CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 63

Chemistry

1. How many lone pairs are present at an angle approximate to 90° in CIF_3 molecule?

A. 2

B. 3

C. 1

D. 0

Answer: B

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2. Which of the following set of elements will have no affinity for electron?

A. He, Be, B

B. N, Ne, Na

C. He, Ne, Ca

D. N, Sb, Kr

Answer: C

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3. Zone refining is based on the principle that ...

A. impurities of low boiling metals can be separated by distillation.

B. impurities are more soluble in molten metal than in solid metal.

C. different components of a mixture are differently absorbed on an adsorbent.

D. Vapours of volatile compound can be decomposed in pure metal.

Answer: B

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4. Choose the isotope, which has the least natural abundance.

A. ^{1}H

B. ^{2}H

C. ^{3}H

D. ^{4}H

Answer: C

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5. 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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6. Which of the following has least conductivity in aqueous solution.

A. $Co(NH_3)_4Cl_3$

B. $Co(NH_3)_3Cl_3$

C. $Co(NH_3)_5Cl_3$

D. $Co(NH_3)_6Cl_3$

Answer: B

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7. X and Y are two metals. When burnt in air, X forms only oxide while y forms oxide and nitride. The metals X and Y may be respectively:

A. K and Na

B. Na and Mg

C. Li and Na

D. Na and Cs

Answer: B

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8. By which of the following tests, $1^{\circ}, 2^{\circ}$ and 3° alcohols can be distinguished?

A. Lucas test

B. Victor Meyer test

C. Action with hot silver powder

D. All the above methods

Answer: D

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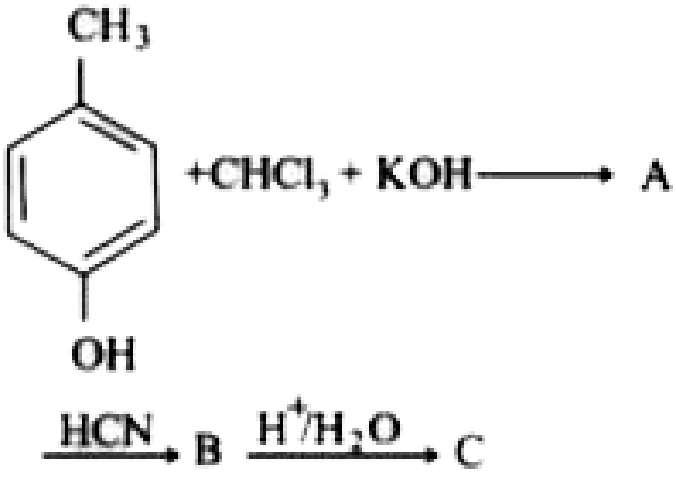
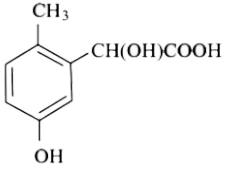
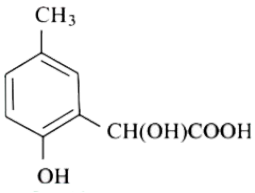
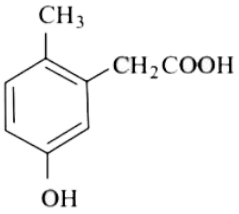
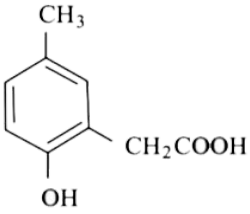
9. 

C is a chiral carboxylic acid .The structure of the carboxylic acid is

A. 

B. 

C. 

D. 

Answer: B

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10. Glucose and fructose are :

A. Diastereomers

B. Anomers

C. Epimers

D. Functional Isomers

Answer: B

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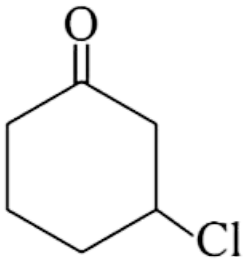
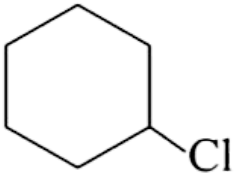
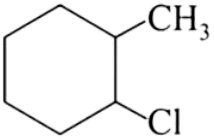
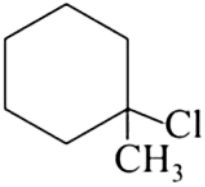
11. Which of the following compound will react with the fastest rate by E_2 mechanism?

A. 

B. 

C. 

D. 

