

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 70

Chemistry

1. Consider the following statements and give the answer.

Statement 1: POF_3 exist but NOF_3

does not exist.

Statement 2: P cannot form five bond by expanding its octet while N can expand its octet to form five bonds

A. Statement 1 is true, statement 2 is true and statement 2 is correct explanation for statement 1

B. Statement 1 is true, statement 2 is true and statement 2 is NOT the correct explanation for statemet 1

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is false

Answer: D



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2. The correct example of pair of elements in Mendeleev's periodic table which not follow increasing order of atomic weight is

A. *Cl, Ar*

B. *Th, Pa*

C. *Te, In*

D. *Co, Nb*

Answer:



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3. Correct statement regarding the structure of CINO is

A. Shape is V-shaped and Cl-N-O bond angle is slightly less than 120° .

B. Shate is T- shaped and Cl-N-O bond angle is greater than 120° .

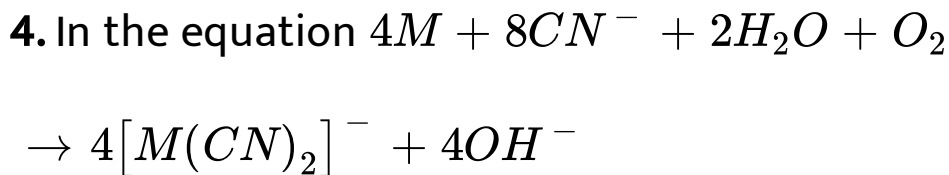
C. Shape is linear and Cl-N-O bond angle is less than 120°

D. None of these

Answer: A



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The metal M is :

A. copper

B. iron

C. gold

D. zinc

Answer: C



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5. Which is a radioactive isotope of hydrogen?

A. Protium

B. Deuterium

C. Tritium

D. Hydronium

Answer: C



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6. Which of the following is correctly matched?

A. $[Cu(NH_3)_4]^{2+}$ Diamagnetic

B. $[Ni(CN)_4]^{2-}$ Paramagnetic

C. $[MnCl_4]^{2-}$ Diamagnetic

D. $[Fe(CN)_6]^{4-}$ Diamagnetic

Answer: D



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7. Which of the following is not a use of baking soda?

- A. In medicines as antacid
- B. As a component of baking powder
- C. In removing permanent hardness of water
- D. In fire extinguishers

Answer: C



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8. When two grams of carbolic acid is converted into 2,4,5-tribromophenol, then what is the amount of bromine required for this conversion?

A. $20.4g$

B. $10.2g$

C. $6.0g$

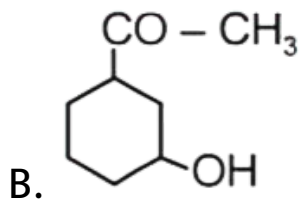
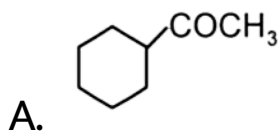
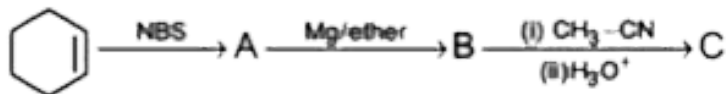
D. 4.0g

Answer: B

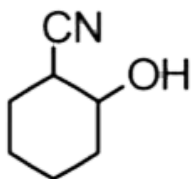


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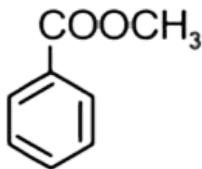
9. The C in following series of reaction is



C.



D.



Answer: B



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10. Which of the following is used in garbriel phthalimide synthesis as halide component?

