



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

MHTCET 2019 PAPER 2

Chemistry

1. The number of 'sigma' and π bonds in 2-formylbenzoic acid are respectively

A. 10, 3

B. 14, 3

C. 12, 5

D. 17, 5

Answer: D



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2. The volume of 1 mole of a gas at standard temperature and pressure is:

A. $0.022414m^3$

B. $22.414 \cdot m^3$

C. $2.2414m^3$

D. $0.22414m^3$

Answer: A



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3. Veronal is used as a/an

A. analgesic

B. antihistamine

C. antibiotic

D. tranquilizer

Answer: D

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4. Which of the following is also called as nitrogen sesquioxide?

A. NO_2

B. N_2O_3

C. N_2O_4

D. N_2O_5

Answer: B

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5. The oxidation number of sulphur in S_8 molecule is

A. 6

B. 0

C. 2

D. 3

Answer: B



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6. Which among the following is a set of nucleophiles ?

A. H^+ , NH_3 , Cl^-

B. BF_3 , H_2O , NH_3

C. $AlCl_3$, BF_3 , NH_3

D. CN^- , H_2O , $R-OH$

Answer: D

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7. Which of the following acts as oxidising agent in hydrogen-oxygen fuel cell

A. H_2

B. O_2

C. KOH

D. C

Answer: B

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8. According to the Lewis dot structure for ozone, what is the formal charge on the central oxygen atom?

$$\ddot{O} = \ddot{O} - \ddot{O}:$$

A. -1

B. +2

C. 0

D. +1

Answer: D



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9. According to Werner's theory the geometry of the complex is determined by

A. only from the primary valence in space

B. number and position of the primary valences in space

C. number and position of the secondary valences in space

D. only from the position of secondary valence in space

Answer: C

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10. How many total constituent particles are present in simple cubic unit cell ?

A. 1

B. 3

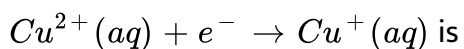
C. 4

D. 2

Answer: A

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11. The correct representation of Nernst equation for half-cell ,reaction



- A. $E_{Cu^+, Cu^{2+}}^\circ = E_{Cu^+, Cu^{2+}}^\circ - \frac{0.0592}{2} \log. \frac{[Cu^+]}{[Cu^{2+}]}$
- B. $E_{Cu^+, Cu^{2+}}^\circ = E_{Cu^+, Cu^{2+}}^\circ - \frac{0.0592}{1} \log. \frac{[Cu^+]}{[Cu^{2+}]}$
- C. $E_{Cu^+, Cu^{2+}}^\circ = E_{Cu^+, Cu^{2+}}^\circ - \frac{0.0592}{2} \log. \frac{[Cu^+]}{[Cu^{2+}]}$
- D. $E_{Cu^+, Cu^{2+}}^\circ = E_{Cu^+, Cu^{2+}}^\circ - \frac{0.0592}{1} \log. \frac{[Cu^+]}{[Cu^{2+}]}$

Answer: B::D

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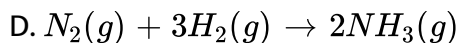
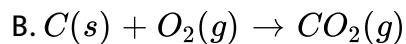
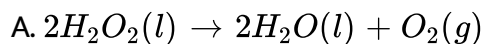
12. Which among the following is a neutral complex?

- A. $[Fe(H_2O)_6]Cl_3$
- B. $[Ni(NH_3)_6]Cl_2$
- C. $[Pt(NH_3)_2Cl_2]$
- D. $k[Ag(CN)_2]$

Answer: C

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13. Identify the equation in which change in enthalpy is equal to change in internal energy



Answer: B



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14. Limestone is used as a flux in the extraction of

A. iron

B. aluminium

C. zinc

D. copper

Answer: A



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15. Which among the following does not form polyhalide ion?

A. Chlorine

B. Bromine

C. Iodine

D. Fluorine

Answer: D



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16. How many isomers are possible for an alkane having molecular formula C_5H_{12} ?

- A. 5
- B. 3
- C. 4
- D. 2

Answer: B



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17. Which of following elements does not form amide when reacted with ammonia?

- A. Li
- B. Na
- C. KOH

D. Rb

Answer: A

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18. Two moles of an ideal gas is expanded isothermally and reversibly from 1 liter to 10 liter at $300K$. The enthalpy change (in kJ) for the process

A. $11.4kJ$

B. $4.8kJ$

C. $-11.4KJ$

D. zero kj

Answer: D

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19. α -chlorosodium acetate on boiling with aqueous sodium nitrite gives

- A. nitromethane
- B. α -chloronitromethane
- C. nitroethane
- D. acetyl chloride

Answer: A



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20. The dihedral angle in gaseous H_2O_2 is

- A. 90.2°
- B. 111.5°
- C. 101.9°
- D. 94.8°

Answer: D

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21. How many metameric ethers are represented by the molecular formula



A. 4

B. 3

C. 2

D. 5

Answer: B

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22. The activation energy of a reaction is zero. Its rate constant at 280 K is

$16 \times 10^{-6} s^{-1}$ the rate constant at 300k is

A. $3.2 \times 10^{-6} \text{ s}^{-1}$

B. zero

C. $1.6 \times 10^{-6} \text{ s}^{-1}$

D. $1.6 \times 10^{-5} \text{ s}^{-1}$

Answer: D



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23. Which of following metals occurs in native state?

A. Magnesium

B. Platinum

C. Potassium

D. Sodium

Answer: B



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24. Which of the following is not a broad spectrum antibiotics ?

