DEPARTMENT OF EDUCATION
CENTRAL TIBETAN ADMINISTRATION, DHARAMSHALA
ENTRANCE EXAMINATION-2012.

CHEMISTRY

Time : 1 hours **Max. Marks 50.**

INSTRUCTIONS:

There are fifty questions in this paper. All the questions are of Multiple Choice type and carry equal marks. Each question is followed by four responses marked **(a), (b), (c)** and **(d).** Select the one, which is the best in each case and record it clearly against the question number on the answer sheets provided with the paper.

More than one response indicated against an item or overwriting in the answer sheet would deem as incorrect response and no mark will be granted on that.

Question paper along with the answer sheet of the paper should be returned to the invigilator after the completion of the paper or when the time is over whichever is earlier.

Roll No._____

Marks obtained by the candidate:

_____

Signature of Examiner

CHEMISTRY-2012

Q.1. Which is the correct value of $(n+l)$ for 21^{st} e^{-1} in an atom

(a) 4 (b) 5

(c) 6 (d) None

Q.2. What is the ratio of energy of 4^{th} shell to 5^{th} shell e^- in He^+ ion

(a) 5 : 4 (b) 4 : 5

(c) 3 : 4 (d) None

Q.3. What is the Dec order of *Ionization* Energy of 29^{th} , 30^{th} e^- of an atom

(a) $29^{th} > 30^{th}$ (b) $30^{th} > 29^{th}$

(c) $30^{th} = 29^{th}$ (d) Data is short

Q.4. The shape of ICl_4^- is

(a) Square planer (b) Distorted Pyramidal

(c) Octahedral (d) Pyramidal

Q.5. The net Dipole Moment of which is not zero

(a) PCl_5 (b) CO_2

(c) SF_6 (d) O_2F_2

Q.6. Decreasing order of melting point of butane pentane hexane is

(a) Hexane > Pentane > Butane (b) Butane > Hexane > Pentane

(c) Hexane > Butane > Pentane (d) Pentane > Hexane > Butane

Q.7. The ΔG_f^0 of which is not zero

(a) $S_{(Monoclinic)}$ (b) $Br_2(l)$

(c) I_2 (Solid) (d) $C_{(graphite)}$

Q.8. The value of $\Delta H^0 - T\Delta S^0$ is $-ve$ for

(a) ΔH^0 *Exo* ; Low T $\Delta S^0 = +ve$ (b) ΔH^0 *Endo* ; very high T $\Delta S^0 = +ve$

(c) Both (d) None

Q.9. The value of unpaired e^- is maximum in

(a) Br^- (b) O_2

(c) O_2^{2-} (d) O_2^+

Q.10. The confirmation of Ethane with more unstability is

(a) Staggered (b) Partially Eclipsed

(c) Partially staggered (d) Eclipsed

Q.11. The kjeldahl method is not suitable for

(a) Sulphonamide (b) Cyclic Amides

(c) Cyclic amide with six atom chain (d) All of them

Q.12. Which has maximum *Ionization* Energy

(a) O^{2-} (b) F^{1-}

(c) N^{3-} (d) All equal

Q.13. The Iodoform test is not given by

(a) Ethanal (b) Methanal

(c) Propanone (d) Butanone

Q.14. The number of σ Bonds in Ethyl acetate is

(a) 11 (b) 12

(c) 14 (d) None

Q.15. The compound of Hydrogen with least Bond angle is

(a) H_2O (b) NH_3

(c) $(H_3O)^+$ (d) PH_4^+

Q.16. The number of optically active 'C' in open chain and cyclic Glucose are respectively

(a) 4, 5 (b) 5, 5

(c) 5, 4 (d) 4, 6

Q.17. The strength of 200 cc solution having 15.8 gm/mole of $KMnO_4$ is

(a) 79 gm/litr (b) 7.9 gm/litr

(c) .79 gm/litr (d) None

Q.18. Which is correct for fructose?

(a) It is reducing (b) It is Ketose

(c) It is Sugar (d) All

Q.19. The value of σ Bonds in $\bullet 1$ Mole $Ca(NO_3)_2$ is

(a) $\bullet 6N_A$ (b) $6N_A$

(c) $\bullet 2N_A$ (d) None

Q.20. Which is not hydrolyzed?

(a) CCl_4 (b) $SiCl_4$

(c) PCl_3 (d) SF_4

Q.21. Which has more number of optical isomers?

(a) 2 butanol (b) 3 Pentanol

(c) 1 Pentanol (d) All equal

Q.22. Which is correct?