Answer: A

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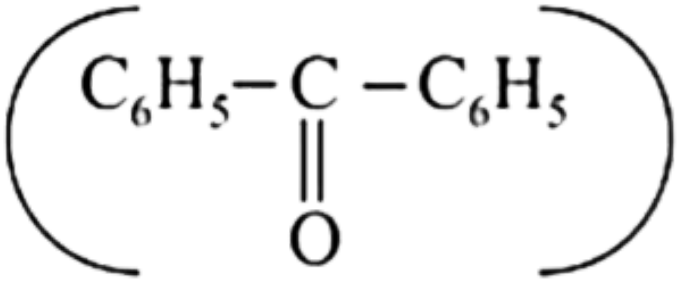
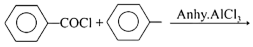
12.  can be obtained in :

A. $C_6H_5 - C \equiv C - C_6H_5 + HOH \xrightarrow{Hg^{2+} / H^{\oplus}}$

B. 

C. $C_6H_5 - CH_2 - C_6H_5 \xrightarrow[\Delta]{KMnO_4}$

D. $C_6H_5 - \equiv CH \xrightarrow[(ii)\, H_2O_2 / \overset{\Theta}{O}H]{(i)\, BH_3 - THF}$

Answer: B

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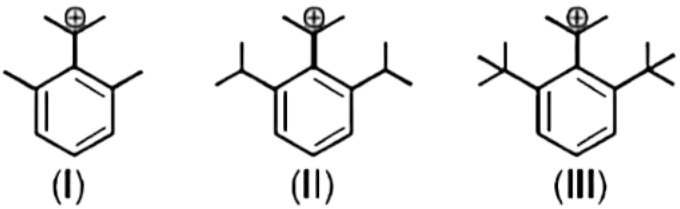
13. What is the correct order of stability of the following carbocations ?



(I) (II) (III)

A. $I > II > III$

B. $II > I > III$

C. $III > I > II$

D. $II > III > I$

Answer: A

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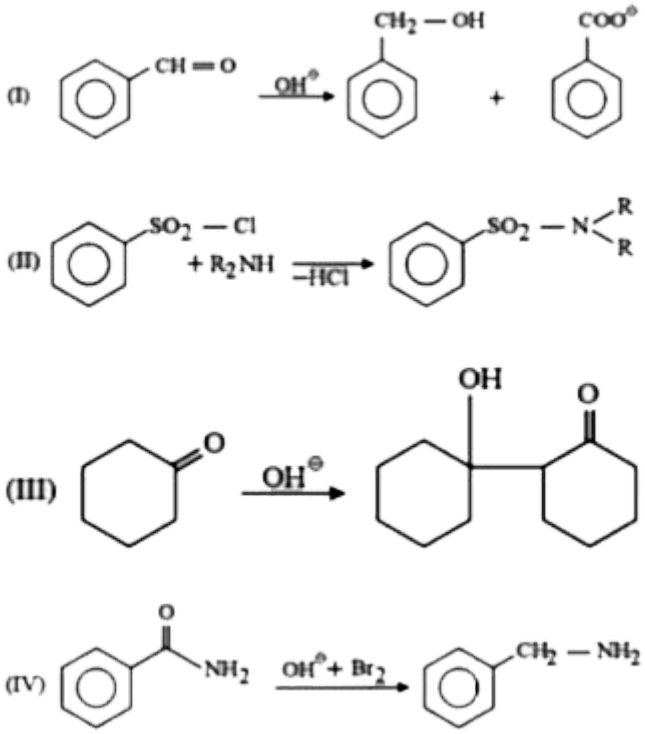
14. Which reaction show correct product:



A. I, II, III, IV

B. I, II, III

C. I, III, IV

D. III, IV

Answer: B

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15. Which of the following compounds contains the following structure and is a synthetic

detergent?

A. $C_{15}H_{31}COOK$

B. $C_{12}H_{25}SO_3Na$

C. $CH_3[CH_2]_{16}COONa$

D. None of these.

Answer: B

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16. The electrolytic decomposition of dilute sulphuric acid with platinum electrode, cathodic reaction is:

A. Reduction of H^+

B. Oxidation of SO_4^{2-}

C. Reduction SO_3^{2-}

D. Oxidation of H_2O

Answer: A

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17. The only INCORRECT statement for cubic metallic crystal is -

A. Packing efficiency (or fraction) is maximum for FCC.

B. Co-ordination number is minimum for simple cubic (SC)

C. For same edge-length of unit cell, the atomic radius is minimum for SC

D. For the same atomic radius, the edge length of unit cell is minimum for SC

Answer: C

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18. Consider the following two statements and select the correct options

Statement I: $0.1MH_3PO_{3(aq)}$ solution when completely reacted with NaOH has normality

equal to 0.3 N.

Statement II: H_3PO_3 is a dibasic acid.

