

CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

MOCK TEST 3

Mcqs

1. If the ΔG of a cell reaction

$AgCl + e^- \rightarrow Ag + Cl^-$ is -21.20 kJ, the

standard emf of cell is

A. $0.239V$

B. $0.220V$

C. $-0.320V$

D. $-0.110V$

Answer: B



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2. If mole fraction of the solvent in a solution decreases than:

A. vapour pressure of solution increases

B. boiling point decreases

C. osmotic pressure increases

D. all of the above

Answer: C



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3. The isotopic abundance of $C - 12$ and $C - 14$ is 98% and 2% respectively. What would be the number of $C - 14$ isotope in 12g carbon sample?

A. 1.032×10^{22}

B. 3.01×10^{22}

C. 5.88×10^{22}

D. 6.023×10^{23}

Answer: B



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4. A molal solution is one that contains one mole of a solute in

A. 1000 g of the solvent

B. 1 L of the solvent

C. 1 L of the solution

D. 22.4 L of the solution

Answer: A



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5. The liquefaction behaviour of temporary gases like CO_2 approaches that of permanent gases like N_2 , O_2 etc, as we go to

A. below critical temperature

B. above critical temperature

C. above absolute zero

D. below absolute zero

Answer: B



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6. For the cell given, below

$Zn|Zn^{2+}||Cu^{2+}|Cu$, $(E_{cell} - E_{cell}^{\circ})$ is -0.12 V.

it will be when

A. $[Zn^{2+}] / [Cu^{2+}] = 10^2$

B. $[Zn^{2+}] / [Cu^{2+}] = 10^{-2}$

C. $[Zn^{2+}] / [Cu^{2+}] = 10^4$

D. $[Zn^{2+}] / [Cu^{2+}] = 10^{-4}$

Answer: C



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7. Among the trihalides of nitrogen, which is the least basic ?



Answer: A



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8. Number of $p\pi - d\pi$ bonds present in XeO_4

are

A. four

B. two

C. three

D. zero

Answer: A



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9. Which one of the following statement is correct for N_3^- ?

A. It has non-linear structure

B. It is not a pseudo halogen

C. The formal oxidation state of nitrogen in this anion is +1.

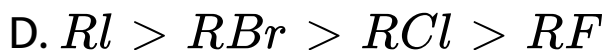
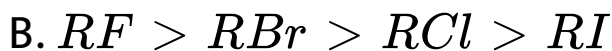
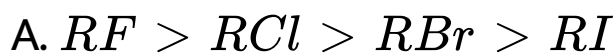
D. it is isoelectronic with N_2O .

Answer: D



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10. The order of reactivities of the following alkyl halides for a S_N2 reaction is :



Answer: D



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11. Benzaldehyde reacts with alcoholic KCN to give :

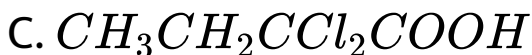
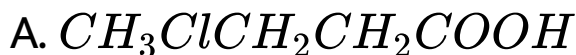


Answer: B



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12. What of the following is expected to be most highly ionised in water ?

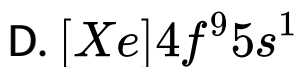
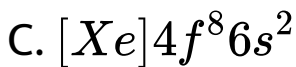
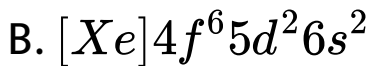
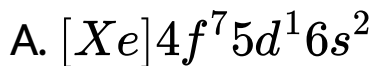


Answer: C



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13. Gadolinium belongs to 4f series. Its atomic number is 64. Which of the following is the correct electronic configuration of gadolinium?

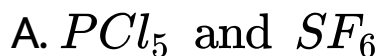


Answer: A



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14. Which of the following pair has same structure?



Answer: D



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15. In the metallurgy of Fe, when $CaCO_3$ is added to blast furnace, calcium ion appears as

A. CaO

B. Metallic Ca

C. gangue

D. slag

Answer: D



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16. In which of the following reactions hydrogen is acting as an oxidising agent?

A. With Li to form LiH

B. With I_2 to give HI

C. With S to give H_2S

D. none of these

Answer: A



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17. P_4O_{10} is heated with water to give

A. hypophosphorus acid

B. phosphorus acid

C. hypophosphoric acid

D. orthophosphoric acid

Answer: D



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18. The coordination number of atoms in a cubic packed structure and in a body centred cubic structure respectively are

A. 6,8

B. 8,6

C. 12,6

D. 12,8

Answer: D



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19. Which one of the following is a fibrous protein?

