CHEMISTRY

QUESTION SET-4

1. The compound formed as a	result of oxidation of ethyl benzene by KMnO ₄ is			
a)methylamine	b)trimethylamine			
c)aniline	d)dimethylamine			
2. Which of the following spec	cies exhibits the diamagnetic behavior?			
a)NO	$b)O_2^{2-}$			
c)O ₂ ⁺	$d)O_2$			
3. The first and second dissoc	eiation constants of an acid H_2A are $1.0x10^{-5}$ and $5.0\ x10^{-10}$			
respectively. The overall disse	ociation constant of the acid will be			
a)0.2x10 ⁵	b) 5.0×10^{-5}			
c) 5.0×10^{-15}	$d)5.0 \times 10^{-15}$			
4. Consider the reaction 2A+	$B \rightarrow Products$. When concentration of B alone was doubled,			
the half life did not change.	When the concentration of A alone was doubled, the rate			
increased by two times .The u	unit of rate constant for this reaction is			
a)s ⁻¹	b)Lmol ⁻¹ s ⁻¹			
c)no unit	d)mol $L^{-1}s^{-1}$			
5. Which of the following has	a square planar geometry?			
$a)[PtCl_4]^{2-}$	b) $[CoCl_4]^{2-}$			
c)[FeCl ₄] ²⁻	$d)[NiCl_4]^{2-}$			
6 .The secondary structure of a	a protein refers to			
a)fixed configuration of the pe	oly peptide backbone			
b)α-helical backbone				
c)hydrophobic interaction				
d)sequence of α -amino acids				
7. Which of the following reac	etions will yield 2,2-dibromopropane?			
a)CH ₃ -CH=CH ₂ +HBr \rightarrow				

b)CH₃-CH₃
$$\cong$$
CH +2HBr \rightarrow

c)CH₃CH=CHBr +HBr
$$\rightarrow$$

$$d)CH\cong CH + HBr \rightarrow$$

8.In a chemical reaction,

 $CH_3CH_2NH_2$ + $CHCl_3$ +3KOH \rightarrow (A) +(B)+ H_2O ,the compound (A) and(B) are respectively

a)C₂H₅NC and 3 KCl

b) C₂H₅CN and 3 KCl

c) CH₃CH₂CONH₂ and 3 KCl

- d) C₂H₅NC and 3 K₂CO₃
- **9**.Presence of a nitro group in a benzene ring
- a)deactivates the ring towards eletctrophilic substitution
- b)activates the ring towards eletctrophilic substitution
- c)renders the ring basic
- d) deactivates the ring towards nucleophilic substitution

10.In which of the following ionization processes, the bond order has increased and the magnetic behavior has changed?

$$a)N_2 \rightarrow N_2^+$$

b)
$$C_2 \rightarrow C_2^+$$

c)NO
$$\rightarrow$$
NO $^+$

$$d)O_2 \rightarrow O_2^+$$

11.The actinoides exhibit more number of oxidation states in general than the lanthanoides,.This is because

- a)the 5f orbital extend further from the nucleaus than 4f orbital
- b)the 5f orbital are more buried tan 4f orbital
- c)there is similarity between 4f and 5f orbitals in their angular part of the wave function
- d)the actinoids are more reactive than the lanthanoids
- 12. Which of the following solutions will have the lowest freezing point?
- a) 1% aqueous solution of sodium chloride
- b) 1% aqueous solution of methyl alcohol
- c)1% aqueous solution of fructose
- d)1% aqueous solution of alcohol

13. Regular use of the following fer	13. Regular use of the following fertilizers increases the acidity of soil				
a)ammonium sulphate	b)potassium nitrate				
c)urea	d)superphosphate of lime				
14. Identify the correct statement re	14. Identify the correct statement regarding a spontaneous process,				
a) Lowering of energy in the reaction process is the only criterion for spontaneity					
b) For spontaneous process in an isolated system					
c) Endothermic processes are never spontaneous					
d) Exothermic processes are always spontaneous					
15 .Whic of the following nuclear real β-particle emission	eaction will generate an isotope				
b)neutron particle emission	7. 2				
c)positron emission					
d)α-particle emission					
16. The weight of calcium hydroxide in	n 100 ml of 0.01 molar solution will be				
a)36.5g b)0.148g					
c)0.074g	d)2.5g				
17. Which of the following has the minimum boiling point?					
a)n-butane	b)1-butyne				
c)1-butene	d)isobutene				
18 . Which of the following will have a meso-isomer also?					
a)2-chlorobutane	b)2,3-dichlorobutane				
c)acetonitrile	d)acetamide				

19. The compound formed on heating chlorobenezene with chloral in the presence of concentrated sulphuric acid is
a)gammexene
b)DDT
c)Freon
d)hexachloroethane

20.Which of the following is reduced with zinc and hydrochloric acid to give the corresponding hydrocarbon

a)ethyl acetate b)acetic acid

c)acetamide d)butan-2-one

ANSWERS OF SET -4

Questions	Answer
1	D
2	A
3	A C C
4	
2 3 4 5 6	В
6	В
7	D
8	A
9	С
10	A
11	A
12	A
13	C
14	В
15	D
16	D
17	В
18	В
19	A
20	A