

SATISH SCIENCE ACADEMY

Where We Shape The Career

Time :

Date :

MHT-CET CHEMISTRY MOCK TEST 02

No. MCQ

1. The degree of ionization of a compound depends on
(a) Size of solute molecules
(b) Nature of solute molecules
(c) Nature of vessel used
(d) Quantity of electricity passed
2. In which of the following dissociation of NH_4OH will be minimum
(a) $NaOH$ (b) H_2O
(c) NH_4Cl (d) $NaCl$
3. The solubility of CaF_2 is a moles/litre. Then its solubility product is
(a) s^2 (b) $4s^3$
(c) $3s^2$ (d) s^3
4. Which one is a mixed salt
(a) $NaHSO_4$ (b) $NaKSO_4$
(c) $K_4Fe(CN)_6$ (d) $Mg(OH)Cl$
5. Amongst the following, the form of water with the lowest ionic conductance at 298 K is:
(a) distilled water
(b) sea water
(c) water from well
(d) saline water used for intravenous injection
6. An electrochemical cell is set up as follows
 $Pt(H_2, 1 atm) / 0.1 M HCl$
 $|| 0.1 M$ acetic acid $/(H_2, 1 atm) Pt$
E.M.F. of this cell will not be zero because
(a) The pH of $0.1 M HCl$ and $0.1 M$ acetic acid is not the same
(b) Acids used in two compartments are different
(c) E.M.F. of a cell depends on the molarities of acids used
(d) The temperature is constant
7. The *e.m.f.* of a cell whose half cells are given below is
 $Mg^{2+} + 2e^- \rightarrow Mg(s) E^\circ = -2.37 V$
 $Cu^{2+} + 2e^- \rightarrow Cu(s) E^\circ = +0.34 V$
(a) + 1.36 V (b) + 2.71 V
(c) + 2.17 V (d) - 3.01 V
8.

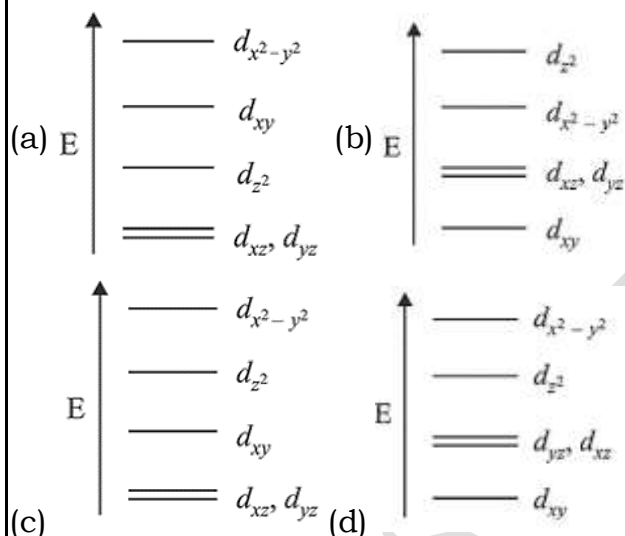
Electrolyte :	KCl	KNO_3	HCl	$NaOAc$	$NaCl$
$\Lambda^\circ (S\text{cm}^2\text{mol}^{-1}) :$	149.9	145.0	426.2	91.0	126.5
- Calculate Λ_{HOAc}° using appropriate molar conductances of the electrolytes listed above at infinite dilution in H_2O at $25^\circ C$
(a) 517.2 (b) 552.7
(c) 390.7 (d) 217.5
9. The resistance of $0.01 N NaCl$ solution at $25^\circ C$ is 200Ω . Cell constant of conductivity cell is 1 cm^{-1} . The equivalent conductance is
(a) $5 \times 10^2 \Omega^{-1} \text{cm}^2 \text{eq}^{-1}$ (b) $6 \times 10^3 \Omega^{-1} \text{cm}^2 \text{eq}^{-1}$
(c) $7 \times 10^4 \Omega^{-1} \text{cm}^2 \text{eq}^{-1}$ (d) $8 \times 10^5 \Omega^{-1} \text{cm}^2 \text{eq}^{-1}$
10. Equivalent conductances of Ba^{2+} and Cl^- ions are 127 and $76 \text{ ohm}^{-1} \text{cm}^{-1} \text{eq}^{-1}$ respectively. Equivalent conductance of $BaCl_2$ at infinite dilution is
(a) 139.5 (b) 101.5
(c) 203 (d) 279 (2000)
11. The specific rate constant of a first order reaction depends on the
(a) Concentration of the reactants
(b) Concentration of the products
(c) Time of reaction
(d) Temperature of reaction
12. For a first order reaction $A \rightarrow B$ the reaction rate at reactant concentration of $0.01 M$ is found to be $2.0 \times 10^{-5} \text{ mol L}^{-1} \text{ s}^{-1}$. The half life period of the reaction is
(a) 220 s (b) 30 s
(c) 300 s (d) 347 s
13. Arrhenius equation is
(a) $\frac{d \ln K}{dT} = \Delta E^* / RT$ (b) $\frac{d \ln K}{dT} = \Delta E^* / RT^2$
(c) $\frac{d \ln K}{dT} = -\Delta E^* / RT^2$ (d) $\frac{d \ln K}{dT} = -\Delta E^* / RT$
14. The rate constant of a reaction at temperature $200 K$ is 10 times less than the rate constant at $400 K$. What is the activation energy (E_a) of the reaction ($R =$ gas constant)
(a) 1842.4 R (b) 921.2 R
(c) 460.6 R (d) 230.3 R

