



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

MHTCET 2017

Chemistry

1. The work done during combustion of 9×10^{-2} kg of ethane, $C_2H_6(g)$ at 300 K is

(Given $R=8.314 \text{ J deg}^{-1} \text{ mol}^{-1}$, atomic mass C = 12, H=1)

A. 6.236 kJ

B. -6.236 kJ

C. 18.71 kJ

D. -18.71 kJ

Answer: C



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2. What type of sugar molecule is present in DNA ?

- A. D-3-deoxyribose
- B. D-ribose
- C. D-2-deoxyribose
- D. D-glucopyranose

Answer: C



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3. The molarity of solution containing 15.20g of urea, (molar mass = 60) dissolved in 150g of water is

A. 1.689mol kg^{-1}

B. 1689mol kg^{-1}

C. 0.5922mol kg^{-1}

D. 0.2533mol kg^{-1}

Answer: A



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4. The acid, which contains both -OH and -COOH groups is

A. phthalic acid

B. adipic acid

C. glutaric acid

D. salicylic acid

Answer: D



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5. Identify the compound in which phosphorus exists in the oxidation state of +1.

A. Phosphonic acid (H_3PO_3)

B. Phosphinic acid (H_3PO_2)

C. Pyrophosphorus acid ($H_4P_2O_5$)

D. Orthophosphoric acid (H_3PO_4)

Answer: B



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6. Identify the weakest oxidising agent among the following.



Answer: A



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

A. lactic acid and glycolic acid

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

C. styrene acid 1, 3-butadiene

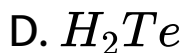
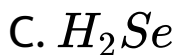
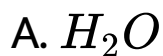
D. hexamethylenediamine and adipic acid

Answer: A



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8. Which among the following compounds does not act as reducing agent ?



Answer: A



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9. Which of the following processes is not used to preserve the food ?

A. Irradiation

B. Addition of salts

C. Addition of heat

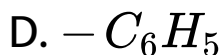
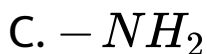
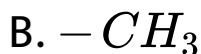
D. Hydration

Answer: D



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10. In case of substituted aniline the group which decreases the basic strength is



Answer: D



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11. (+ 2) 2-methylbutan -1-ol(-)2-methylbutan
-1-ol have different values for which

A. Boiling point

B. Relative density

C. Refractive index

D. Specific rotation

Answer: D



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12. Which of the following is not a mineral of iron?

A. Haenatite

B. Magnesite

C. Magnetic

D. Siderite

Answer: B



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13. Nitrations of which among the following compounds yields cyclonite ?

A. Formaldehyde

B. Benzaldehyde

C. Urotropine

D. Acetaldehyde ammonia

Answer: C



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14. Calculate the work done during compression of 2 mol of an ideal gas from a volume of $1m^3$ to $10dm^3$ 300 K against a pressure of 100 KPa .

A. $-99kJ$

B. $+99kJ$

C. $+22.98kJ$

D. $-22.98kJ$

Answer: B



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15. Which element among the following does form $p\pi - p\pi$ multiple bonds ?

A. Arsenic

B. Nitrogen

C. Phosphorus

D. Antimony

Answer: B



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16. Which of the following statement(s) is/are incorrect in case of Hofmann bromamide degradation ?

A. Reaction is useful for decreasing length of carbon chain by one carbon atom

B. It gives tertiary amine

C. It gives primary amine

D. Aqueous or alcoh. KOH is used with bromine

Answer: B



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17. Which of the following statement(s) is/are incorrect for pair of element Zr-Hf ?

A. Both posses same number of valence electrons

B. Both have identical sizes

C. Both have almost identical radii

D. Both of these belong to same period of periodic table

Answer: D



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18. Aldehyde or ketones when treated with $C_6H_5 - NH - NH_2$. The product formed is

A. semicarbazone

B. phenylhydrazone

C. hydrazone

D. oxime

Answer: B



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19. Solubility of which among the following solids in water changes slightly with temperature /

A. KNO_3

B. $NaNO_3$

C. KBr

D. $NaBr$

Answer: D



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20. What is the quantity of hydrogen gas liberated when 46g sodium reacts with excess ethanol ?

(Given atomic mass of $Na = 23$)

A. $2.4 \times 10^{-3} \text{ kg}$

B. $2.0 \times 10^{-3} \text{ kg}$

C. $4.0 \times 10^{-3} \text{ kg}$

D. $2.4 \times 10^{-2} \text{ kg}$

Answer: B



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21. Tert-butyl methyl ether on treatment with hydrogen iodine in cold gives

- A. tert-butyl iodide and methyl iodide
- B. tert-butyl alcohol and methyl alcohol
- C. tert-butly alcohol and methyl iodide
- D. terty-butyl iodide and methyl alcohol

Answer: D



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22. Name the process that is employed to refine aluminium.

- A. Hall's process
- B. Mond process
- C. Hoopé's process
- D. Serperck's process

Answer: C



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23. The colour and magnetic nature of manganate ion (MnO_4^{2-}) is

A. green, paramagnetic

B. purple, diamagnetic

C. green, diamagnetic

D. purple, paramagnetic

Answer: A



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24. The osmotic pressure of solution containing $34.2g$ of cane sugar (molar mass =

342 g mol^{-1}) in 1 L of solution at 20°C is

(Given $R = 0.082 \text{ L atm K}^{-1}\text{mol}^{-1}$)

A. 2.40 atm

B. 3.6 atm

C. 24 atm

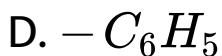
D. 0.0024 atm

Answer: A



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25. In assigning R-S configuration , which among the following groups has highest priority ?



Answer: A



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26. Which of the following is used as antiseptic ?

