



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 98

Chemistry

1. In the given below alkali metal ions which has lowest ionic mobility in aqueous solutions?



Answer: C



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2. According to Bohr's principle, which is the correct relation between principle quantum number (n) and radius of orbit (r) ?

A. $r \propto n$

B. $r \propto n^2$

C. $r \propto \frac{1}{n}$

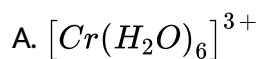
D. $r \propto \frac{1}{n^2}$

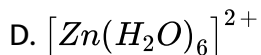
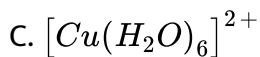
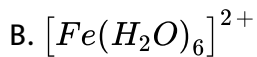
Answer: B



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3. Which one among the following complex ions has the highest paramagnetism?





Answer: B



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4. Calculate the number of moles of NH_4Cl that should be added to one litre of 1.0 M NH_4OH to prepare buffer solution with

$$pH = 9 [K_b = 2 \times 10^{-5}, \text{ take } \log 2 = 0.3]$$

A. 3.4

B. 2.6

C. 1.5

D. 2

Answer: D



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5. A salt, which on heating with conc. H_2SO_4 gives violet vapour is

- A. Iodide
- B. Nitrate
- C. Sulphate
- D. Bromide

Answer: A



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6. A first order reaction is half completed in 45 minutes. How long does it need 99.9% of the reaction to be completed

- A. 5 hours
- B. 7.5 hours

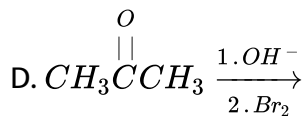
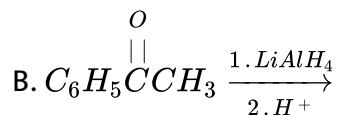
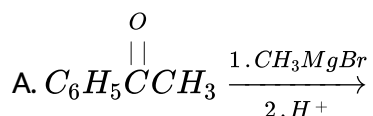
C. 10 hours

D. 20 hours

Answer: B

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7. Which one of the following reaction would produce secondary alcohol?



Answer: B

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8. Which one of the following statements is incorrect, in case of homologous series of alkanes,

- A. The members of the series are isomers of each other
- B. The members of the series have similar chemical properties
- C. The members of the series have the general formula C_nH_{2n+2} , where n is an integer
- D. The difference between any two successive members of the series corresponds to 14 unit of relative atomic mass

Answer: A



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9. Which is correct about Rayon?

- A. Natural silk
- B. Artificial silk

C. Natural plastic or rubber

D. Synthetic plastic

Answer: B

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10. The product of oxidation of I^- with MnO_4^- in alkaline medium is

A. IO_3^-

B. I_2

C. IO^-

D. IO_4^-

Answer: A

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

- A. Tetracycline
- B. Chloromycetin
- C. Penicillin
- D. None of these

Answer: C



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12. Which of the following statement is correct with reference of

RS^{\ominus} and RO^{\ominus} . ?

- A. RS^{\ominus} is less basic and less nucleophilic than RO^{\ominus}
- B. RS^{\ominus} is less basic and more nucleophilic than RO^{\ominus}
- C. RS^{\ominus} is less basic and more nucleophilic than RO^{\ominus}
- D. RS^{\ominus} is more basic but less nucleophilic than RO^{\ominus}

Answer: B

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13. Sodium fusion extract of an organic compound gives a blood red colouration with few drops of $FeCl_3$ solution. This indicates the presence of

- A. Nitrogen in the organic compound
- B. Sulphur in the organic compound
- C. Nitrogen and sulphur in the organic compound
- D. Sulphur and chlorine in the organic compound

Answer: C

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14. Aluminothermic process is used for the extraction of metals, whose oxides are

- A. Fusible
- B. Not easily reduced by carbon
- C. Not easily reduced by hydrogen
- D. Strongly basic

Answer: B



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15. Calculate the value of equilibrium constant of the reaction at $227^{\circ}C$,

If the ΔG° for the reaction $X + Y \rightleftharpoons Z$ is -4.606 kcal.

$$\left(R = 2.0 \text{ cal. Mol}^{-1}K^{-1} \right)$$

- A. 100
- B. 10

C. 2

D. 0.01

Answer: A

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16. How many unit cells are present in a cube - shaped ideal crystal of NaCl of mass 1.00 g ? [atomic masses : Na =23,Cl=35.5]

A. 2.57×10^{21} unit cells

B. 5.14×10^{21} unit cells

C. 1.28×10^{21} unit cells

D. 1.71×10^{21} unit cells

Answer: A

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17. In van der Waal's equation of state of the gas law, constant 'a' and 'b' are used. The constant 'b' is a measure of

- A. Volume occupied by the molecules
- B. Intermolecular attraction
- C. Intermolecular repulsions
- D. Intermolecular collisions per unit volume

Answer: A



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18. What will be the pH of a solution formed by mixing $40ml$ of $0.10M HCl$ with $10ml$ of $0.45M NaOH$?

- A. 12
- B. 10
- C. 8

D. 6

Answer: A



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19. The role of a catalyst in a reversible reaction is to

- A. Increase the rate of forward reaction
- B. Decrease the rate of backward reaction
- C. Alter the equilibrium constant of the reaction
- D. Allow the equilibrium to be achieved quickly

Answer: D



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20. A compound 'A' has a molecular formula C_2Cl_3OH . It reduces Fehling solution and on oxidation gives a monocarboxylic acid (B). A is obtained by action of chlorine on ethyl alcohol. A is :

A. Chloral

B. $CHCl_3$

C. CH_3Cl

D. Chloroacetic acid

Answer: A

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21. Among the following series of transition metal ions, how many metals ions have d^2 electronic configuration

Fe^{4+} , V^{3+} , Sn^{2+} , Au^{3+} , Ti^{2+} , As^{3+} , Cr^{3+} , Mn^{5+} , Co^{3+} , Zr^{2+} , Cd^{2+} , Ni^{2+}

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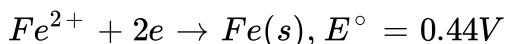
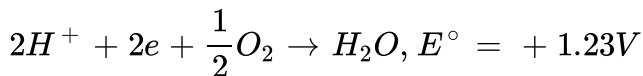
22. Total number of $P - O - P$ bonds present in P_4O_{10} is

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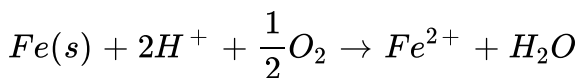
23. A tetrapeptide has $-COOH$ group on alanine. This produces glycine (Gly), valine (Val), phenyl alanine (Phe) and alanine (Ala), on complete hydrolyses. For this tetrapeptide, the number of possible sequences (primary structures) with $-NH_2$ group attached to a chiral centre is

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24. The following reaction occurs during rusting of iron



Calculate magnitude of ΔG° (kJ) for the net process



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25. Compound 'A' (molecular formula C_3H_8O) is treated with acidified potassium dichromate to form a product 'B' (molecular formula C_3H_6O). 'B' does not form a shining silver mirror on warming with ammoniacal silver nitrate. 'B' when heated with concentrated sulphuric acid forms 'C' which does not give a test for unsaturation. Identify the sum of the number of carbon and hydrogen atoms in compound 'C'.



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