



# CHEMISTRY

## BOOKS - KCET PREVIOUS YEAR PAPERS

### KARNATAKA CET 2013

#### Chemistry

1. Methane can be converted into ethane by the reactions

- A. chlorination followed by the reaction with alcoholic KOH
- B. chlorination followed by the reaction with aqueous KOH
- C. chlorination followed by Wurtz reaction
- D. chlorination followed by decarboxylation.

**Answer: C**



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**2. Intramolecular hydrogen bonding is formed in**

A.  $H_2O$

B. salicylaldehyde

C.  $NH_3$

D. benzophenone

**Answer: B**



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**3.** If 50% of the reactant is converted into a product in a first order reaction in 25 minutes, how much of it would react in 100 minutes?

A. 0.9375

B. 0.875

C. 0.75

D. 1

**Answer: A**



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4. The number of optical isomers of the

compound,  $CH_3 - \underset{\underset{Br}{|}}{CH} - \underset{\underset{Br}{|}}{CH} - COOH$  is :

A. 0

B. 1

C. 3

D. 4

**Answer: D**



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5. When limestone is heated,  $CO_2$  is given off.

The metallurgical operation is

A. smelting

B. reducing

C. calcination

D. roasting

**Answer: C**



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**6.** The rate of reaction increases with rise in temperature because of

A. increase in number of activated molecules

B. increase in energy of activation

C. decrease in energy of activation

D. increase in the number of effective collisions

**Answer: A::D**



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7. Meso compounds do not show optical activity because :

A. they do not contain chiral carbon atoms

B. they have non-superimposable mirror images

C. they contain plane of symmetry

D. they do not contain plane of symmetry

**Answer: C**



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**8.** When formic acid is heated with concentrated

$H_2SO_4$ , the gas evolved is

A. only  $CO_2$



B. only 'CO'

C. a mixture of 'CO' and ' $CO_2$ '

D. a mixture of ' $SO_2$ ' and ' $CO_2$ '

**Answer: B**



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**9.** The temperature coefficient of a reaction is 2.

When the temperature is increased from  $30^\circ\text{C}$  to

$90^\circ\text{C}$ , the rate of reaction is increased by

A. 60 times

B. 64 times

C. 150 times

D. 400 times

**Answer: B**



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**10.** Conversion of benzene to acetophenone can be brought by

A. Wurtz reaction

B. Wurtz-Fitting's reaction

C. Friedel Crafts alkylation

D. Friedel Crafts acylation

**Answer: D**



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11. Excess of  $PCl_5$  reacts with conc ,  $H_2SO_4$  giving

A. chlorosulphuric acid

B. sulphurous acid

C. sulphuryl chloride

D. thionyl chloride

**Answer: C**



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**12.** An example for a neutral buffer is :

A. ammonium hydroxide and ammonium chloride

B. acetic acid and sodium acetate

C. acetic acid and ammonium hydroxide

D. citric acid and sodium citrate

**Answer: C**



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**13.** Least energetic conformation of cyclohexane is

A. chair conformation

B. boat conformation

C. cis conformation

D. E-Z form

**Answer: A**



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**14.** Which of the following is employed in flash tubes in photography?

A. Ar

B. Ne

C. Kr

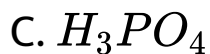
D. Xe

**Answer: C::D**



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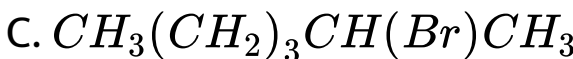
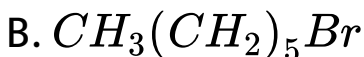
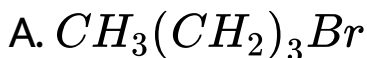
**15.** Conjugate base of  $H_2PO_4^-$  is



**Answer: B**



16. An alkyl bromide (X) reacts with sodium in ether to form 4,5-diethyloctane, the compound 'X' is



D.



Answer: D





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17. Which one of the following shows highest magnetic moment?