A. Bromoethene

B. Benzyl chloride

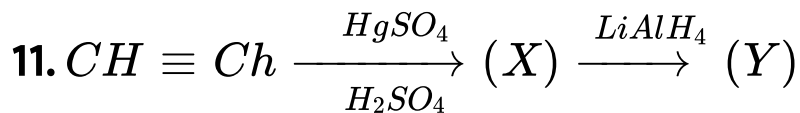
C. Chlorobenzene

D. Tertiary butyl chloride

Answer: B



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In this sequence of reaction (Y) is,

A. Ethylene bromide

B. Ethanol

C. Ethyl bromide

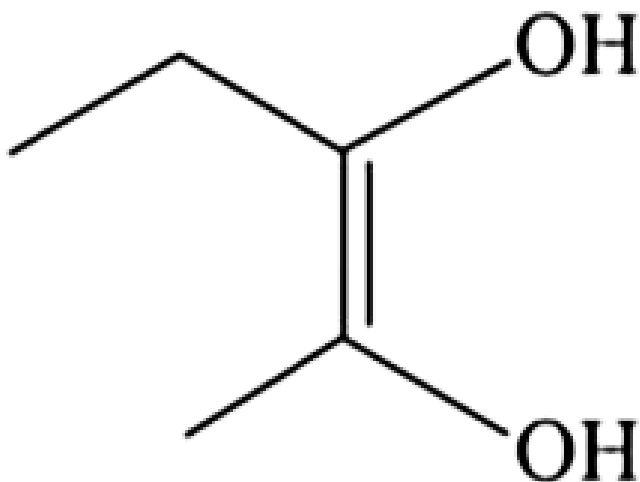
D. Ethylidene bromide

Answer: B



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12. IUPAC name of



- A. But-2-ene-2,3-diol
- B. Pent-2-ene-2,3-diol
- C. 2-methylbut-2-ene-2,3-diol
- D. Pent-3-ene-3,4-diol

Answer: B



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13. Which of the following compound can give acetylene on electrolysis?

A. Sodium succinate

B. Sodium acetate

C. Sodium maleate

D. Sodium malonate

Answer: A



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14. The unit cell fo Ni is a face centred cube of ovlume $0.064nm^3$. The atomic radius of Ni is

A. 168.0pm

B. 155.2 pm

C. 141.4 pm

D. 132.2pm

Answer: C



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15. If the elevation in boiling point of a solution of non volatile, non electrolytic and non associating solute in a solvent ($K_b = xKkgmol^{-1}$) is yK , than the depression in freezing point of solution of same concentration would be ($K_f = zKkgmol^{-1}$):

A. $\frac{2xy}{z}$

B. $\frac{yz}{x}$

C. $\frac{xz}{y}$

D. $\frac{yz}{2x}$

Answer: B



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16. A student has 20 balls in his basket. His friend gave him 2 more balls. He wants to know the significant figures in his calculation. The number of significant figures in his counting is

A. Two

B. Infinite

C. One

D. Cannot be calculated

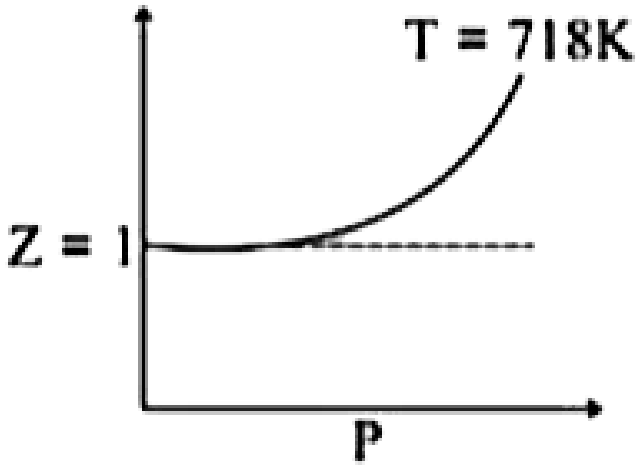
Answer: B



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17. From given Z v/s P curve for a gas, select the temperature at which gas will show positive

deviation in low pressure region,



A. 273K

B. 546K

C. 900K

D. Data insufficient

Answer: C



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18. The metal used in photoelectric cell is

A. Na

B. K

C. Mg

D. Cannot be calculated

Answer: B



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19. The rate constant of a reaction is $0.69 \times 10^{-1} \text{min}^{-1}$ and the initial concentration is 0.2molL^{-1} . The half life period is

A. 400 sec

B. 600 sec

C. 800 sec

D. 1200 sec

Answer: B



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20. If $\Delta_f H^\circ (C_2H_4)$ and $\Delta_f H^\circ (C_2H_6)$ are x_1 and x_2 K cal/mol, then heat of hydrogenation of C_2H_4 is

A. $x_1 + x_2$

B. $x_1 - x_2$

C. $x_2 - x_1$

D. $x_1 + 2x_2$

Answer: C



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21. The number of electrons in t_{2g} orbitals of cobalt ion in $[Co(NH_3)_6]^{3+}$ ion is _____



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22. (i) SO_2 is produced by the action of hydrochloric acid on Na_2SO_3

(ii) SO_2 is sp^2 hybridized.

