CHEMISTRY

BOOKS - TS EAMCET PREVIOUS YEAR PAPERS

AP EAMCET ENGINEERING ENTRANCE EXAM ONLINE QUESTION PAPER 2019 (SOLVED)

Chemistry

1. Which of the following equations does represent the velcity (v) of the ejected electrons when a metal is made to strike with light of frequency v and threshold frequency of the metal is v_0 ?

(m_e = mass of electron and h is Plank's constant)

A. $v = \sqrt{\frac{h(v - v_0)}{m_e}}$

B. $v = \sqrt{\frac{2h(v - v_0)}{m_e}}$

C. $v = \sqrt{\frac{h(v - v_0)}{2m_e}}$

D. $v = \sqrt{h(v - v_0)m_e}$

Answer: B

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2. an element with mass number 181 contains 32% more neutrons as compared to protons. What is the symbol of that element ?

A. Pt

B. Pd

C. Au

D. Hg

Answer: A

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3. The electron gain enthalpy $\Delta e_g H$ is -349 kJ mol^{-1} . If the ground state energy of Cl(g) is x kJ mol^{-1} . The ground state energy (in kJ mol^{-1}) of Cl^- (g) is

A. x + 349

B. x

C. x - 349

D. $\frac{x - 349}{17}$

Answer: C

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4. Identify the correct set of molecules with different geometries and central atoms with different hydridisations.

A. $SnCl_2, BeCl_2, OF_2$

B. $H_2O, SO_2, HOCl$

C. NH_3, H_2SO_3, XeO_3

D. SF_4, XeF_4, CF_4

Answer: D

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5. Observe the following molecules :

$PCl_5, BrF_5, ClF_5, PF_5ClF_3, XeF_4, XeF_2, IF_5$ The number of molecules having square pyramidal geometry from the above is

A. 4

B. 5

C. 3

D. 6

Answer: C

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6. If the kinetic energy and RMS speed of a gas at a certain temperature are 4 . 0 kJ $mol^{-1} 5.0 \times 10^4 cms^{-1}$ respectivley . The molecular weight of the gas is

A. 16

B. 32

C. 64

D. 44

Answer: B

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7. In how many of the following compounds of sulphur, the oxidation state of sulphur atom is + 6 ?

$H_2S_2O_8$, H_2SO_5, H_2SO_3, H_2SO_4, $H_2S_2O_7$, SO_2CL_2, $SOCL_2$

A. 3

B. 5

C. 4

D. 6

Answer: C

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8. What is the nature of reaction at 298 K, if the entropy change and enthalpy change for a chemical reaction are 7.4 cal K^{-1} and -2.5×10^3 cal respectively ?

A. Reversible

B. Spontaneous

C. Non-spontaneous

D. Irreversible

Answer: B

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9. The value of K_C for the equilibrium reaction $CO_2(g) + C(s) \Leftrightarrow 2CO(g)$

at T (K) is 0 . 0 36 . If the equilibrium concentration of $CO_2(g)$ is 0 . 004 M , the concentration of CO (g) in mol L^(-1)` is

A. 3.6×10^{-2}

B. 2.0×10^{-2}

C. 1.2×10^{-2}

D. 1.2×10^{-3}

Answer: C

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10. 50 mL of 0 . 02 M Na OH solution is mixed 50 mL of 0 . 6 M acetic acid solution, the pH of resulting solution is

(pK_a pf acetic acid is 4 . 76, log 5 = 0 . 70)

A. 5 . 06

B. 4 . 06

C. 5 . 46

D. 4 . 46

Answer: D

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11. Which of the following is water -gas shift reaction ?

A. $C(s) + H_2O(g) \xrightarrow{1270K} CO(g) + H_2(g)$

B. $CH_4(g) + H_2O(g) \xrightarrow{1270K} CO(g) + 3H_2(g)$

C. $CO_s + H_2O(g) \xrightarrow[\text{lorn (III)chromate}]{673K} CO_2(g) + H_2(g)$

D. $2H_2O(l) \xrightarrow[\text{Traces of acid //base}]{\text{Electrolysis}} 2H_2(g) + O_2(g)$

Answer: C

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12. Magnesium is burnt in air to form A nd B . When B is hydrolysed , C and D are formed . D is the reactant in the manufacture of nitric acid by Ostwald's process . What is C ?

A. NH_3

B. $Mg(H)_2$

C. MgO

D. NO

Answer: B

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13. Which of the following reactions can be used to prepare diborane ?