A. Chloramphenicol

B. Bithional

C. Cimetidine

D. Chlordiazepoxide

Answer: B



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27. In preparation of sulphuric acid from sulphur dioxide in lead chamber process. What substance is used as a catalyst ?

- A. Manganese dioxide
- B. Vanadium pentoxide
- C. Nitric oxide
- D. Raney nickel

Answer: C



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28. The correct charge on and co-ordination number of ' Fe ' in $K_3[Fe(CN)_6]$ is

A. + 2, 4

B. + 3, 6

C. + 2, 6

D. + 3, 3

Answer: B



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29. Which among the following reactions is an example of pseudo first order reaction ?

A. Inversion of cane sugar

B. Decomposition of H_2O_2

C. Conversion of cyclopropane to propene

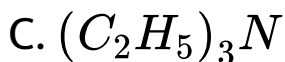
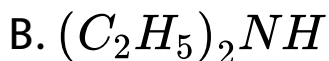
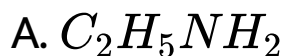
D. Decomposition of N_2O_5

Answer: A



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30. The amine, which reacts with p-toluenesulphonyl chloride to give a clear solution, which on acidification gives insoluble compound is



Answer: A



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31. Which of the following expression represents Arrhenius equation ?

A. $k = A e^{E_a / RT}$

B. $k = A. e^{RT / E_a}$

C. $k = \frac{A}{e^{E_a / RT}}$

D. $k = \frac{A}{e^{RT / E_a}}$

Answer: C



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32. Which of the following compound will give positive iodoform test ?

- A. Isopropyl alcohol
- B. Propionaldehyde
- C. Ethylphenyl ketone
- D. Benzyl alcohol

Answer: A



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33. The first law of thermodynamics for isothermal process is

A. $q = -W$

B. $\Delta U = W$

C. $\Delta U = q_v$

D. $\Delta U = -q_v$

Answer: A



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34. The conversion of ethyl bromide using sodium iodide and dry acetone, this reaction is known as

- A. Swarts reaction
- B. Finkelstein reaction
- C. Sandmeyer reaction
- D. Stephen reaction

Answer: B



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35. What is the hybridisation of carbon atoms in fullerene ?

A. sp^3

B. sp

C. sp^2

D. dsp^3

Answer: C



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36. Solubility of which among the following solids in water changes slightly with temperature /

A. S_m

B. S_m^{-1}

C. S_m^2

D. S_m^{-2}

Answer: B



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37. Baeyer's reagent is:

A. Alkaline $KMnO_4$

B. Acidic $K_2Cr_2O_7$

C. Alkaline $Na_2Cr_2O_7$

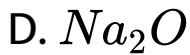
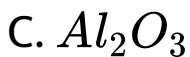
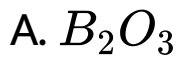
D. MnO_2

Answer: A



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38. Which of the chief constituent of pyrex glass ?



Answer: B



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39. Which of the following compounds has lowest boiling point ?

A. n-butyl alcohol

B. Iso-butyl alcohol

C. Tert-butyl alcohol

D. Sec-butyl alcohol

Answer: C



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40. Identify the invalid equation

A. $\Delta H = \sum H_{\text{products}} - \sum H_{\text{reaction}}$

B. $\Delta H = \Delta U + p\Delta V$

C. $\Delta H_{(\text{reaction})}^{\circ} = \sum H_{(\text{product bonds})}$

D. $\Delta H = \Delta U + \Delta nRT$

Answer: C



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41. The rate constant for a first order reaction is $7.5 \times 10^{-4} \text{ s}^{-1}$. If initial concentration of reactant is 0.080 M , what is the half life of reaction ?

A. 990 s

B. 79.2 s

C. 12375 s

D. $10.10 \times 10^{-4} \text{ s}$

Answer: A



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42. The polymer used in making handles of cookers and frying pans is

- A. bakelite
- B. nylon-2-nylon-6
- C. orlon
- D. polyvinyl chloride

Answer: A



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43. Which halogen has the highest value of negative electron gain enthalpy ?

A. Fluorine

B. Chlorine

C. Bromine

D. Iodine

Answer: B



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44. What is the actual volume occupied by water molecules present in 20cm^3 of water ?

A. 20cm^3

B. 10cm^3

C. 40cm^3

D. 24.89cm^3

Answer: B

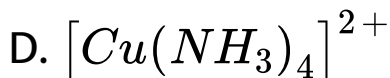
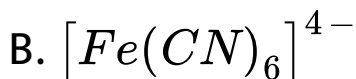


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45. Which of the following co-ordinate complexes is an exception to EAN rule ?

(Given atomic number

$Pt = 078, Fe = 26, Zn = 30, Cu = 29$)

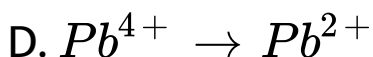
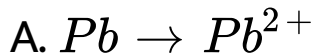


Answer: D



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46. Which among the following equations represents the reduction reaction taking place in lead accumulator at positive electrode, while it is being used as a source of electrical energy ?



Answer: D



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47. For which among the following equimolar aqueous solutions Van't Hoff factor has the lowest value ?

- A. Aluminium chloride
- B. Potassium sulphate
- C. Ammonium chloride
- D. Urea

Answer: D



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48. The amino acid, which is basic in nature is

A. histidine

B. tyrosine

C. Proline

D. valine

Answer: A



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49. Which element among the following does not form diatomic molecules ?

A. Argon

B. Oxygen

C. Nitrogen

D. Bromine

Answer: A



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50. A molecule of stachyose contains how many carbon atoms ?

A. 6

B. 12

C. 18

D. 24

Answer: D



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