



# CHEMISTRY

## BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

### MHTCET 2009

#### Chemistry

1. The volume of 2N  $H_2SO_4$  solution is  $0.1dm^3$   
. The volume of its decinormal solution (in

$dm^3$ ) will be

A. 0.1

B. 0.2

C. 2

D. 1.7

**Answer: C**



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2. Ethyl butyrate has the flavour of which fruit ?

A. Apple

B. Pineapple

C. Orange

D. Banana

**Answer: B**

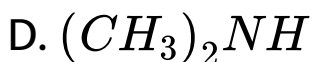
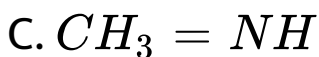
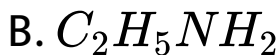
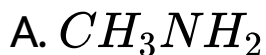


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3. In the following reaction sequence ,

Ethyl amine  $\xrightarrow{HNO_2}$  A  $\xrightarrow{PCl_5}$  B  $\xrightarrow{NBH_3}$  C the

compound 'C' is



**Answer: B**



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4. An element  ${}_x A^y$  emits  $5\alpha$  and  $4\beta$  particles to give  ${}_{82} B^{207}$ . The number of protons and neutrons in A are respectively

A. 88, 227

B. 88, 139

C. 82, 227

D. 84, 139

**Answer: B**



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5. The degree of dissociation of a 0.01 M weak acid is  $10^{-3}$ . Its pOH is

A. 5

B. 3

C. 9

D. 11

**Answer: C**



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6. Stachyose is

A. monosaccharide

B. disaccharide

C. trisaccharide

D. tetrasaccharide

**Answer: D**



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7. 0.1M solution of which of the following has almost unity degree of dissociation ?

A. Ammonium chloride

B. Potassium chloride

C. Sodium acetate

D. All of the above

**Answer: B**



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8. The IUPAC name of crotonaldehyde is

A. butenaldehyde

B. butan-1-al

C. but-2-en-1-al

D. prop-2-en-1-ol

**Answer: C**



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9. The percentage ( by weight ) of sodium hydroxide in a 1.25 molal NaOH solution is

A. 4.76 %

B. 1.25 %

C. 5 %

D. 40 %

**Answer: A**



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10. Adipic acid is used in the preparation of

A. nylon-6

B. decron

C. nylon-66

D. novolac

**Answer: C**



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11. The compound from which formic acid cannot be prepared is

A. methyl alcohol

B. carbon monoxide + NaOH

C. glycerol

D. methyl magnesium bromide

**Answer: D**



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12. If 20 mL of an acidic solution of pH 3 is diluted to 100 mL, the  $H^+$  ion concentration will be

A.  $1 \times 10^{-3} M$

B.  $2 \times 10^{-3} M$

C.  $2 \times 10^{-4} M$

D.  $0.02 \times 10^{-4} M$

**Answer: C**



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13. A dihalo alkane P, having formula  $C_3H_6Cl_2$ , on hydrolysis gives a compound, that can reduce Tollen's reagent. The compound P is

- A. 1,2-dichloropropane
- B. 1,1-dichloropropane
- C. 1,3-dichloropropane
- D. 2,2-dichloropropane

**Answer: B**



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14. Copper is a divalent metal . The value of its electrochemical equivalent is  $3.29 \times 10^{-4}$  g.

Its atomic mass is

A. 31.74 g

B. 63.5g

C. 126.9g

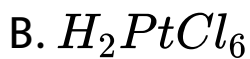
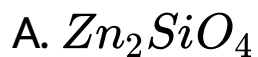
D. 15.87 g

**Answer: B**



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15. Willemite is



**Answer: A**



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16. In ..... process , work is done at the expense of internal energy .

A. isothermal

B. isochloric

C. adiabatic

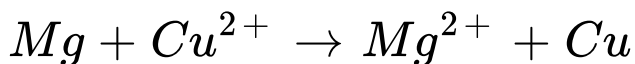
D. isobaric

**Answer: C**



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17. The standard reduction potential for  $Mg^{2+} / Mg$  is  $-2.37\text{ V}$  and for  $Cu^{2+} / Cu$  is  $0.337$ . The  $E_{\text{cell}}^{\circ}$  for the following reaction is



A.  $+2.03\text{V}$

B.  $-2.03\text{V}$

C.  $-2.7\text{V}$

D.  $+2.7\text{V}$

**Answer: D**



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18. At the same conditions of pressure , volume and temperature , work done is maximum for which gas if all gases have equal masses ?



