CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 48

Chemistry

1. The basic geometry and shape of I_3^- are respectively:

A. Trigonal bipyramidal geometry, line shape

B. Hexagonal geometry, T-shape

C. Triangular planar geometry, triangular shape

D. Tetrahedral geometry, pyramidal shape

Answer: A

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2. Which of them is an exothermic process

A. $N(g) + 3e^- \rightarrow N^{3-}(g)$

B. $O(g) + 2e^- \rightarrow O^{2-}(g)$

C. $Cl^+(g) + 2e^- \rightarrow Cl^-(g)$

D. $Na^-(g) - 2e^- \rightarrow Na^+(g)$

Answer: C

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3. The shape of H_2O_2 is dissimilar to:

A. O_2F_2

B. S_2Cl_2

C. Se_2Cl_2

D. C_2H_2

Answer: D

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4. Which of the following exists?

A. MnF_7

B. $K_2[CuI_4]$

C. MnO_3F

D. All of these

Answer: C

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5. A substance which gives dark red flame and breaks down on heating to give oxygen and a brown gas is :

A. $Mg(NO_3)_2$

B. $NaNO_3$

C. $Ba(NO_3)_2$

D. $Sr(NO_3)_2$

Answer: D

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6. Which of the following is more acidic than phenol?

A. p-nitrophenol

B. Ethanol

C. Cresol

D. Benzyl alcohol

Answer: A

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7. The intermediate formed during cross aldol condensation reaction between acetaldehyde and formaldehyde is:

A. $:\overset{-}{C}H_2CHO$

B. $\overset{+}{C}H_2CHO$

C. $\overset{+}{C}H_2OH$

D. $:\overset{-}{C}HCHO$

Answer: B

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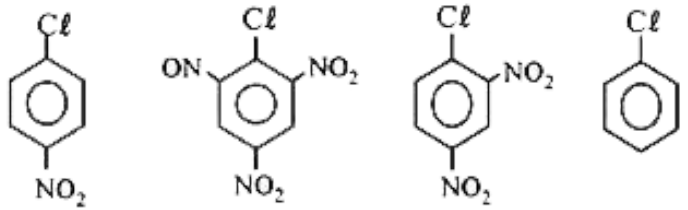
8. The correct order of reactivity for nucleophilic subsititution in the following compounds is :



(a) (b) (c) (d)

A. $a > b > c > d$

B. $d > c > a > b$

C. $b > c > a > d$

D. $c > b > d > a$

Answer: C

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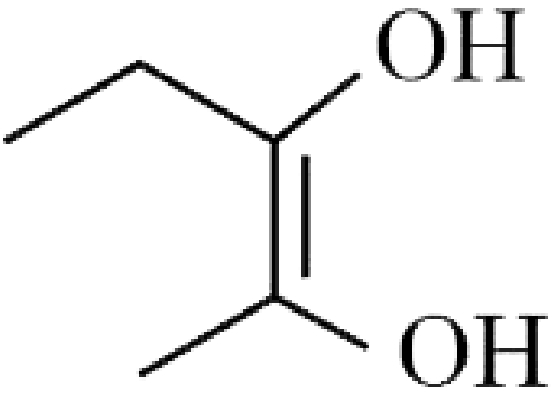
9. Name of the given compound is:



A. But-2-ene-2,3-diol

B. Pent-2-ene-2,3-diol

C. 2-Methylbut-2-ene-2,3 - diol

D. Hex-2-ene-2,3-diol

Answer: B

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10. When initial concentration of a reactant is doubled in a reaction, its half-life period is not affected. The order of the reaction is:

A. second

B. more than zero but less than first

C. Zero

D. first

Answer: D

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11. Calculate the emf of the given

$$Fe^{2+} + Zu \rightarrow Zn^{2+} + Fe$$

The standard reduction potential E° for half

reactions are

$An = Zn^{2+} + Ze, E^{\circ} = +0.76V$

$Fe = Fe^{2+} + Ze, E^{\circ} = +0.41V$

A. $-0.35V$

B. $+0.35$

C. $+1.17V$

D. $-1.17V$

Answer: B

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12. Among the given solutions Pbl_2 exhibits maximum solubility in

