



## CHEMISTRY

# BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

## MHTCET 2011

### Chemistry

1. An aqueous solution of urea containing 18 g urea in  $2500 \text{ cm}^3$  of the solution has a density

equal to 1.052. if the molecular weight of urea is 60, the molality of the solution is

A. 0.200

B. 0.192

C. 0.100

D. 1.200

**Answer: B**



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2. What volume of  $2M H_2SO_4$  is required to from 0.2 N of 100 mL of solution ?

A. 5 mL

B. 20 mL

C. 10 mL

D. 50 mL

**Answer: A**



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3. 534.2 g of cane sugar is dissolved in 180 g of water. The relative lowering of vapour pressure will be

A. 0.0099

B. 1.1597

C. 0.840

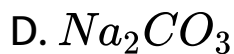
D. 0.9901

**Answer: A**



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4. Which of the following salts will not undergo hydrolysis ?



**Answer: C**



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5. The solubility product of  $AgCrO_4$  is  $32 \times 10^{-12}$ . What is the concentration of  $CrO_4^{2-}$  ions in that solution ?

A.  $2 \times 10^{-4}$

B.  $16 \times 10^{-4}$

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

D.  $12 \times 10^{-4}$

**Answer: A**



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6. An acid solution of  $pH = 6$  is diluted 1000 times, the  $pH$  of the final solution is

A. 6.01

B. 9

C. 3.5

D. 6.99

**Answer: D**



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7. According to Faraday's first law

$$\text{A. } w = \frac{96500 \times E}{I \times t}$$

$$\text{B. } w = \frac{E \times I \times t}{96500}$$

$$\text{C. } E = \frac{I \times t \times 96500}{w}$$

$$\text{D. } E = \frac{I \times w}{t \times 96500}$$

**Answer: B**



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8. Unit of decay constant of radiocative disintegration is

A. time



B.  $\text{min}^{-2}$

C.  $\text{time}^{-1}$

D.  $\text{time mol}^{-1}$

**Answer: C**



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9.  ${}_{90}\text{Th}^{228}$  emits four alpha and one beta particles.

Number of neutrons in daughter element is

A. 129

B. 190

C. 232

D. 138

**Answer: A**



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**10.** One atomic mass is equal to

A.  $1.66 \times 10^{-27} g$

B.  $1.66 \times 10^{-24} g$

C.  $1.66 \times 10^{-23} g$

D.  $1.66 \times 10^{-25} g$

**Answer: B**



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11. A first order reaction is given as  $A \rightarrow$  products. Its intergrated equation is

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

$$\text{B. } k = \frac{1}{t} \log \frac{a}{a - x}$$

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

$$\text{D. } -k = \frac{1}{t} \log \frac{a - x}{a}$$

**Answer: C**



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12. In a multistep reaction, the overall rate of reaction is equal to the

- A. rate of slowest step
- B. rate of faster step
- C. average rate of various step
- D. the rate of last step

**Answer: A**



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**13.** The heat of neutralisation of a strong acid and a strong alkali is  $57.0 \text{ kJ mol}^{-1}$ . The heat released when 0.2 mole of  $\text{HNO}_3$  solution is mixed with 0.2 mole of  $\text{KOH}$  is

A. 57.0 kJ

B. 11.4 kJ

C. 28.5 kJ

D. 34.9 kJ

**Answer: C**



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**14.** According to Hess's law, the heat of reaction depends upon

- A. initial condition of reactants
- B. initial and final conditions of reactants
- C. intermediate path of the reaction
- D. end conditions of reactants

**Answer: B**



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15. The heat of combustion of carbon is  $-393.5\text{kJ/mol}$ . The heat released upon the formation of 35.2 g of  $\text{CO}_2$  from carbon and oxygen gas is

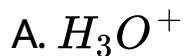
- A. + 135 kJ
- B. - 31.5 kJ
- C. - 315 kJ
- D. + 31.5 kJ

**Answer: C**



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16. Which of the following does not contain a coordinate bond?



**Answer: C**



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17. The atomic number of Sn is 50. The shape of gaseous  $\text{SnCl}_2$  molecule is



**Answer: D**



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18. The standard reduction potential for  $Fe^{2+} / Fe$  and  $Sn^{2+} / Sn$  electrodes are  $-0.44$  and  $-0.14$  volt respectively. For the given cell reaction  $Fe^{2+} + Sn \rightarrow Fe + Sn^{2+}$ , the standard  $EMF$  is.