I. $BF_3 + LiAlH_4 \xrightarrow{\text{Ether}}$

II. $BF_3 + NaH \xrightarrow{450K}$

III. $Na_2B_4O_7 + H_2O \rightarrow$

IV. $NaBH_4 + l_2 \rightarrow$

A. I, II, III

B. II, III only

C. III, IV only

D. I, II, IV

Answer: D

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14. Identify the correct staements .

I. Germanium exists only in traces

II. The order of electronegativity of Si, Ge, Sn, is $Sn > Ge > Si$

A. I, II only

B. II, III only

C. I, III only

D. I, II, III

Answer: C

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15. $H_2C = CH_2 + O_2 \xrightarrow{\text{Aqueous medium}} CH(3)CHO$

What is the catalyst used in the above given reaction ?

A. Pd(II)

B. Pt

C. ZnO

D. Rh

Answer: A

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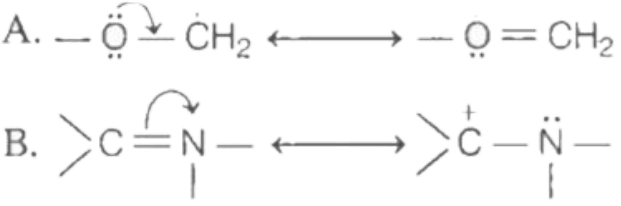
16. In the following resonance structures the curved arrow indicates that electrons are shifted from



A. atom of adjacent bond in both (A) and (B)

B. π - bond to adjacent atom in both (A) and (B)

C. π - bond to adjacent atom in (A) and atom to adjacent bond in (B)

D. atom to adjacent bond in (A) and pi - bond to adjacent atom in (B)

Answer: D

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17. In the detection of nitrogen of an organic compound by Lassaigne's test, Prussian blue colour is obtained . This is due to the formation of which of the following complexes ?

A. $Fe_2\left[Fe(CN)_6\right]$

B. $Fe_4\left[Fe(CN)_6\right]_3$

C. $Fe_3\left[Fe(CN)_6\right]_4$

D. $Na_4\left[Fe(CN)_6\right]$

Answer: B

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18. Identify Z in the following sequence of reactions

$$C_2H_2 \_ (2)Br \xrightarrow[(ii)\,NaNH_2]{(i)\,Alc.KOH} X \xrightarrow[\text{Fe tube } 873K]{\text{red hot}} Y \xrightarrow[\text{Anhyd. } AlCl_3]{(CH_3CO)_2O\,/\,\Delta} Z$$

A. Acetophenone

B. Anisole

C. Toluene

D. Chlorobenzene

Answer: A

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19. Which one of the following is not present in the nitration mixture ?

A. $\overset{+}{N}O_2$

B. HSO_4^-

C. SO_4^{2-}

D. H_2O

Answer: C

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20. A compound is formed from elements X and Y.. The atoms of Y (anions) form ccp lattice. The atoms of X (cations) occupy half of

the octahedral voids and half of tetrahedral voids. What is the formula of the compound ?

A. X_3Y_2

B. X_2Y_3

C. XY

D. X_4Y_3

Answer: A

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21. The vaporu pressures of chloroform $(CHCl_3)$, dichloromethane (CH_2Cl_2) at 298 K are 200 mm Hg and 415 mm Hg respectivley. An ideal solutions in prepared by mixing 59.75 g of $CHCl_3$ and 21 . 25 g of CH_2Cl_2 , the mole fractions of chloroform and dichloromethane in vapour phase respectively are

A. 0 . 509, 0.491

B. 0.491, 0.509

C. 0.201, 0.799

D. 0.799, 0.201

Answer: B

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22. The elevation in boling point of an aqueous solutions of NaCl is 0.01 $.^{\circ} C$. If its van't Hoff factor is 1.92 ,the molality of NaCl solution is

(K_b for water = 0 . 52 k kg mol^{-1})

A. 0.01m

B. 0.001m

C. 0.005m

D. 0.02m

Answer: A

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23. $CuSO_4$ solution is electrolysed for 15 minutes to deposity 0 . 4725 g of copper at the cathode. The current in amperes required is

(Faraday = 96500 C mol^{-1} , atomic weight of copper = 63)

A. 0.804

B. 1.608

C. 1.206

D. 0.402

Answer: B

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24. The rate constants for a reaction at 400 K and 500 K are $2.60 \times 10^{-5} s^{-1}$ and $2.60 \times 10^{-3} s^{-1}$ respectively. The activation energy of the reaction in kJ mol^{-1} is