A. $0.1MPbCl_2$

B. $0.1MKl$

C. $0.01MCaI_2$

D. $0.01MNal$

Answer: D

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13. A mole of N_2H_4 loses 10 mol of electrons to form a new compound Y. Assuming that all the nitrogen appears in the new compound, what is the oxidation state of nitrogen in Y? (There is no change in the oxidation number of hydrogen)

A. -1

B. -3

C. $+3$

D. $+5$

Answer: C

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14. Which of the following compounds shows both Frenkel and Schottky defects?

A. NaCl

B. Ag Cl

C. Ag Br

D. KCl

Answer: C

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15. Four solutions of K_2SO_4 with the concentration 0.1 m, 0.01 m, 0.001 m and 0.0001 m are available. The maximum value of van't Hoff factor, i corresponds to:

A. 0.0001 m solution

B. 0.001 m solution

C. 0.01 m solution

D. 0.1 m solution

Answer: A

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16. Find the approximate number of atoms in 20g of SO_3.

A. 1×10^{23}

B. 1.5×10^{23}

C. 2×10^{23}

D. 6×10^{23}

Answer: D

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17. Consider the following statements:

(a) At high pressure all real gases have $Z > 1$ while at moderate pressure most gases have $Z < 1$

(b) Vanderwaal constant 'a' is measure of attractive force within the gas and is

independent of temperature and pressure.

(c) Greater the critical temperature of a gas more easily it will be liquified.

(d) There is no force of attraction between molecules of ideal gas. The correct statements are: -

A. Ony b,c,d

B. Only a,c,d

C. Only c,d

D. All a,b,c,d

Answer: D

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18. Calculate the ratio of the difference in energy between the first and the second Bohr orbit to that between the second and the third Bohr orbit?

A. $\frac{1}{2}$

B. $\frac{1}{3}$

C. $\frac{4}{9}$

D. $\frac{27}{5}$

Answer: D

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19. Use of platinized asbestos as a catalyst in the manufacture of H_2SO_4. It is an example of:

A. heterogeneous catalyst

B. autocatalyst

C. homocatalyst

D. induced catalyst

Answer: B

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20. Critical temperature and inversion temperature of nitrogen are 126.2 K and 621 K, respectively. If Nitrogen gas is allowed to expand adiabatically at 300 K, its temperature:

A. increases

B. decreases

C. remains same

D. can't predict

Answer: B

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21. Ligand, ethylenediamine has denticity of -----

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22. Which of the following bond angle is related to NO2 molecule:

$120^\circ, 109^\circ, 115^\circ, 180^\circ, 134^\circ$

(Fill your answer as sum of digits.)

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23. How many of the following help in enhancing non-wettability of the ore particles by water in froth flotation process to concentrate ores?

Pine oil, eucalyptus oil, cresols, fatty acids, aniline, xanthates and sodium cyanide.

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24. Total number of neutral oxides among the following is:

$SnO, P_4O_{10}, NO, CO,$ and N_2O

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25. Acetophenon

$$\xrightarrow[\text{Conc. HCI}]{4[H]\,Zn-Hg} \xrightarrow[ii\,.\,Dil\,.\,HCI]{\text{i.Alkaline}KmnO_4\,.\,\Delta} \xrightarrow[Conc\,.\,H_2SO_4]{Con\,.\,HCO_3} Z.$$

The total number of secondary H- atoms present in final product 'Z' will be ?

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26. Starting with three different amino acid molecules, how many different tripeptide molecules can be formed?

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27. A secondary alcohol is possible for a minimum _____C-atoms.

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28. A simple straight chain alkane is represented by C_xH_y, where, y = 24. Then , x will be ?

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29. The total number of atoms in a molecule of nitrogen sesquioxide is -----

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