**Answer: A**



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**19.** 16g of oxygen gas expands isothermally and reversibly at 300 K from  $10 \text{ dm}^3$  to  $100 \text{ dm}^3$ . The work done is ( in J)

A. zero

B.  $-2875J$

C.  $+2875J$

D. infinite

**Answer: B**



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**20. White precipitate is formed in**

A. Million's test

B. ninhydrin test

C. biuret test

D. xanthoprotic test

**Answer: A**



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21. The calculated mass of  ${}_{20}\text{Ca}^{40}$  is 40.328 u. It releases 306.3 MeV energy in a nuclear process. Its isotopic mass is

A. 39.998

B. 40.657

C. 0.329

D.  $2.85 \times 10^4$

**Answer: A**



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22. Antipyretics are used to

- A. relieve pain
- B. bring down body temperature
- C. to kill micro-organisms
- D. to relieve from anxiety

**Answer: B**



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23. The maximum number of unpaired electrons is present in

A. Fe

B. Cu

C. Co

D. Ni

**Answer: A**



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24. The pair , that referred as 'chemical twins' is

A. Ac, Cf

B. Hf,Ta

C. Tc,Re

D. La,Ac

**Answer: C**



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25. Which of the following compounds is optically active ?

A. Butanal

B. Butanol

C. Butan-2-ol

D. 2-methyl propan-2-ol

**Answer: C**



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26. Which of the following alcohols cannot be prepared by reduction of a carbonyl compound ?

A. 2-methyl propan-1-ol

B. 2-methyl propane-2-ol

C. butanol

D. butan-2-ol

**Answer: B**



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27. Which is a correct integrated rate equation?

A.  $k = -\frac{2.303}{t} \log \frac{a}{a-x}$

B.  $k = \frac{-2.303}{t} \log \frac{a}{a-x}$

C.  $-d(a-x) = kdt$

D. All are integrated rate equations

**Answer: B**



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28. For which order reaction, the unit of rate constant is  $\text{time}^{-1}$  ?

- A. Zero order
- B. First order
- C. Second order
- D. Third order

**Answer: B**



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29. Ethylidene dichloride is obtained by the reaction of excess of HCl with

A. ethylene

B. acetylene

C. propene

D. methane

**Answer: B**



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**30.** Ether and alcohol are ... isomers.

A. chain

B. position

C. functional

D. not isomers

**Answer: C**



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31. Chloroform on reduction with zinc dust and water gives

- A. methyl chloride
- B. dichloro methane
- C. chloro methane
- D. methane

**Answer: D**



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32. The number of hydroxyl ions in  $10\text{cm}^3$  of 0.2 M HCl solution is

A.  $5 \times 10^{-14}$

B.  $3 \times 10^9$

C.  $3 \times 10^{12}$

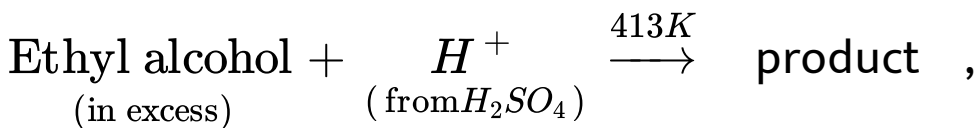
D.  $5 \times 10^{-12}$

**Answer: C**



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33. In the following reaction,



the product is

- A. ethene
- B. ethyl hydrogen sulphate
- C. diethyl ether
- D. acetylene

**Answer: C**



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34. The compound that forms a yellow oily liquid with nitrous acid is

A. 2-methyl aniline

B. methyl amine

C. Benzyl amine

D. diethyl amine

**Answer: D**



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35. Iso-propyl amine is a

- A. primary amine
- B. secondary amine
- C. tertiary amine
- D. quaternary amine

**Answer: A**



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**36.** The number of electrons required to reduced  $4.5 \times 10^{-5} \text{ g}$  of Al is

A.  $1.03 \times 10^{18}$

B.  $3.01 \times 10^{18}$

C.  $4.95 \times 10^{26}$

D.  $7.31 \times 10^{20}$

**Answer: B**



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37. Heat of combustion of methane is  $-800\text{kJ}$ .

