AXAY SIR'S CHEMISTRY (Sem-1 full test -2)

1) The weight of a molecule of the compound is

(a) g (b) g

(c) g (d) g

2) Which one of the following pairs of gases contains the same number of molecules

(a) 16 g of and 14 g of

(b) 8 g of and 22 g of

(c) 28 g of and 22 g of

(d) 32 g of and 32 g of

3) The volume occupied by 4.4 g of at STP is

(a) 22.4 L (b) 2.24 L

(c) 0.224 L (d) 0.1 L

4) If the atomic weight of an element is 23 times that of the lightest element and it has 11 protons, then it contains

(a) 11 protons, 23 neutrons, 11 electrons

(b) 11 protons, 11 neutrons, 11 electrons

(c) 11 protons, 12 neutrons, 11 electrons

(d) 11 protons, 11 neutrons, 23 electrons

5) The frequency of an electromagnetic radiation is $2\times10^{6}\,Hz$. What is its wavelength in metres

(Velocity of light $=3\times10^{8}\,ms^{-1}$)

(a) 6.0×10^{14} (b) 1.5×10^{4}

(c) 1.5×10^{2} (d) 0.66×10^{-2}

6) Radius of the first Bohr's orbit of hydrogen atom is

(a) 1.06 Å (b) 0.22 Å

(c) 0.28 Å (d) 0.53 Å

7)Splitting of spectral lines under the influence of magnetic field is called

(a) Zeemaneffect(b)Stark effect(c)Photoelectric effect (d)None of these

8) Minimum de-Broglie wavelength is associated with **[RPMT 1999]**

(a) Electron (b) Proton

(c) CO_2 molecule (d) SO_2 molecule

9 Which one is not the correct relation in the following

(a) $h=\frac{E}{v}$ (b) $E=mc^2$

(c) $\Delta x\times\Delta p=\frac{h}{4\pi}$ (d) $\lambda=\frac{h}{mv}$

10) The tenth elements in the periodic table resembles with the

[CPMT 1988]

(a) First period (b) Second period

(c) Fourth group (d) Ninth group

11)Which of the following pairs has both members from the same period of the periodic table

[CPMT 1985; UPSEAT 2001; BHU 2003]

(a) $Na-Ca$ (b) $Na-Cl$

(c) $Ca-Cl$ (d) $Cl-Br$

12)Which one is the correct order of the size of the iodine species

[Pb. CET 1986; CBSE PMT 1997; Kurukshetra CEE 1998; RPMT 1999; DCE 1999; MP PET 2000; MP PMT 2001; BCECE 2005]

(a) $I>I^{+}>I^{-}$ (b) $I>I^{-}>I^{+}$

(c) $I^{+}>I^{-}>I$ (d) $I^{-}>I>I^{+}$

13) The ionic radii of N^{3-}, O^{2-}, F^{-} and Na^{+} follow the order **[MP PET/PMT 1998; MP PMT 2000]**

(a) $N^{3-} > O^{2-} > F^{-} > Na^{+}$

(b) $N^{3-} > Na^{+} > O^{2-} > F^{-}$

(c) $Na^{+} > O^{2-} > N^{3-} > F^{-}$

(d) $O^{2-} > F^{-} > Na^{+} > N^{3-}$

14) When a neutral atom is converted into cation, there is

(a) Decrease in the atomic number

(b) An increase in the atomic number

(c) A decrease in size

(d) An increase in size

15) A trend common to both groups I and VII elements in the periodic table as atomic number increases is

(a) Oxidising power increases

(b) Atomic radius increases

(c) Maximum valency increases

(d) Reactivity with water increases

16) Ionization potential is lowest for

(a) Halogens (b) Inert gases

(c) Alkaline earth metals (d) Alkali metals

17) In the reaction $3Mg + N_2 \rightarrow Mg_3N_2$]

(a) Magnesium is reduced (b)Magnesium is oxidized

(c) Nitrogen is oxidized (d) None of these

18) $Zn^{2+}(aq) + 2e \rightarrow Zn(s)$. This is **[CPMT 1985]**

(a) Oxidation (b) Reduction

(c) Redox reaction (d) None of these

19) In the following reaction

$$Cr_2O_7^{-} + 14H^{+} + 6I^{-} \rightarrow 2Cr^{3+} + 3H_2O + 3I_2$$

Which element is reduced]

(a) Cr (b) H

(c) O (d) I

20)The conversion of sugar $C_{12}H_{22}O_{11} \rightarrow CO_2$ is

(a) Oxidation

(b) Reduction

(c) Neither oxidation nor reduction

(d) Both oxidation and reduction

21)In the reaction

$$P + NaOH \rightarrow PH_3 + NaH_2PO_2$$ **[MP PET 2004]**

(a) *P* is oxidised only

(b) *P* is reduced only

(c) *P* is oxidized as well as reduced

(d) Na is reduced

22) The valency of *Cr* in the complex $[Cr(H_2O)_4Cl_2]^{+}$

(a) 1 (b) 3

(c) 5 (d) 6

23) In the conversion $Br_2 \rightarrow BrO_3^{-}$, the oxidation state of bromine changes from