A.  $+0.30V$

B.  $-0.58V$

C.  $+0.58V$

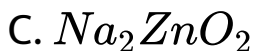
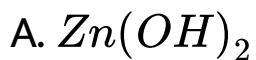
D.  $-0.30V$

**Answer: D**



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19. When Zn is treated with excess of NaOH, the product obtained is



D. None of the above

**Answer: C**



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20. Ziegler-Natta catalyst catalyse preparation of which of the following compounds ?

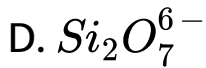
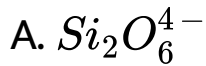
- A. preparation of Ti-metal
- B. Preparation of low density plastic
- C. Preparation of high resistance plastic
- D. Preparation of high density plastic

**Answer: D**



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21. The common basic structural unit is silicates and silica is



**Answer: C**



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22. The central carbon atom of a free radical contains

A. 6 electrons

B. 7 electrons

C. 8 electrons

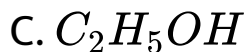
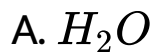
D. 10 electrons

**Answer: B**



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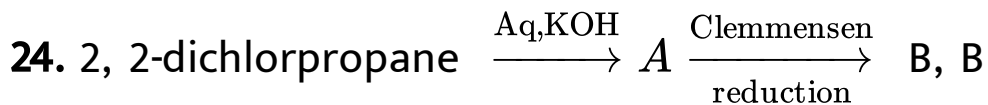
23. Which of the following species is an electrophile ?



**Answer: D**



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is

A. propanol

B. propene

C. propane

D. ethane

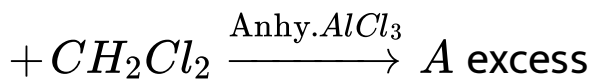
**Answer: C**



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25. 



A. 

B. 

C. 

D. 

**Answer: D**



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26. Which of the following compounds do not give different isomers on monochlorination ?

A. Neo-pentane

B. n-butane

C. Iso-butane

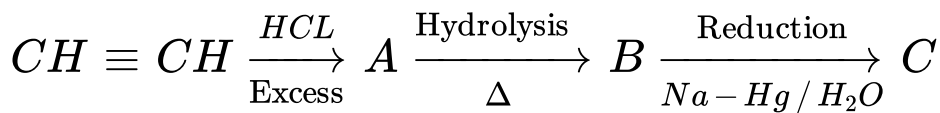
D. Iso-pentane

**Answer: A**



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27.



Compound C is

- A. ethanal
- B. propenal
- C. ethanol
- D. 2-methyl butan-1-ol

**Answer: C**



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28. The rate of  $S_N2$  reaction is maximum when the solvent is

A.  $CH_3OH$

B.  $H_2O$

C.  $DMSO$

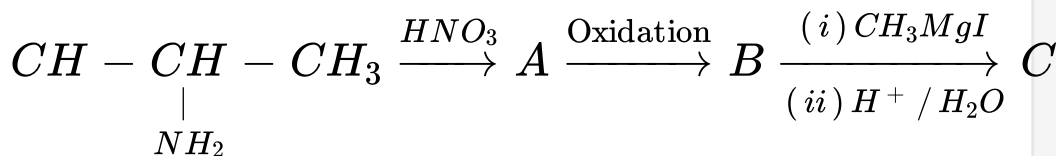
D. benzene

**Answer: C**



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29. In the following sequence of reactions



The compound C formed will be

- A. butan-1-ol
- B. butan-2-ol
- C. 2-methyl propan-2-ol
- D. 1, 1-dimethylethanol

**Answer: D**



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**30.** Which alcohol will give immediate turbidity on shaking with HCl at room temperature ?

A. 3-methyl pentan 2-ol

B. 2-methyl butan-1-ol

C. Butan-3-ol

D. 2-methylpropan-2-ol

**Answer: D**



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31. Phenol gives characteristic colouration with

- A. iodine solution
- B. bromine water
- C. aqueous  $FeCl_3$  solution
- D. ammonium hydroxide

**Answer: C**



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32. Which of the following ether is formed from alcohol and diazomethane ?