15. The rate constant is doubled when temperature increases from 27°C to 37°C . Activation energy in kJ is
 (a) 34 (b) 54
 (c) 100 (d) 50

16. The oxidation number of Cr in $[\text{Cr}(\text{NH}_3)_6]\text{Cl}_3$ is
 (a) 8 (b) 6
 (c) 4 (d) 3

17. The colour of tetrammine copper (II) sulphate is
 (a) Blue (b) Red
 (c) Violet (d) Green

18. Complete removal of both the axial ligands (along the z -axis) from an octahedral complex leads to which of the following splitting patterns? (relative orbital energies not on scale)



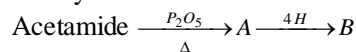
19. The d-electron configuration of $[\text{Ru}(\text{en})_3]\text{Cl}_2$ and $[\text{Fe}(\text{H}_2\text{O})_6]\text{Cl}_2$ respectively are
 (a) $t_{2g}^6 e_g^0$ and $t_{2g}^6 e_g^0$ (b) $t_{2g}^6 e_g^0$ and $t_{2g}^4 e_g^2$
 (c) $t_{2g}^4 e_g^2$ and $t_{2g}^4 e_g^2$ (d) $t_{2g}^4 e_g^2$ and $t_{2g}^6 e_g^0$

20. The formula of dichlorobis(urea)copper(II) is
 (a) $[\text{Cu}\{\text{O}=\text{C}(\text{NH}_2)_2\}\text{Cl}]\text{Cl}$
 (b) $[\text{CuCl}_2]\{\text{O}=\text{C}(\text{NH}_2)_2\}$
 (c) $[\text{Cu}\{\text{O}=\text{C}(\text{NH}_2)_2\}\text{Cl}_2$
 (d) $[\text{CuCl}_2\{\text{O}=\text{C}(\text{NH}_2)_2\}_2]$ (1997)

21. The correct order of energy of absorption for the following metal complexes is
 A: $[\text{Ni}(\text{en})_3]^{2+}$, B: $[\text{Ni}(\text{NH}_3)_6]^{2+}$, C: $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$
 (a) $\text{C} < \text{B} < \text{A}$ (b) $\text{B} < \text{C} < \text{A}$

- (c) $\text{C} < \text{A} < \text{B}$ (d) $\text{A} < \text{C} < \text{B}$

22. Identify 'B' in the reaction



- (a) CH_3NH_2 (b) $\text{CH}_3\text{CH}_2\text{NH}_2$
 (c) CH_3CN (d) $\text{CH}_3\text{COONH}_4$

