidation number of phosphorous increases from 0 to (+1) and decreases from 0 to (-3), hence both oxidation and reduction.

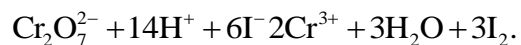
Balancing of redox reactions

(95) Which of the following method cannot be used for balancing a redox reaction?

- (a) Oxidation number method (b) Half reaction method
(c) Full reaction method (d) None

Ans: (c)

(96) In the following reaction



- (a) Cr (b) H (c) O (d) I

Ans: (a)

Hint: Oxidation number of Cr decreases from (+6) to (+3), hence reduced.

(97) The value of x in the partial redox equation $\text{MnO}_4^- + 8\text{H}^+ + xe^- \rightarrow \text{Mn}^{2+} + 4\text{H}_2\text{O}$

- (a) 5 (b) 3 (c) 1 (d) 0

Ans: (a)

Hint: $\text{MnO}_4^- + 8\text{H}^+ + 5e^- \rightarrow \text{Mn}^{2+} + 4\text{H}_2\text{O}$

(98) $\text{C}_2\text{H}_{4(g)} + n\text{O}_{2(g)} \rightarrow \text{CO}_{2(g)} + \text{H}_2\text{O}_{(l)}$ In this equation, the ratio of the coefficients of CO_2 and H_2O is:

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

Ans: (a)

Hint: $\text{C}_2\text{H}_4 + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 2\text{H}_2\text{O}$

\therefore Coefficient of $\text{CO}_2 : \text{H}_2\text{O} = 2 : 2 = 1 : 1$

(99) In $\text{Ni}(\text{CO})_4$, the oxidation state of Ni is:

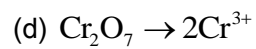
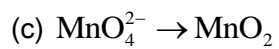
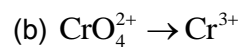
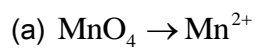
- (a) 4 (b) 0 (c) 2 (d) 8

Ans: (b)

Hint: $\text{Ni}(\text{CO})_4 : x + 4(0) = 0$

$$\therefore x = 0$$

(100) In which one of the following changes there are transfer of five electrons?



Ans: (a)

Hint: Here oxidation state of Mn decreases from +7 to +2, hence there is transfer of 5 electrons.