A. 38.3

B. 57.4

C. 114.9

D. 76.6

Answer: D

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25. Match the following :

List-I (Reaction)	List-II(Catalyst)
$A.\ N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$	$I.$ Ni
$B.\ 2H_2(g) + O_2(g) \rightarrow 2H_2O(l)$	$II.$ Pt
$C.\ CO(g) + 3H_2(g) \rightarrow CH_4(g) + H_2O(g)$	$III.\ ZnO - Cr_2O_3$
$D.\ CO(g) + 2H_2(g) \rightarrow CH_3OH(g)$	$IV.$ Fe

A. $\begin{matrix} A & B & C & D \\ III & II & I & IV \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ IV & III & II & I \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ IV & II & I & III \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ IV & I & III & II \end{matrix}$

Answer: C

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26. The pair of metals refined by "vapour phase refining" is

A. Ni,Cu

B. Sn.Ni

C. Zr,Ni

D. Cu,Zr

Answer: C

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27. White phosphorus, when heated with conc. NaOH solution in an inert atmosphere of CO_2 forms phosphine and a sodium salt of oxoacid of phosphorus 'X' . The oxidation state of phosphorus in 'X' is

A. $+3$

B. $+4$

C. $+1$

D. $+5$

Answer: C

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28. The number of P-OH bonds present in pyrophosphoric acid and hypophosphoric acid is respectively.

A. 4,3

B. 2,4

C. 3,4

D. 4,4

Answer: D

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29. Sodium nitrite is reacted with H_2SO_4 to form $NaHSO_4, HNO_3$, water and X . Gold is dissolved in aqua-regia to form water , $AuCl_4^-$ and Y,X and Y are respectivley

A. NO, NO^2

B. NO_2, NO

C. NO, NO

D. N_2O, NO

Answer: C

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30. Which of the following complex ions is most stable ?

A. $\left[Co(H_2O)_6\right]^{3+}$

B. $\left[CO(CN)_6\right]^{3-}$

C. $\left[CO(C_2O_4)_3\right]^{3-}$

D. $\left[COF_6\right]^{3-}$

Answer: C

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31. The copper (II) halide which does not exist is

A. $CuF(2)$

B. $CuBr_2$

C. CuI_2

D. $CuCl_2$

Answer: C

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32. Match the following :

List - I	List - II
A. Addition polymer	I. Bakelite
B. Condensation polymer	II. 2-Methyl-1,3-butadiene
C. Acrilan	III. 2,3-dimethyl-1,3-butadiene
D. Rubber	IV. Vinyl cyanide
	V. Polythene

A. $\begin{matrix} A & B & C & D \\ V & I & IV & II \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ V & I & II & III \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ I & V & IV & II \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ I & V & II & III \end{matrix}$

Answer: A

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33. Identify the correct statements from the following .

I. When DNA is hydrolysed adenine and thymine are obtained in equal quantities.

II. When RNA is hydrolysed adenine and uracil are obtained in equal equantities .

III. Amylose is branched polymer with $\alpha 1 \rightarrow 4$ and $\alpha 1 \rightarrow 6$ glycosidic linkages.

IV. Addison disease is due to the abnormal functioning of adrenal cortex .

A. I,II,III only

B. I,II,III,IV

C. I,II,IV only

D. I,IV only

Answer: D

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34. Identify the correct pair from the following :

A. Cobeine-analgesix : Equanil - tranquilizer

B. Chlramphenicol-tranquilizer : Nardil-antibiotic

C. Histamine-tranquilizer : Salversan-antibiotic

D. Norethindrone-antacid : Alitame-artificial sweetening agent

Answer: A

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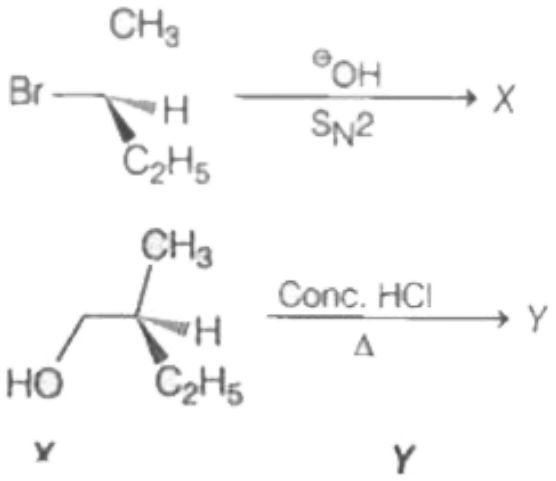
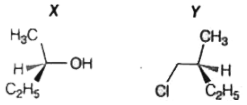
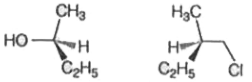
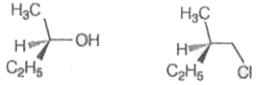
35. What are X and Y in the following reactions ?



