CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 79

Chemistry

1. Select incorrect statement :

A. O_3 and O_2^{2-} both are diamagnetic

B. out of O_2, O_2^+, O_3 least O - O bond length is in O_2^+

C. Out of O_2, O_2^+, O_2^- only O_2 is paramagnetic

D. Out of O_2, O_2^+, O_2^- maximum spin magnetic moment is of O_2

Answer: C

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2. Among Na^+, Mg^{+2}, O^{-2} and N^{-3}, which of the following pair of species shows minimum and maximum ionisation potential (IP)?

A. Na^+, Mg^{+2}

B. Mg^{+2}, N^{-3}

C. N^{-3}, Mg^{+2}

D. O^{-2}, N^{-3}

Answer: C

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3. Among $CHCl_3, CH_4$ and SF_4 the molecules do not having regular geometry are :

A. $CHCl_3$ only

B. $CHCl_3$ and SF_4

C. CH_4 only

D. CH_4 and SF_4

Answer: B

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4. Which of the following is obtained by Teaching process and can be used as stationary phase in column chromatography

A. SiO

B. Al_2O_3

C. both

D. None

Answer: B

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5. A metal gives two chlorides 'A' and 'B'.' A' gives a black precipitate with NH4 OH and 'B' gives white. 'B' gives a red precipitate on reaction with KI which is soluble in excess of KI. Identify 'A' and 'B', respectively.

A. $HgCl_2$ and Hg_2Cl_2

B. Hg_2Cl_2 and $HgCl_2$

C. $HgCl_2$ and $HgOCl$

D. None of these

Answer: B

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6. Among $[Ni(CO)_4], [Ni(CN)_4]^{2-}$ and $[Ni(Cl)_4]^{2-}$:-

A. $[Ni(CO)_4]$ and $[NiCl_4]^{2-}$ are diamagnetic and $[Ni(CN)_4]^{2-}$ is

paramagnetic

B. $[NiCl_4]^{2-}$ and $[Ni(CN)_4]^{2-}$ are diamagnetic and $[Ni(CO)_4]$ is paramagnetic

C. $[NI(CO)_4]$ and $[Ni(CN)_4]^{2-}$ are diamagnetic and $[NiCl_4]^{2-}$ is paramagnetic

D. $[Ni(CO)_4]$ is diamagnetic and $[NiCl_4]^{2-}$ and $[Ni(CN)_4]^{2-}$ are paramagnetic

Answer: D

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7. Select wrong statement:

A. A transition metal ion is more polarising than s-block ions of comparable size and charge

B. Solubility order:

$$AgF > AgCl > AgBr > AgI$$

C. LiCl is soluble in organic solvents

D. Solubility: $BeSO_4 < BaSO_4$

Answer: D

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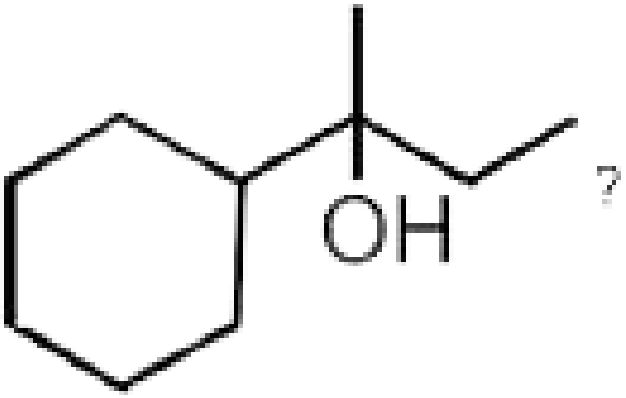
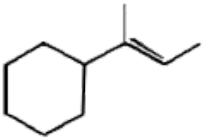
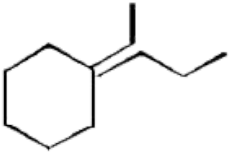
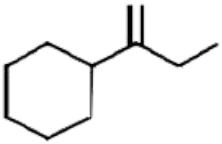
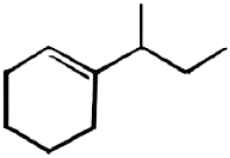
8. Which of the following is not the product of dehydration of



A. 

B. 

C. 

D. 