Answer: A



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**18.** The emf of a galvanic cell constituted with the electrodes

$Zn^{2+} / Zn(-0.76V)$  and  $Fe^{2+} / Fe(-0.41V)$

is

A.  $-0.35V$

B.  $+1.17V$

C.  $+0.35V$

D.  $-1.17V$

**Answer: C**



19. Which of the following pairs are correctly matched?

	<b>Reactants</b>	<b>Products</b>
I.	$RX + Ag(OH)_{(aq)}$	$RH$
II.	$RX + AgCN_{(alc)}$	$RNC$
III.	$RX + KCN_{(alc)}$	$RNC$
IV.	$RX + Na_{(ether)}$	$R-R$

A. I alone

B. I and II

C. II and III

D. II and IV

**Answer: D**



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**20.** In a transition series, with the increase in atomic number, the paramagnetism

A. increases gradually

B. decreases gradually

C. first increases to a maximum and then decreases

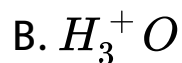
D. first decreases to a minimum and then increases

**Answer: C**



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**21.** Identify a species which is 'NOT' a Bronsted acid but a Lewis acid.



D. HCl

**Answer: A**



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**22.** The compound formed when calcium acetate and calcium formate is dry distilled

A. Acetone

B. Acetaldehyde

C. Benzaldehyde

D. Acetophenone

**Answer: B**



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23.  $d^2sp^3$  hybridisation of the atomic orbitals gives :

- A. square planar structure
- B. triangular structure
- C. tetrahedral structure
- D. octahedral structure

**Answer: D**



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**24.** The pH of  $10^{-8}$  M HCl solution is :

A. 8

B. 6.9586

C. more than 8

D. slightly more than 7

**Answer: B**



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25. Which of the following is strongly acidic?

A. Phenol

B. o-cresol

C. p-nitrophenol

D. p-cresol

**Answer: C**



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26. A group of atoms can function as a ligand only when

- A. it is a small molecule
- B. it has an unshared electron pair
- C. it is a negatively charged ion
- D. it is a positively charged ion

**Answer: B**



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27. Which of the following is not a colligative property ?

- A. Elevation in boiling point
- B. Depression in freezing point
- C. Osmotic pressure
- D. Lowering of vapour pressure

**Answer: D**



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28. Acetone and propanal are :

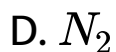
- A. functional isomers
- B. position isomers
- C. geometrical isomers
- D. optical isomers

**Answer: A**



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29. Which of the following is diamagnetic ?



**Answer: D**



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**30.** 3g of urea is dissolved in 45g of  $H_2O$ . The relative lowering in vapour pressure is

A. 0.05

B. 0.04

C. 0.02

D. 0.01

**Answer: C**



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**31.** The reagent used to distinguish between acetaldehyde and benzaldehyde is

A. Tollen's reagent

B. Fehling's solution

C. 2,4-dinitrophenhydrazine

D. semicarbazide

**Answer: B**



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**32. Metallic lustre is due to**

A. high density of metals

B. high polish on the surface of metals

C. reflection of light by mobile electrons

## D. chemical inertness of metals

Answer: C



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33. Which of the following solutions will exhibit highest boiling point ?

A. 0.01M urea

B. 0.01M  $KNO_3$

C. 0.01M  $Na_2SO_4$

D. 0.015M  $C_6H_{12}O_6$



Answer: C



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34. Which one of the following gives amine on heating with amide?

A.  $Br_2$  in aqueous KOH

B.  $Br_2$  in alcoholic KOH

C.  $Cl_2$  is sodium

D. Sodium in ether

**Answer: A**



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**35.** The number of anti - bonding electrons present in  $O_2^-$  molecular ion is :

A. 8

B. 6

C. 5

D. 4

Answer:



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36. The process is spontaneous at the given temperature, if

A.  $\Delta H$  is  $+ve$  and  $\Delta S$  is  $-ve$

B.  $\Delta H$  is  $-ve$  and  $\Delta S$  is  $+ve$

C.  $\Delta H$  is  $+ve$  and  $\Delta S$  is  $+ve$

D.  $\Delta H$  is and  $\Delta S$  is equal to zero.

**Answer: B**



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**37.** Glucose when reduced with HI and red phosphorus gives

A. n-hexane

B. n-heptane

C. n-pentane

D. n-octane

**Answer: A**



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**38.** The stability of a lyophobic colloid is due to

- A. adsorption of covalent molecules on the colloid
- B. the size of the particles
- C. the charge on the particles
- D. Tyndall effect

**Answer: C**



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**39.** Oils are liquids at room temperature since they contain higher percentage of

A. oleates

B. palmitates

C. stearates

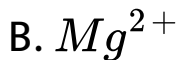
D. myristates

**Answer: A**



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**40.** Which of the following cations will have minimum flocculation value for arsenic sulphide sol?