A. 

B. 

C. 

D. 

Answer: A

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36. What is Z in the following sequence of reactions ?

p - chloronitrobenzene

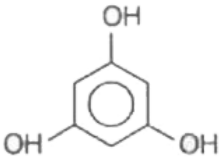
$$\xrightarrow[(ii)\,H_3O^+]{(i)\,NAOH\,,443K} X \xrightarrow[0-5^\circ C]{(i)\,sn+HCl\,,\,(ii)\,NaNO_2/HCl} Y \xrightarrow[10^\circ C]{H_2O} Z$$

A.

B.

C.

D.



Answer: C

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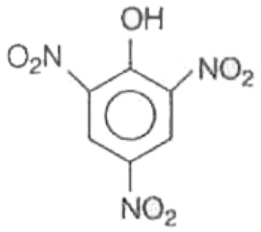
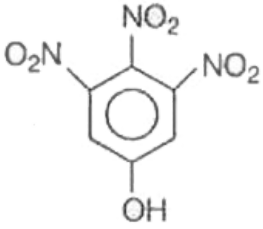
37. An organic compound $A(C_6H_7N)$ on reaction with $NaNO_2/HCl$ at 273-278 K following by warming with water gives B . B reacts with conc. HNO_3 to give C . What is C ?

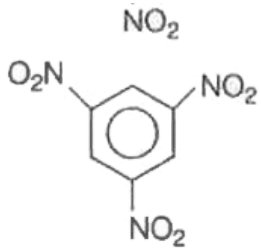
A.



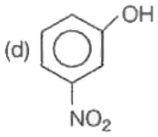
B.



C.



D.



Answer: A

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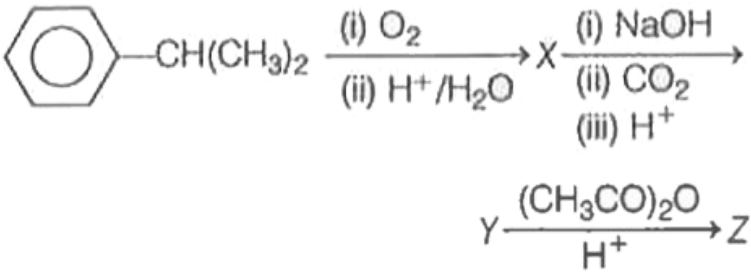
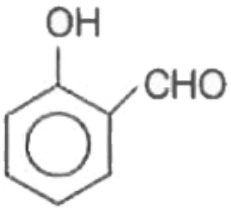
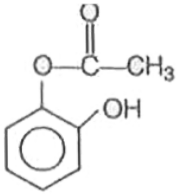
38. What is Z in the above sequence of reactions



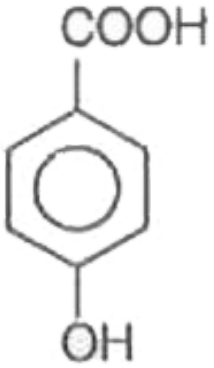
A.

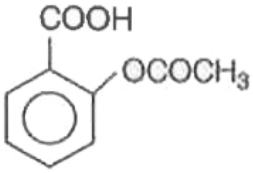


B.



C.



D. 

Answer: D

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39.

$$CH_2 = CH_2 \xrightarrow[(ii)\, Zn/H_2O]{(i)\, O_3} A \xrightarrow[NAOH]{\text{Conc.}} \underset{\text{Alcohol}}{B} + \underset{\text{Sodium salt of carboxylic acid}}{C}$$

The reaction of A to give B and c is an example of

A. HVZ reaction

B. Stephen reaction

C. Ethard reaction

D. Cabbuzzaro reaction

Answer: D

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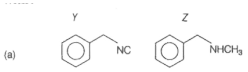
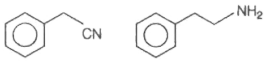
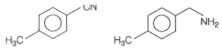
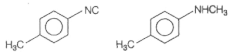
40. An organic compound $X(C_7H_7Cl)$ when reacted with KCN/C_2H_5OH gave major product Y.Z is formed when Y is reduced with $LiAlH_4$. What are Y and Z ?

A. 

B. 

C. 

D. 

Answer: B

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