(a) – 1 to – 1 (b) 0 to – 1

(c) 0 to + 5 (d) 0 to – 5

24) Heavy water is

(a) Water containing *Fe, Cr, Mn*

(b) Water at 0°*C*

(c) D_2O

(d) Water obtained after a number of distillations

25)Temporary hardness of water can be removed by

(a) Addition of potassium permagenate
(b) Boiling
(c) Filtration
(d) Addition of chlorine

26)When zeolite (Hydrated sodium aluminium silicate) is treated with hard water the sodium ions are exchanged with

(a) OH^- ions (b) SO_4^{2-} ions
(c) Ca^{2+} ions (d) H^+ ions

27) The velocity of neutrons in nuclear reactor is slowed down by

(a) Heavy water (D_2O) (b) Ordinary water (H_2O) (c) Zinc rod (d)Fused caustic soda

28) The molarity of pure water at $4°C$ is

(a) 1 M (b) 2.5 M
(c) 5 M (d) 55.5 M

*29)*As compared to potassium, sodium has

(a) Lower electronegativity
(b) Higher ionization potential
(c) Greater atomic radius
(d) Lower melting point

30)Potassium is kept in

(a) Alcohol (b) Water
(c) Kerosene (d) Liquid ammonia

31)Which is an ore of potassium

[DPMT 1984; CPMT 1986; Kurukshetra CEE 1998]

(a) Carnellite (b) Cryolite
(c) Bauxite (d) Dolomite

32) Na_2CO_3 can be manufactured by Solvey's process but K_2CO_3 cannot be prepared because

(a) K_2CO_3 is more soluble
(b) K_2CO_3 is less soluble
(c) $KHCO_3$ is more soluble than $NaHCO_3$
(d) $KHCO_3$ is less soluble than $NaHCO_3$

33)Solvay's process is used for the preparation of

(a) Ammonia (b) Sodium bicarbonate
(c) Sodium carbonate (d) Calcium carbonate

34)Soda ash is **[KCET 1993]**

(a) $Na_2CO_3.H_2O$ (b) $NaOH$
(c) Na_2CO_3 (d) $NaHCO_3$

35)If Na is heated in presence of air, it forms **[AFMC 2002]**

(a) Na_2CO_3 (b) Na_2O_2
(c) Na_2O (d) Both (b) and (c)

36)The outer electronic configuration of alkaline earth metal is

[BHU 1980; CPMT 1985, 93; MP PAT 1993]

(a) ns^2 (b) ns^1
(c) np^6 (d) nd^{10}

37)The IUPAC name of $CH_3-\underset{\underset{OH}{|}}{CH}-CH_2-\underset{\underset{CH_3}{|}}{CH}-CHO$ will be

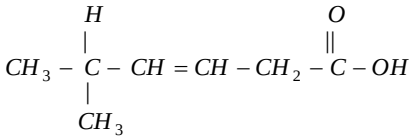
(a) 4-hydroxy-1-methylpentanal
(b) 4-hydroxy-2-methylpentanal
(c) 3-hydroxy-2-methylpentanal
(d) 3-hydroxy-3-methylpentanal

38)IUPAC name of tertiary butyl alcohol is

[CPMT 1994]

(a) Butan-1-ol (b) Butan-2-ol

(c) 2-methyl propan-1-ol (d) 2-methyl propan-2-ol

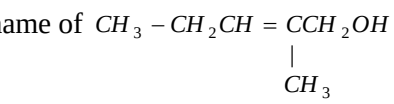
39)What is the correct IUPAC name for  **[MP PET 1995]**

(a) 5-methyl-3-hexenoic acid

(b) 5-carboxyl-2-methylpentene

(c) 4-isopropyl-3-butenoic acid

(d) None of above

40)The IUPAC name of  will be

[MP PET/PMT 1988]

(a) 2-methyl pentyl alcohol

(b) 4-methyl-3-pentene-ol

(c) 2-methyl pent-2-ene-1-ol

(d) 4-methyl pentyl alcohol

Part – B 2 markers

41)One litre of a gas at STP weight 1.16 *g* it can possible be (find for 22.4 lit)

(a) C_2H_2 (b) CO

(c) O_2 (d) CH_4

42) How many molecules are present in one gram of hydrogen **[AIIMS 1982]**

(a) 6.02×10^{23} (b) 3.01×10^{23}

(c) 2.5×10^{23} (d) 1.5×10^{23}

43) Which one of the following set of quantum numbers is not possible for $4p$ electron **[EAMCET 1998]**

(a) $n=4, l=1, m=-1, s=+\frac{1}{2}$

(b) $n=4, l=1, m=0, s=+\frac{1}{2}$

(c) $n=4, l=1, m=2, s=+\frac{1}{2}$

(d) $n=4, l=1, m=-1, s=+\frac{1}{2}$

44)Which of the following orbital is not possible

(a) 3 *f* (b) 4 *f*

(c) 5 *f* (d) 6 *f*

*45)*Which set of quantum numbers for an electron of an atom is not possible

(a) $n=1, l=0, m=0, s=+1/2$

(b) $n=1, l=1, m=1, s=+1/2$

(c) $n=1, l=0, m=0, s=-1/2$

(d) $n=2, l=1, m=-1, s=+1/2$

46)Electronic configuration of ferric ion is

(a) $[Ar]3d^5$ (b) $[Ar]3d^7$

(c) $[Ar]3d^3$ (d) $[Ar]3d^8$

47)The electronic configuration of the element which is just above the element with atomic number 43 in the same periodic group is **, 02]**