A. Globulin

B. Collagen

C. Hordein

D. gluten

Answer: B



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20. Monoclinic crystal has dimension

A. $a \neq b \neq c, \alpha = \gamma = 90^\circ, \beta \neq 90^\circ$

B. $a = b = c, \alpha = \beta = \gamma = 90^\circ$

C. $a = b = c, \alpha = \beta = 90^\circ, \gamma = 120^\circ$

D. $a \neq b \neq c, \alpha = \beta = \gamma = 120^\circ$

Answer: A



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21. In Langmuir's model of adsorption of a gas on solid surface

A. the rate of dissociation of adsorbed molecule from the surface does not depend on the surface covered

B. the adsorption at a single site on the surface may involve multiple molecules at the same time

C. The mass of gas striking a given area of surface is proportional to the pressure of the gas

D. the mass of the gas striking a given area of surface is independent of the pressure of the gas

Answer: C



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22. For two mole of an ideal gas :

A. $C_V - C_p = R$

B. $C_p - C_V = 2R$

C. $C_p - C_V = R$

D. $C_V - C_p = 2R$

Answer: B



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23. What is the melting point of benzene if

$$\Delta H_{\text{fusion}} = 9.95 \text{ kJ/mol} \quad \text{and}$$

$$\Delta S_{\text{fusion}} = 35.7 \text{ J/K} - \text{mol}$$

A. 278.7°C

B. 278.7K

C. 300K

D. 298K

Answer: B



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24. In a process, $701J$ of heat is absorbed by a system and $394J$ of work is done by the system. What is the change in internal energy for the process?

A. $-464J$

B. $+464J$

C. $+307J$

D. $-307J$

Answer: C



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25. A substance which gives brick red flame and breaks down on heating to give oxygen and a brown gas, is

A. magnesium nitrate

B. calcium nitrate

C. barium nitrate

D. strontium nitrate

Answer: B



26. Rate constant $k = 2.303\text{min}^{-1}$ for a particular reaction. The initial concentration of the reaction is 1. mol/L, then rate of reaction after 1 minute is

A. 2.303 M min^{-1}

B. 0.2303 min^{-1}

C. 0.1 M min^{-1}

D. none of the above

Answer: B



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27. In curing cement plasters water is sprinkled from time to time. Time helps in

A. developing interlocking needle like

crystals of hydrated silicates

B. hydrated sand gravel mixed with cement

C. converting sand into silicic acid

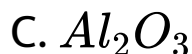
D. keeping it cool

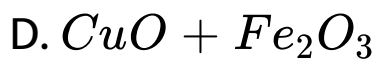
Answer: A



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28. Catalyst used in the preparation of methyl alcohol from water gas is





Answer: B



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29. Bond angle in CH_3OCH_3 is

A. 180°

B. $109^\circ 28'$

C. 110°

D. 90°

Answer: C



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30. On passing phenol vapours over hot Zn dust, the product formed is

- A. benzene
- B. benzaldehyde
- C. benzoic acid
- D. benzophenone

Answer: A



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31. The disaccharide present in milk is

A. cellobiose

B. sucrose

C. lactose

D. maltose

Answer: C



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32. The fragrance of flower is due to the presence of some steam volatile organic compounds called essential oils. These are generally insoluble in water at room temperature but are miscible with water vapour in vapour phase. A suitable method for the extraction of these oils from the flower is

A. distillation

B. crystallisation

C. distillation under reduced pressure

D. steam distillation

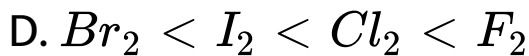
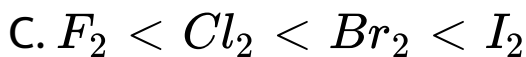
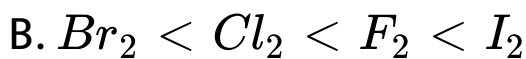
Answer: D



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33. Arrange the halogens F_2 , Cl_2 , Br_2 , I_2 in order of their increasing reactivity with alkanes

A. $I_2 < Br_2 < Cl_2 < F_2$



Answer: A

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34. In polymerisation, which may act as initiator?

A. Azo iso-butyronitrile

B. chloroform

C. chloride

D. hydroquinone

Answer: A



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35. Which of the following is natural antioxidant?

A. Propyl gallate

B. Butylated hydroxy anisole

C. Butylated hydroxy toluene

D. Ascorbic acid

Answer: D



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36. 0.2% of solution of phenol and 0.2-0.4 ppm chlorine in aqueous solution respectively behave as

A. analgesic

B. antiseptic

C. disinfectant

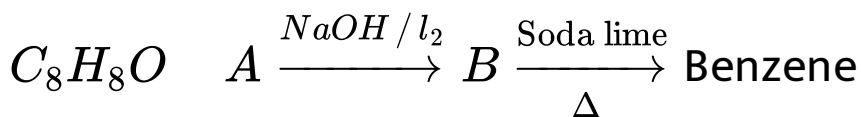
D. antibiotic

Answer: B



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37. Identify A in the following reaction,



A. 

B. 

C. 