23. A primary amine can be converted to an alcohol by the action of

- (a) Alkali (b) Nitrous acid
 (c) Reducing agent (d) Oxidising agent

24. A mixture of benzene and aniline can be separated by

- (a) Hot water (b) dil. HCl
 (c) dil. NaOH (d) Alcohol

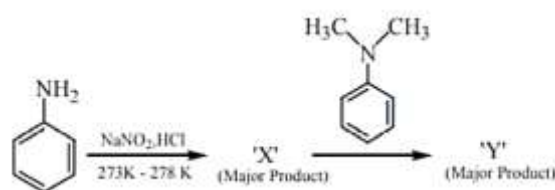
25. The correct order of basicity of amines in water is :

- (a) $(\text{CH}_3)_2\text{NH} > (\text{CH}_3)_3\text{N} > \text{CH}_3\text{NH}_2$
 (b) $\text{CH}_3\text{NH}_2 > (\text{CH}_3)_2\text{NH} > (\text{CH}_3)_3\text{N}$
 (c) $(\text{CH}_3)_3\text{N} > (\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2$
 (d) $(\text{CH}_3)_3\text{N} > \text{CH}_3\text{NH}_2 > (\text{CH}_3)_2\text{NH}$

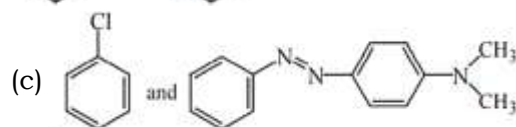
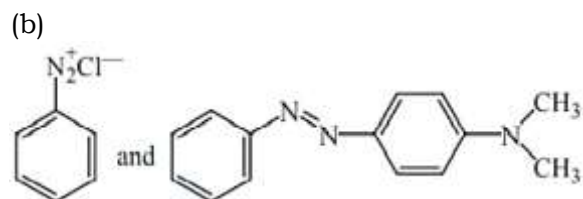
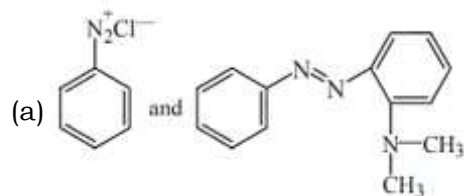
26. A compound 'X' on treatment with Br_2/NaOH , provided $\text{C}_3\text{H}_9\text{N}$, which gives positive carbylamine test. Compound 'X' is :

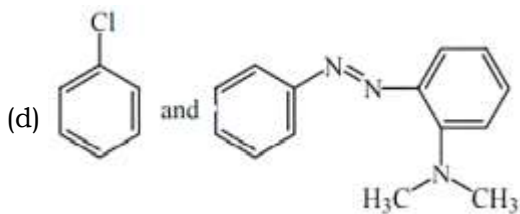
- (a) $\text{CH}_3\text{COCH}_2\text{NHCH}_3$
 (b) $\text{CH}_3\text{CH}_2\text{COCH}_2\text{NH}_2$
 (c) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CONH}_2$
 (d) $\text{CH}_3\text{CON}(\text{CH}_3)_2$

- 27.



Considering the above reaction, X and Y respectively are





28. Which of the following is an example of condensation polymers

- (a) Polythene (b) PVC
(c) Orlon (d) Terylene

29. Nylon yarns are usually

- (a) Highly inflammable
(b) Non-inflammable
(c) Both (a) and (b) types are known
(d) Uncertain inflammability

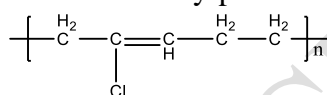
30. Isoprene is a valuable substance for making

- (a) Propene (b) Liquid fuel
(c) Synthetic rubber (d) Petrol

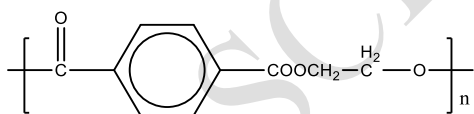
31. Which of the following statement is correct regarding the drawbacks of raw rubber

- (a) It is plastic in nature
(b) It has little durability
(c) It has large water-absorption capacity
(d) All of these

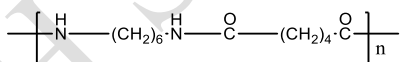
32. Structures of some common polymers are given. Which one is not correctly presented?