A. Statement I is true, Statement II is also true and Statement II is the correct explanation of Statement I.

B. Statement I is true, Statement II is also true and Statement Il is not the correct explanation of Statement I.

C. Statement I is true, Statement II is false.

D. Statement is false, Statement II is true.

Answer: D

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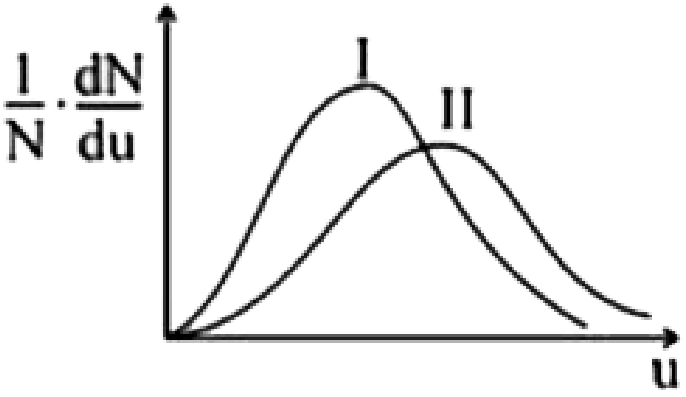
19. Following curves are plotted according to Maxwell distribution of molecular speed.



A. For He gas, temperature corresponding to I curve is higher than II curve.

B. At same temperature, I and II curve may represent N_2 and O_2 gas respectively.

C. Fraction of molecules having U_{mps} is more in curve I than curve II.

D. I and II curve may represent $O_2(g)$ at 300 K and $SO_2(g)$ at 500 K respectively.

Answer: C

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20. The electrons, identified by quantum numbers

n and l

(a) $n = 4, l = 1$

(b) $n = 4, l = 0$

(c) $n = 3, l = 2$

(d) $n = 3, l = 1$

Can be placed in order of increasing energy as :

A. $(c) < (d) < (b) < (a)$

B. $(d) < (b) < (c) < (a)$

C. $(b) < (d) < (a) < (c)$

D. $(a) < (c) < (b) < (d)$

Answer: B

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21. How many lone pairs are present on Cl after the bond formation in ClF_3 molecule?

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22. In the following reaction, how many number of moles of sulphur produce from 2 moles of CaS_5?

$$CaS_5 + CaS_2O_3 + HCl \rightarrow CaCl_2 + H_2O + S$$

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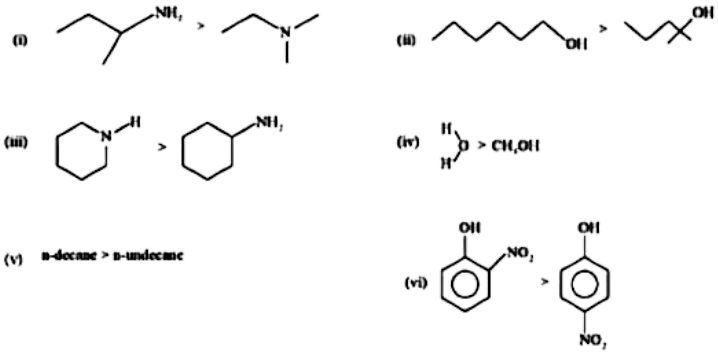
23. Among the following, how many are the correct order with respect to their Boiling

points?



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24. The number of – OH group(s) present in picric acid is/are:

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25. Equal volumes of 0.1 M NaOH and 0.01 M HCl are mixed together. What is the pH of the resulting solution? [Given: $\log_{10}(45) = 1.6532$]

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26. The total number of 'S' atoms having oxidation number zero in $S_4O_6^{-2}$ will be

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27. The osmotic pressure of urea solution is 500 mm at $100^{\circ}C$. The solution dilution and the temperature is raised to $250^{\circ}C$. The extent of dilution so that the osmotic pressure is to be 105.3 mm, is ___ times.

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28. The rate for the reaction $2N_2O_{5(g)} \rightarrow 4NO_{2(g)} + O_{2(g)}$ is $2.4 \times 10^{-5} mol\text{lit}^{-1}\text{sec}^{-1}$. If the rate is $3.0 \times 10^{-5}\text{sec}^{-1}$ then the concentration of

N_2O_5 in $mol\text{lit}^{-1}$ is:

(Fill your anwer by multiply with 10)

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29. Figure out the number of reactions among the following which have ΔH equal to ΔU

i. $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$

ii. $2HI(g) \rightarrow H_2(g) + I_2(g)$

iii. $C(s) + O_2(g) \rightarrow CO_2(g)$

iv. $2NO_2(g) \rightarrow N_2O_4$

v. $2SO_2(g) + O_2(g) \rightarrow 2SO_3(g)$

vi. $CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$

vii.

$$2C_4H_{10}(g) + 13O_2(g) \rightarrow 8CO_2(g) + 10H_2O(l)$$

viii. $H_2(g) + Br_2(g) \rightarrow 2HBr(g)$

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