(a) The o / w emulsions have more mobility for ions than w / o emulsion

(b) o / w emulsion show more conductivity for ion than in w / o emulsion

(c) Both are correct

(d) Both are incorrect

Q.23. The compound with ionic character is

(a) $SnCl_2$ (b) $SnCl_4$

(c) SnO_2 (d) All

Q.24. The 1st order reactions have slope of log(A) vs t as

(a) – k (b) $\frac{-2.303}{k}$

(c) $\frac{-k}{2.303}$ (d) None

Q.25. The metal with less Red pot, then H^+/H when attached with Hydrogen electrode, acts as

(a) A node (b) Cathode

(c) Depends upon solvent nature (d) All are correct

Q.26. The value of x in $Bex[Si_2O_7]$ is

(a) 2 (b) 3

(c) 4 (d) None

Q.27. The formula for Calgon, used for softening of hard water is

(a) $(NaPO_3)_5$ (b) $(NaPO_3)_4$

(c) $(NaPO_3)_6$ (d) None

Q.28. The H_3BO_3 Molecule is bonded by hydrogen bonding to

(a) 5 molecules (b) 6 molecules

(c) 1 molecules (d) None

Q.29. Which is not an antiseptic?

(a) CHI_3 (b) $CHCl_3$

(c) Phenol (d) I_2

Q.30. Which Glucose is readily absorbed by enzymes?

(a) α (b) β

(c) Both (d) None

Q.31. The metals purified by electrolytic refining are

(a) Zn (b) Cu

(c) Ag (d) All

Q.32. The $(\text{Activation Energy})_{\text{Reactants}}$ for highly endothermic reaction is

(a) Very less

(b) Very large

(c) Depends upon stability of reactant

(d) None of them

Q.33. Which has least freezing point?

(a) $\bullet 1m\ CaCl_2$ (b) $\bullet 1m\ AlCl_3$

(c) $\bullet 1m\ Ca_3(PO_4)_2$ (d) $\bullet 1m$ Glucose

Q.34. The value of Surface Tension is unbalanced

(a) Force per unit length of liquid Surface

(b) Force per unit area of liquid Surface

(c) Force per unit volume of liquid Surface

(d) None of these

Q.35. Products of which of them will be nearly neutral in water

(a) $\bullet 1M$ Acid Chloride

(b) $\bullet 1M$ Acid Anlvydride

(c) $\bullet 1M$ Acid Amide

(d) $\bullet 1M$ Ester

Q.36. (i) $\bullet 1$ Molar urea (ii) $\bullet 1m$ Glucose (iii) $\bullet 1m$ Fruclose (iv) $\bullet 1m$ Sucrose

(a) All have same RLVP (b) All have same BP

(c) Both of these (d) None of these

Q.37. The value of 'i' for 40% ionized Benzoic Acid

(a) .95 (b) .095

(c) .098 (d) None

Q.38. Which is nearly non polar solvent?

(a) Pyridine (b) $CHCl_3$

(c) Diethyl ether (d) None

Q.39. $A \xrightarrow{Br_2 / KOH} B \xrightarrow{HNO_2} N_2$ fumes

A has minimum 'C'

(a) 2 (b) 3

(c) 4 (d) None

Q.40. $A \xrightarrow{Cl_2 / h\upsilon} B \xrightarrow{KOH(Alc)} D \xrightarrow{O_3 / Zn} E + F$

E $\rightarrow$ Show Iodoform, Tollen's Reagent, Aldol

F $\rightarrow$ Show Aldol, No Iodoform, Tollen's Reagent

Minimum 'C' in 'A' is

(a) 4 (b) 3

(c) 5 (d) None

Q.41. Which is having maximum number of atoms of Ca

(a) $\bullet 2M$ $CaSO_4$ (b) $\bullet 2M$ Calcium Chloride

(c) $\bullet 2M$ Ca oxalate (d) $\bullet 2M$ Ca Phosphate

Q.42. The Gas with least critical temperature is:

(a) He (b) Ne

(c) Ar (d) H_2

Q.43. The Amine which will not give N_2 fumes with Nitrous Acid

(a) Sulphonanides (b) Cyclic Amide

(c) Both (d) None

Q.44. The Carboxylic Acid does not give

(a) Neutralization with $NaOH$

(b) Reaction with Zn

(c) Carbonyl group test

(d) All of these

Q.45. The pH of which solution is maximum

(a) $\bullet 3$ Molar $Ca(OH)_2$ (b) $\bullet 3M$ $Ba(OH)_2$

(c) $\bullet 2M$ $Ca(OH)_2$ (d) $\bullet 2M$ $NaOH$

Q.46. Which will not produce acidic solution?

(a) $(NH_4)_2CO_3$ (b) $(NH_4)(HCO_3)$

(c) $(NH_4)_2SO_3$ (d) All

Q.47. The ion with maximum mobility in water is

(a) Ca^{2+} (b) Sr^{2+}

(c) Na^{+} (d) Ba^{2+}

-Q.48. The common Ion effect is not valid for

(a) $NH_4Cl + NH_4OH$ (b) $H_2S + HCl$

(c) $NaCl + NaOH$ (d) $(NH_4)_2CO_3 + H_2CO_3$

Q.49. The method used for preparation of $NaOH$ is:

(a) Down cell
(b) Castner kellner cell
(c) Solvay process
(d) None

Q.50. The number of e^- with clockwise spin in
At no. 41 is:

(a) 22
(b) 21
(c) 20
(d) None

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ANSWER SHEET FOR **CHEMISTRY**	**Roll No.**	

Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.
1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	
36		37		38		39		40	
41		42		43		44		45	
46		47		48		49		50	