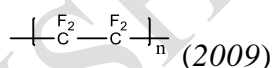
(a) Neoprene-



(b) Terylene-



(c) Nylon 6,6 -



(d) Teflon -

33. The bakelite is prepared by the reaction between

- (a) phenol and formaldehyde
(b) tetramethylene glycol
(c) urea and formaldehyde
(d) ethylene glycol. (1995)

34. Sucrose on hydrolysis gives

- (a) Two molecules of glucose
(b) Two molecules of fructose
(c) One molecule each of glucose and fructose
(d) One molecule each of glucose and mannose

35. Which carbohydrate is used in silvering of mirrors

- (a) Sucrose (b) Starch
(c) Glucose (d) Fructose

36. Proteins are hydrolysed by enzymes into

- (a) Dicarboxylic acids (b) Hydroxy acids
(c) Amino acids (d) Aromatic acids

37. The waxes are long chain compounds of fatty acids, which belong to the class of

- (a) Esters (b) Ethers
(c) Alcohols (d) Acetic acid

38. Which of the following biomolecules contain non-transition metal ion

- (a) Vitamin B_{12} (b) Chlorophyll
(c) Haemoglobin (d) Insulin

39. Starch is changed into disaccharide in presence of:

- (a) amylase (b) maltase
(c) lactase (d) zymase

40. Acetoxy benzoic acid is

- (a) Antiseptic (b) Aspirin
(c) Antibiotic (d) Mordant dye

41. Morphine is

- (a) An alkaloid (b) An enzyme
(c) A carbohydrate (d) A protein

42. Substance used for the preservation of coloured fruit juices is

- (a) Benzene (b) Benzoic acid
(c) Phenol (d) Sodium meta bisulphite

43. Asthma patient use a mixture of for respiration

- (a) O_2 and N_2O (b) O_2 and He
(c) O_2 and NH_3 (d) O_2 and CO

44. Which of the following is not a broad spectrum antibiotic?

- (a) Vancomycin (b) Ampicillin
(c) Ofloxacin (d) Penicillin G

45. Which of the following is a broad-spectrum antibiotic?

- (a) Streptomycin (b) Penicillin
(c) Ampicillin (d) Chloramphenicol

46. The number of electrons delivered at the cathode during electrolysis by a current of 1 ampere in 60 seconds is (charge on electron = $1.60 \times 10^{-19} C$)

- (a) 6×10^{23}

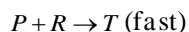
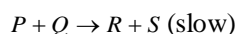
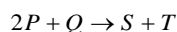
- (b) 6×10^{20}
(c) 3.75×10^{20}
(d) 7.48×10^{23} (NEET-II2016)

47. On the basis of the information available from the reaction, $4/3Al + O_2 \rightarrow 2/3Al_2O_3$, $\Delta G = -827 kJmol^{-1}$ of O_2 , the minimum e.m.f. required to carry out an electrolysis of Al_2O_3 is ($F = 96500 Cmol^{-1}$)

- (a) 2.14 V (b) 4.28 V
(c) 6.42 V (d) 8.56 V (2003)

48. Which one of the following is wrongly matched
(a) Saponification of $CH_3COOC_2H_5$ – Second order reaction
(b) Hydrolysis of CH_3COOCH_3 – Pseudo uni-molecular reaction
(c) Decomposition of H_2O_2 – First order reaction
(d) Combination of H_2 and Br_2 to give HBr – Zero order reaction

49. The mechanism for the reaction is given below



The rate law expression for the reaction is

- (a) $r = k[P]^2[Q]$ (b) $r = k[P][Q]$
(c) $r = k[A][R]$ (d) $r = k[P]^2$
50. The rate of first-order reaction is $0.04 \text{ mol } L^{-1} s^{-1}$ at 10 seconds and $0.03 \text{ mol } L^{-1} s^{-1}$ at 20 seconds after initiation of the reaction. The half-life period of the reaction is
(a) 44.1 s (b) 54.1 s
(c) 24.1 s (d) 34.1 s (NEET-I2016)