Answer: D

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9. Phenol and benzoic acid can be distinguished by :

A. $NaHCO_3$

B. Natural $FeCl_3$

C. $Br_2 +$ water

D. All of these

Answer: D

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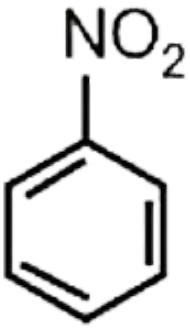
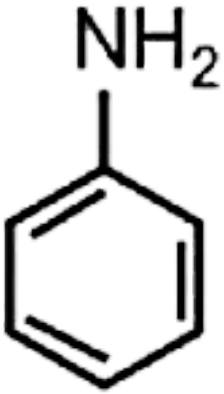
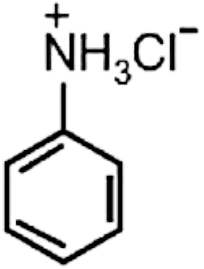
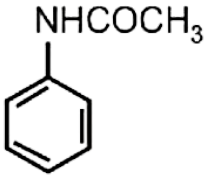
10. Which compound undergoes electrophilic substitution with ease (most reactive):

A. 

B. 

C. 

D. 

Answer: B

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11. Which of the following statements are correct?

(i) Sucrose is dextrorotatory but after hydrolysis the mixture aquires a levorotatory nature.

(ii) In amylopectin branching occurs by $C_1 - C_6$ glycosidic linkage.

(iii) Glycine is a optically inactive amino acids.

(iv) Pernicious anemia is caused by deficiency of Vitamin B_{12}.

A. (i), (ii), (iii), (iv)

B. (i), (iii), (iv) only

C. (ii), (iii), (iv) only

D. (i), (ii) only

Answer: A

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12. Which of the following will not give iodo form test:

A. $CH_3 - \underset{\underset{O}{||}}{C} - CH_3$

B. $C_2H_5 - \underset{\underset{O}{||}}{C} - C_2H_5$

C. $CH_3 - \underset{\underset{OH}{|}}{CH} - C_2H_5$

D. $I - CH_2 - \underset{\underset{O}{||}}{C} - CH_3$

Answer: B

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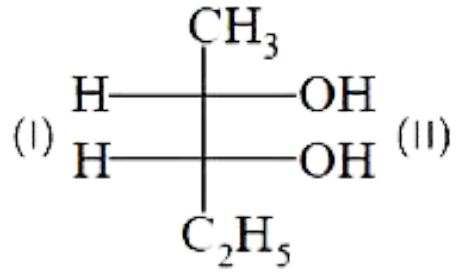
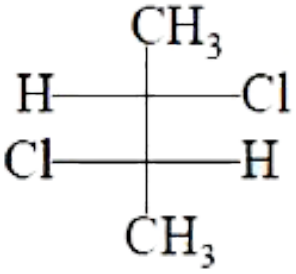
13. Which of the following compounds are meso forms?





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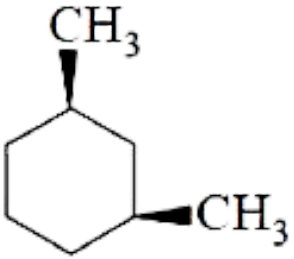

A. I only

B. III only

C. I and III

D. II and III

Answer: B

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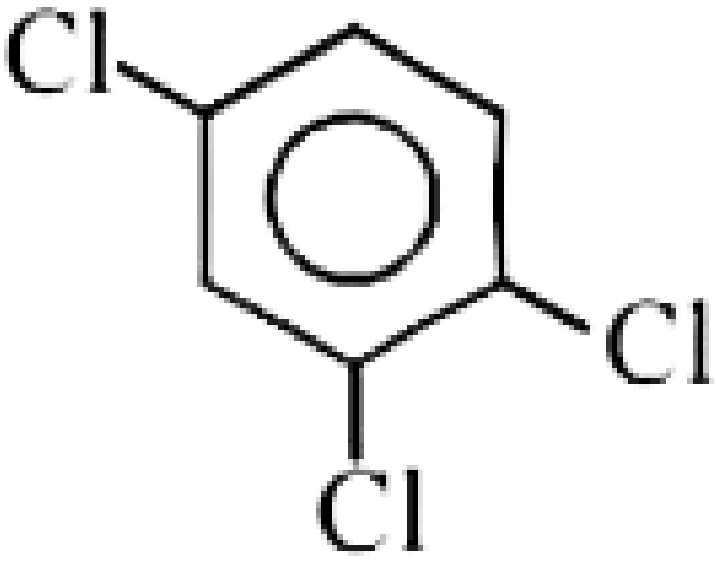

14.