(ii) SO_2 has two $p\pi - p\pi$ bonds

(iv) SO_2 and CS_2 are isostructural.

How many of the above statements are correct?



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23. In how many of the following the oxidation state of transition metal is greater than +3?

Mn_2O_7 , V_2O_3 , TiO_2 , $CrCl_2$, Ag_2S , Hg_2Cl_2 , MnO_2



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24. The number of natural hormones among the following are

Estrogen, norethindrone,

progesterone, insulin, epinephrine,

novestrol, promethazine



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25. 1-propoxypropane is formed by a saturated alkyl halide (C_3H_7X) when heated with dry silver oxide (Ag_2O). How many number of moles of alkyl halide are consumed per mole during formation of 1-propoxypropane?



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26. Find the number of isomeric compounds which can be represented by formula $C_4H_{10}O$?

(Exclude their stereoisomers if any)



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27. Number of correct statement out of the following for penicillin is/are

(a) It gives +ve Haloform test

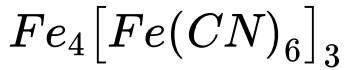
(b) It can evolve CO_2 on treatment with $NaHCO_3$

c. It gives +ve 2, 4 DNP test (Braddy's test)

d. Lassaigne extract of penicillin gives -ve test with $AgNO_3$

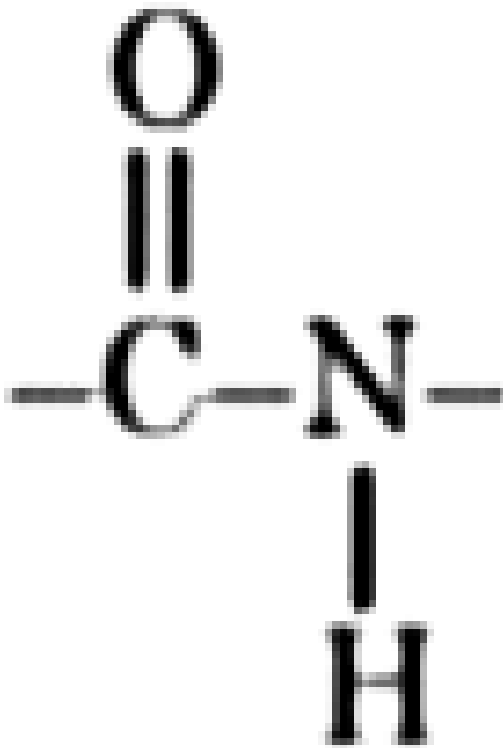
e. Lassaigne extract of penicillin gives + ve test

with



f. Lassaigne extract of penicillin gives +ve sodium nitroprusside test

g. Presence of



amide linkage /gp.

h.It gives -ve test with neutral $FeCl_3$ solution.



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28. When alkali is added pH of solution is in accordance with the following equation, in the acidbase titration

$[H_3PO_4(0.1M) + NaOH(0.1M)]$ emf of the solution is measured by coupling this electrode with suitable reference electrode.

$$E_{\text{cell}} = E_{\text{cell}^\circ} + 0.059pH$$

for

$$H_3PO_4 K_{a_1} = 10^{-3}, K_{a_2} = 10^{-8}, K_{a_3} = 10^{-13}$$

Find the value of cell emf at the 2nd end point of the titration if E_{cell}° at this state is 1.3805V.



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29. If the solubility(s) of $AgCl_{(s)}$ in 0.1M NaCl solution is $X \times 10^{-9}$ then what will be the value of X if the given solubility product of AgCl is 1.6×10^{-10} ?



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30. Among the given elements

Be, B, C, Na, F, Cl, Al, H, Li and O,

how many will exhibit(s) variable oxidation numbers?



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