(a) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^5\ 4s^2$

(b) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^{10}\ 4s^2\ 4p^5$

(c) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^6\ 4s^1$

(d) $1s^2\ 2s^2\ 2p^6\ 3s^2 3p^6\ 3d^{10}\ 4s^1\ 4p^6$

48) In which block 106^{th} element belongs

(a) *s*-block (b) *p*-block

(c) *d*-block (d) *f*-block

49) Hydrogen ion H^- is isoelectronic with

(a) *Li* (b) *He*

(c) H^+ (d) Li^-

50)

In lab H_2O_2 is prepared by

(a) Cold $H_2SO_4 + BaO_2$ (b) $HCl + BaO_2$

(c) Conc. $H_2SO_4 + Na_2O_2$ (d) $H_2 + O_2$

51)

Match list I with list II and select the correct answer using the codes given below the lists]

	List I	List II
1.	Heavy water	(a) Bicarbonates of *Mg* and *Ca* in water
2.	Temporary hard water	(b) No foreign ions in water
3.	Soft water	(c) D_2O
4.	Permanent hard water	(d) Sulphates and chlorides of *Mg* and *Ca* in water

Codes

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

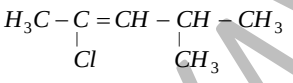
(c) 1-*b*, 2-*d*, 3-*c*, 4-*a* (d) 1-*c*, 2-*a*, 3-*b*, 4-*d*

*52)*The alkali metal that reacts with nitrogen directly to form nitride is

(a) *Li* (b) *Na*

(c) *K* (d) *Rb*

53)



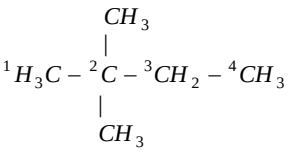
(a) 2-chloro-4-methyl-2-pentene

(b) 4-chloro-2-methyl-3-pentene

(c) 4-methyl-2-chloro-2-pentene

(d) 2-chloro-4, 4-dimethyl-2-butene

54)In the structure



Which one is quarternary carbon atom

(a) $C-1$ (b) $C-2$

(c) $C-3$ (d) $C-5$

Part – c 3 markers

55) The weight of 1×10^{22} molecules of $CuSO_4.5H_2O$ is

(a) 41.59 *g* (b) 415.9 *g*

(c) 4.159 *g* (d) None of these

56) Which of the following are isoelectronic species $I=CH_3^+, II-NH_2, III-NH_4^+, IV-NH_3$

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

(c) I, II, IV (d) I and II

57) The frequency of yellow light having wavelength 600 *nm* is

(a) $5.0\times10^{14}\ Hz$

(b) $2.5\times10^{7}\ Hz$

(c) $5.0\times10^{7}\ Hz$

(d) $2.5\times10^{14}\ Hz$

58)Number of nucleons in D_2 molecule is

(a) 1 (b) 2

(c) 3 (d) 4

59)Which alkali metal is most metallic in character

(a) *K* (b) *Cs*

(c) *Na* (d) *Li*

60)An organic compound containing *C*, *H* and *N* gave following analysis : *C* = 40%, *H* = 13.33% and *N* = 46.67%. Its empirical formula would be

(a) $C_2H_7N_2$ (b) CH_5N

(c) CH_4N (d) C_2H_7N

Part – D 4 markers

61) IUPAC name of $(CH_3)_3C-CH=CH_2$ is

[NCERT 1978, 81; IIT-JEE 1984; DPMT 1986; CPMT 1989; CBSE PMT 1991; AIIMS 1997; MP PMT 2001; KCET 2003]

(a) 3,3,3-trimethyl-1-propene

(b) 1,1,1-trimethyl-2-propene

(c) 3,3-dimethyl-1-butene

(d) 2,2-dimethyl-3-butene

62)

Which of the following has least mass

(a) 2 *g* atom of nitrogen (b) 3×10^{23} atoms of *C*

(c) 1 mole of *S* (d) 7.0 *g* of *Ag*

63) Rearrange the following (I to IV) in the order of increasing masses and choose the correct answer from (a), (b), (c) and (d) (Atomic mass: *N*=14, *O*=16, *Cu*=63).

I. 1 molecule of oxygen

II. 1 atom of nitrogen

III. 1×10^{-10} g molecular weight of oxygen

IV. 1×10^{-10} g atomic weight of copper

(a) II<I<III<IV (b) IV<III<II<I

(c) II<III<I<IV (d) III<IV<I<II

64) An atom with atomic number 21 belongs to the category of

(a) *s* -block elements (b) *p* -block elements

(c) *d* -block elements (d) *f* -block elements