D. All of these

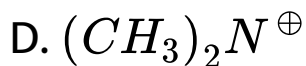
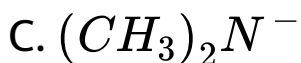
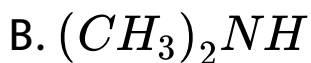
Answer: B



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38. The conjugate base of $(CH_2)_2NH_2^{\oplus}$ is

A. $(CH_3)_3N$



Answer: B



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39. Grignard reagent should be prepared under anhydrous conditions because

A. it is highly reactive towards protonic substances

B. it reacts with ether

C. both (a) and (b)

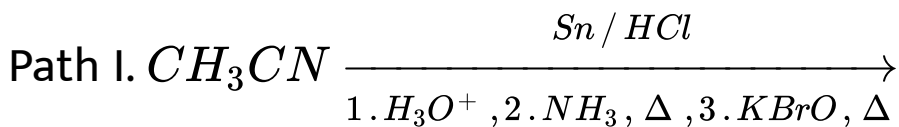
D. none of the above

Answer: A



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40. Consider the following reaction.



Ehtylamine can be prepared by which pathway?

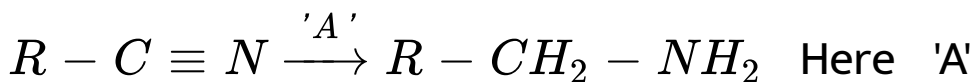
- A. Only I
- B. Only II
- C. both (a) and (b)
- D. None of these

Answer: C

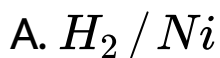


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41. Consider the following transformation



will be.

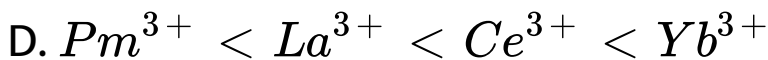
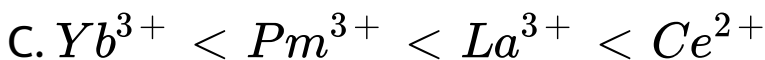
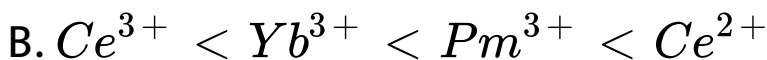
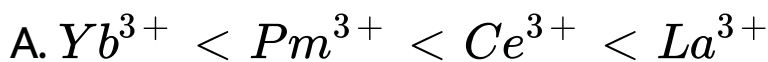


Answer: A



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42. Arrange Ce^{3+} , La^{3+} , Pm^{3+} and Yb^{3+} in increasing order of their ionic radii,



Answer: A



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43. Which of the following evolve hydrogen on reacting with cold dilute nitric acid ?

A. Fe

B. Cu

C. *Al*

D. Mg

Answer: D



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44. Which one of the following is the strongest acid?

A. HI

B. HBr

C. HCl

D. HF

Answer: A



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45. Iron, once dipped in concentrated H_2SO_4 , does not displace copper from copper sulphate solution, because

- A. it is less reactive than copper
- B. a layer of sulphate is deposited on it
- C. a layer of oxide is deposited on it
- D. none of the above

Answer: C



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46. A compound is formed by elements A and B . This crystallises in the cubic structure when atoms A are at the corners of the cube and atoms B are at the centre of the body. The simplest formula of the compound is

A. AB

B. AB_2

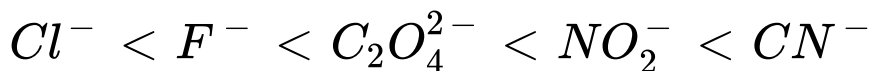
C. A_2B

D. AB_4

Answer: A

47. Which order is correct spectrochemical series of ligands?

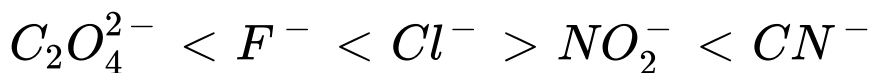
A.



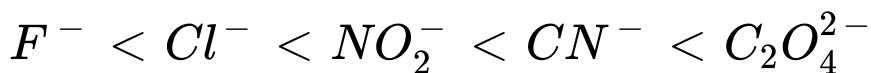
B.



C.



D.



Answer: A



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48. Etard's reaction involves the preparation of benzaldehyde from

A. toluene

B. ethyl benzene

C. benzoyl chloride

D. sodium benzoate

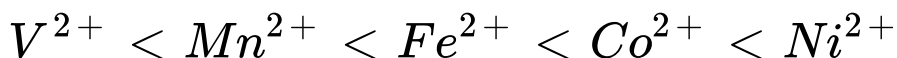
Answer: A



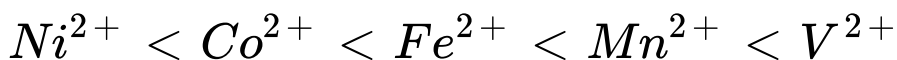
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49. Select the correct order of CFSE (Δ) for the ions given below

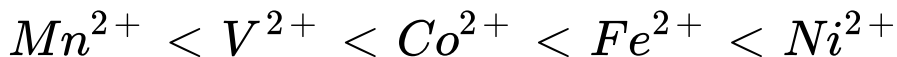
A.



B.



C.



Answer: C



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