What is the heat of combustion for  $4 \times 10^{-4}$  kg of methane ?

A.  $-800\text{kJ}$

B.  $-3.2 \times 10^4\text{kJ}$

C.  $-20\text{kJ}$

D.  $-1600\text{kJ}$

**Answer: C**



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38. In a solution , 0.02 M acetic acid is 4% dissociation . The  $[OH^-]$  in the solution is

A.  $8 \times 10^{-4}$

B.  $2 \times 10^{-14}$

C.  $8 \times 10^{10}$

D.  $1.25 \times 10^{-11}$

**Answer: D**



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39. Silver salt of carboxylic acid on reaction with R-X gives

A. alkyl halide

B. ester

C. aldehyde

D. alcohol

**Answer: B**



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40. Which of the following travels with the speed of light ?

A.  $\alpha$ -rays

B.  $\beta$ -rays

C.  $\gamma$ - rays

D. X-rays

**Answer: C**



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**41.** Hardening of oil is done by

A. dehydrogenation

B. hydrogenation

C. dehydrohalogenation

D. dehydration

**Answer: B**



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42. Maximum depression in freezing point is caused by

A. potassium chloride

B. sodium sulphate

C. magnesium sulphate

D. magnesium carbonate

**Answer: B**



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**43.** Which of the following is not a colligative property ?

A. Elevation in boiling point

B. Lowering of vapour pressure

C. Osmotic pressure

D. Freezing point

**Answer: D**



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44. Pentan-3-one is not obtained from

A. 2,2-dichloro pentane

B. 3,3-dichloro pentane

C. pentan-3-ol

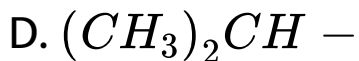
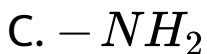
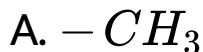
D. pent-2-yne

**Answer: A**



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45. Negative inductive effect is shown by

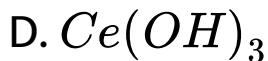
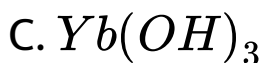
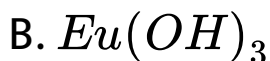
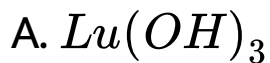


**Answer: C**



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46. Most basic hydroxide among the following is



**Answer: D**



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47. In Dow's process, the starting raw material is

A. phenol

B. chlorobenzene

C. aniline

D. diazobenzene

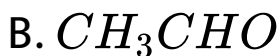
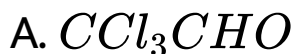
**Answer: B**



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48. Cannizaro's reaction is given by only those compounds in which  $\alpha$ -H atoms are absent ,  $CH_3CHO$  , due to the presence of  $\alpha$ -H atoms , does not give Cannizaro's reactions.



**Answer: B**



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49. Kirchoff's equation is

$$\text{A. } \log \frac{k_2}{k_1} = \frac{E_a}{2.303R} \left[ \frac{1}{T_1} - \frac{1}{T_2} \right]$$

$$\text{B. } \log \frac{p_2}{p_1} = \frac{\Delta H_v}{2.303R} \left[ \frac{T_2 - T_1}{T_1 \times T_2} \right]$$

$$\text{C. } \Delta C_p = \frac{\Delta H_2 - \Delta H_1}{T_2 - T_1}$$

$$\text{D. } \log \frac{k_2}{k_1} = \frac{\Delta H}{2.303R} \left[ \frac{1}{T_1} - \frac{1}{T_2} \right]$$

**Answer: C**



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50. When 10A current is passed for 80 min, the volume of hydrogen gas liberated is

A. 11.14L

B. 5.57L

C. 22.4L

D. 2.78L

**Answer: B**



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