Which of the following statements is valid for the above compound?

A. It does not have plane of symmetry.

B. It has zero dipole moment.

C. It shows geometrical isomerism.

D. It shows position isomerism.

Answer: D

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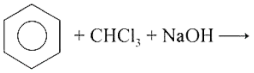
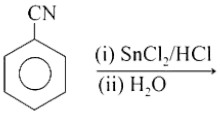
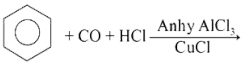
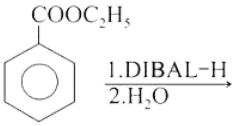
15. Reaction by which benzaldehyde can not be prepare :

A. 

B. 

C. 

D. 

Answer: A

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16. A solution contains Pb^{+2} ion. In order to precipitate Pb^{+2} ions, sodium sulphate

solution is required to be added. What is the concentration of sulphate ion required to reduce the concentration of Pb^{+2} to 2×10^{-6} mole per litre ? (K_{sp} for $PbSO_4 = 1.8 \times 10^{-8}$)

A. $5 \times 10^{-3} M$

B. $4 \times 10^{-3} M$

C. $9 \times 10^{-3} M$

D. $6 \times 10^{-3} M$

Answer: C

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17. Antifluorite structure can be obtained from fluorite structure by:

A. Heating fluorite crystal lattice.

B. Subjecting fluorite structure to high pressure.

C. Interchanging the positions of positive and negative ions in the lattice.

D. None of these

Answer: C

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18. The e/m ratio is maximum for :

A. D^+

B. He^+

C. H^+

D. He^{2+}

Answer: C

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19. In a reaction between A and B, the initial rate of reaction was measured for different initial concentration A and B as:

A in mol L^{-1}	B in mol L^{-1}	Initial rate in mol L^{-1} x s
0.2	0.3	5.07×10^{-5}
0.2	0.1	5.07×10^{-5}
0.4	0.05	1.43×10^{-4}

Find the order of reaction with respect to A and B.

A. 1,0

B. 1,1

C. 1,5,0

D. 1,5,1

Answer: C

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20. If we place 0.5 g Lithium metal in coffee cup calorimeter that already contains 75 ml of water. The specific heat capacity of reaction mixture is

$4Jg^{-1}K^{-1}$. Temperature of water is increased from $22^{\circ}C$to $72^{\circ}C$. Then find Δ H for the reaction.

$$2Li(s) + 2H_2O(l) \rightarrow 2LiOH(aq) + H_2(g)$$

A. $-11.2kJ/mol$

B. $= 16.1kJ/mol$

C. $-422.8kJ/mol$

D. $-211.4kJ/mol$

Answer: C

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21. Colourless radical among the following:

$[TiF_6]^{2-}$, $[CoF_6]^{3-}$, Cu_2Cl_2 and $[NiCl_4]^2$

is/are?

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22. IF_7 is an interhalogen compound. The total count of lone pairs in one molecule is/are

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23. How many electrons are involved in the reduction of dichromate by Fe(II) (per chromium atom)?

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24. Calculate the number of moles of butane required to give 8627.52 kJ of energy when heated.

(ΔH for butane $-2875.84 kJ mol^{-1}$)

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25. Sebacic acid is used in the manufacture of nylon-6, 10. The total number of methylene units in sebacic acid is:

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26. At temperature of 298 K, the emf of the following electrochemical cell

$Zn_{(s)}$

$\left|Zn^{2+}(0.1M)\right|\left|Cu^{2+}(0.01M)\right|Cu_{(s)}$

be _____V.

(Given $E^{\circ}_{\text{cell}} = 1.10V$)

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27. The oxidation number of hydrogen in LiH is___

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28. How many of the following salts show increase in solubility in water with increase in

temperature?

i. $NaNO_3$

ii. Li_2SO_4

iii. NH_4Cl

iv. $AgNO_3$

v. $Ce_2(SO_4)_3$

vi. KCl

vii. $Na_2CO_3 . H_2O$

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29. The mole fraction of solute in an aqueous solvent is 0.1. The molality of the solution is ------ m.

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30. To an evacuated empty vessel which has a movable piston under external pressure of 1 atm, 0.20 mol of He and 1.00 mol of an unknown gas (vapour pressure = 0.70 atm at 300 K) are introduced. Assuming ideal gas

behavior, the total volume of the gases at 300 K is ------ L

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