- A. 1-ethoxypropane
- B. ethoxyethane
- C. 1-methoxypropane
- D. 2-ethoxypropane

**Answer: C**



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33. The most common oxidation states of cerium are

A. +2, +4

B. +3, +4

C. +3, +5

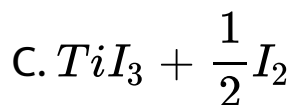
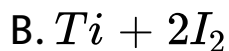
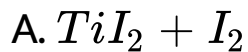
D. +2, +3

**Answer: B**



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34.  $TiI_4$  on heating gives



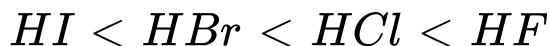
D. None of these

**Answer: B**



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35. Which of the following properties does correspond to the order?



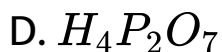
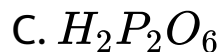
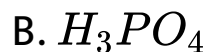
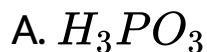
- A. Thermal stability
- B. Reducting power
- C. Ionic character
- D. Dipole moment

**Answer: B**



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36. Which of the following phosphorus oxyacids can act as a reductiong agent ?



**Answer: A**



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37. The IUPAC name of the compound



- A. 1-bromo-1,4,4'-bicyclobutane
- B. 4-(4'-chlorocyclobutyl)-1-bromocyclobutane
- C. 3-bromo-3'-chloro-1,1'-bicyclobutane
- D. 4-(4'-bromocyclobutyl)-1-chlorocyclo butane

**Answer: C**



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38. How many methamers are possible for molecular formula  $C_4H_{11}N$ ?

A. 2

B. 3

C. 4

D. 5

**Answer: B**



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39. Glucose on reaction with  $Br_2$  water gives

- A. glucaric acid
- B. gluconic acid
- C. saccharic acid
- D. citric acid

**Answer: B**



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40. Bactericidal antibiotic among the following is

:

A. ofloxacin

B. chloroamphenicol

C. erythromycin

D. tetracycline

**Answer: A**



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**41.** Which of the following can absorb over 90 % of its own mass of water and also does not stick to wounds ?

A. Saran

B. Thiokol

C. Rayon

D. Gun cotton

**Answer: C**



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42. 3-methylpentan-3-ol will be prepared from

A. ethyl formate and methyl magnesium bromide

B. ethyl ethanoate and ethyl magnesium bromide

C. ethyl propanoate and methyl magnesium bromide

D. ethyl formate and ethyl magnesium bromide

**Answer: B**



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**43.** Benzaldehyde reacts with ammonia to form

A. benzaldehyde ammonia

B. urotropine

C. hydrbenzamide

D. ammonium chloride

**Answer: C**



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44. Aldol condensation product of acetone on dehydration gives

A. but-2-enal

B. 2-methylpent-3-en-4-one

C. 4-hydroxy-4-methylpentan-2-one

D. 4-methylpent-3-en-2-one

**Answer: D**



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45. Which of the following gives condensation with hydroxyl amine but does not undergo self condensation ?

A. Methanal

B. Propanal

C. Acetone

D. Ethanal

**Answer: A**



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**46.** Uncertainty in the position of an electron mass  $(9.1 \times 10^{-31} \text{ kg})$  moving with a velocity  $300 \text{ m s}^{-1}$  accurate upto  $0.001\%$  will be :

A.  $19.2 \times 10^{-2} \text{ m}$

B.  $5.76 \times 10^{-2} \text{ m}$

C.  $1.92 \times 10^{-2} \text{ m}$

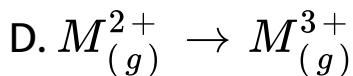
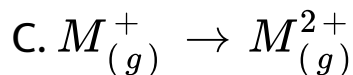
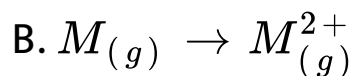
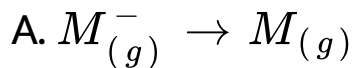
D.  $3.84 \times 10^{-2} \text{ m}$

**Answer: C**



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47. Which of the following transitions involves maximum amount of energy?

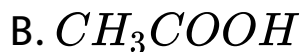


**Answer: D**



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48. Decarboxylation of malonic acid gives



C. Both (a) and (b)

D. None of the above

**Answer: B**



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49. Which of the following is the strongest base ?



A. 

B. 

C. 

D. 

**Answer: D**



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**50.** The prosthetic group of haemoglobin is

A. porphin

B. globulin

C. haem

D. gelatin

**Answer: C**



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