- A. Penicillin
- B. Amoxicillin
- C. Chloramphenicol
- D. Ampicillin

Answer: A



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25. The oxidation state of sulphur in $H_2S_2O_7$ is

- A. +4
- B. +6
- C. +5

D. +7

Answer: B

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26. The reaction in which 2 molecules of chlorobenzene reacts with metallic sodium in presence of dry ether forming diphenyl is an example of,

- A. Wurtz-Fittig reaction
- B. Wurtz reaction
- C. Rosenmund reaction
- D. Balz-Schiemann reaction

Answer: A

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27. The percentage of unoccupied volume in simple cubic cell is

A. 0.524

B. 0.32

C. 0.476

D. 0.6804

Answer: C



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28. Isobutylene on hydroboration followed by oxidation with hydrogen peroxide in presence of base yields

A. n-butyl alcohol

B. sec-butyl alcohol

C. tert-butyl alcohol

D. isobutyl alcohol

Answer: D

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29. What is the density of water vapour at boiling point of water?

A. $1 \times 10^{-4} \text{ gcm}^3$

B. 1 gcm^3

C. $6 \times 10^{-4} \text{ gcm}^3$

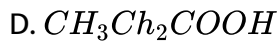
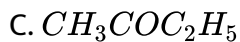
D. $4 \times 10^{-4} \text{ gcm}^3$

Answer: C

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30. Which of the following molecules form a Zwitter ion?





Answer: B

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31. Which reaction is useful in exchange of halogen in alkyl chloride by iodide?

A. Wurtz reaction

B. Finkelstein reaction

C. Reimer-Tiemann reaction

D. Williamson synthesis

Answer: B

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32. Propene when treated with cold conc. H_2SO_4 forms a compound which on heating with water gives.

A. propan -2-ol

B. butan -1-ol

C. ethanol

D. propan -1-ol

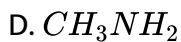
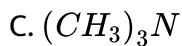
Answer: A

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33. Identify the amine formed when ethyltrimethyl ammonium iodide is treated with silver hydroxide and further heated strongly

A. $C_2H_5N(CH_3)_2$

B. $C_2H_5NH_2$



Answer: C

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34. For a chemical reaction rate law is, $\text{rate} = k[A]^2[B]$. If $[A]$ is doubled at constant $[B]$, the rate of reaction

A. increases by a factor of 8

B. increases by a factor of 4

C. increases by a factor of 3

D. increases by a factor of 2

Answer: B

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35. Which of the following is a natural polymer?

A. Nylon

B. Teflon

C. Linen

D. Orlon

Answer: C



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36. The two monomers used in the preparation of dextran are

A. glycine and ω - amino caproic acid

B. 3 - hydroxy butanoic acid and 3-hydroxy pentanoic .acid

C. glycine and lactic acid

D. lactic acid and glycolic acid

Answer: D

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37. When a mixture of manganese dioxide, potassium hydroxide and potassium chlorate is fused, the product obtained is

- A. K_2SO_4
- B. K_2MnO_3
- C. K_2MnO_4
- D. $KMnO_4$

Answer: C

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38. In which oxidation state, group 15 elements act as Lewis base?

A. +5

B. +4

C. -3

D. +3

Answer: C

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39. Relationship between van't Hoff 's factor (i) and degree of dissociation (α) is

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40. Which of following elements does not react with hot concentrated sulphuric acid?

A. Sb

B. N

C. P

D. As

Answer: B

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41. In the reaction $H_2O_2(aq) \xrightarrow{I_{(aq)}^-} H_2O(l) + \frac{1}{2}O_2(g)$ iodide ion acts as

A. homogenous catalyst

B. acid catalyst

C. heterogenous catalyst

D. enzyme catalyst

Answer: A

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42. The ionic charges of manganate and permanganate ion are respectively

A. -2 , -2

B. -1 , -2

C. -2 , -1

D. -1 , -1

Answer: C



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43. How many gram of sodium (atomic mass 23 u) is required to prepare one mole of ethane from methyl chloride by Wurtz reaction?

A. 2

B. 23

C. 11.5

D. 46

Answer: D



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44. The enzyme which converts maltose to glucose is

A. maltase

B. insulin

C. lysine

D. zymase

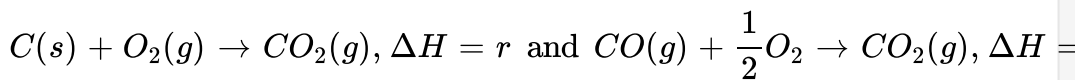
Answer: A



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45.

If



then, the heat of formation of CO is

A. $-Y - X$

B. $Y - X$

C. $X + Y$

D. $X - Y$

Answer: B



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46. What is the atomicity of aluminium phosphate ?

A. 8

B. 6

C. 5

D. 13

Answer: B

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47. Which among the following compounds is obtained when ethane nitrile is acid hydrolysed?

A. Formic acid

B. Acetamide

C. Formamide

D. Acetic acid

Answer: D

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48. Standard hydrogen electrode (SHE) is a

- A. primary reference electrode
- B. secondary reference electrode
- C. metal - sparingly soluble salt electrode
- D. metal - metal ion electrode

Answer: A



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49. 9 gram anhydrous oxalic acid (mol. wt. = 90) was dissolved in 9.9 moles of water. If vapour pressure of pure water is P_1° the vapour pressure of solution is

- A. $0.99p_1^\circ$
- B. $0.1p_1^\circ$
- C. $0.99p_1^\circ$

D. $1.1p_1^\circ$

Answer: A



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50. Which of the following sets of solutions of urea

.

A. 9.1 gL^{-1} urea and 6.0 gL^{-1} sucrose

B. 3.0 gL^{-1} urea and 3.0 gL^{-1} sucrose

C. 6.0 gL^{-1} urea and 9.0 gL^{-1} sucrose

D. 3.0 gL^{-1} urea and 17.1 gL^{-1} sucrose

Answer: D



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