**Answer: D**



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**41.** The value of entropy of solar system is

A. increasing

B. decreasing

C. constant

D. zero

**Answer: A**



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42. In F.C.C. the unit cell is shared equally by how many unit cells ?

A. 6

B. 4

C. 2

D. 8

**Answer: A**



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**43.** The number of disulphide linkages present in insulin are

A. 4

B. 3

C. 2

D. 1

**Answer: B**



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44. The process of zone refining is used in the purifications of

A. Al

B. Ge

C. Cu

D. Ag

**Answer: B**



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45. The number of water molecules present in a drop of water weighing 0.018g is

A.  $6.022 \times 10^{26}$

B.  $6.022 \times 10^{23}$

C.  $6.022 \times 10^{19}$

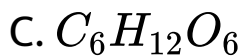
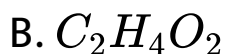
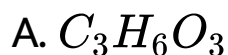
D.  $6.022 \times 10^{20}$

**Answer: D**



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46. Empirical formula of a compound is  $CH_2O$  and its molecular mass is 90, the molecular formula of the compound is

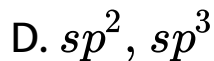
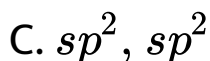
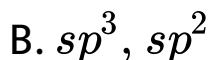
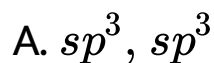


**Answer: A**



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47. The percentage of p-character of the hybrid orbitals in graphite and diamond are respectively.



**Answer: D**



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48. The mass of  $112\text{cm}^3$  of  $\text{NH}_3$  gas at STP is

A. 0.085g

B. 0.85g

C. 8.500 g

D. 80.500g

**Answer: A**



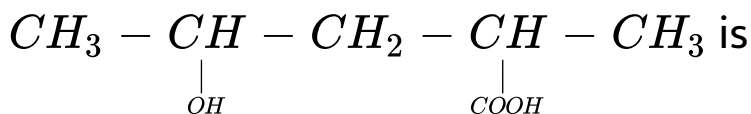
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49.

IUPAC

name

of



- A. 4-hydroxy-1-methyl pentanoic acid
- B. 4-hydroxy-2-methyl pentanoic acid
- C. 2-hydroxy-4-methyl pentanoic acid
- D. 2-hydroxy -2-methyl pentanoic acid

**Answer: B**



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50. Alkali metals have negative reduction potential and hence they behave as :

A. oxidising agents

B. Lewis bases

C. reducing agents

D. electrolytes

**Answer: C**



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51. Which of the following gases has the highest value of r.m.s. velocity at 298 K ?

A.  $CH_4$

B. CO

C.  $Cl_2$

D.  $CO_2$

**Answer: A**



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52. Cycloalkane formed when 1,4-dibromopentane is heated with sodium is

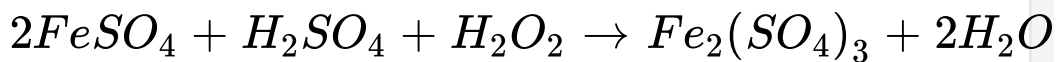
- A. methyl cyclobutane
- B. cyclopentane
- C. cyclobutane
- D. methyl cyclopentane

**Answer: A**

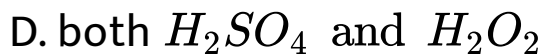
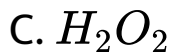
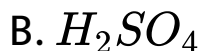
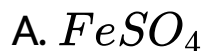


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53. In the reaction,



. The oxidizing agent is :

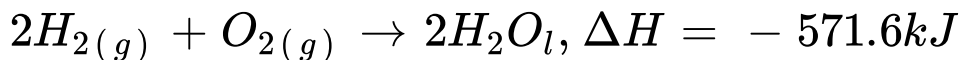


**Answer: C**



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54. For the thermochemical equation,



Heat of decomposition of water is :

A.  $-571.6kJ$

B.  $+571.6kJ$

C.  $-1143.2kJ$

D.  $+285.8kJ$

**Answer: D**



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55. In Buna-S, the symbol 'Bu' stands for

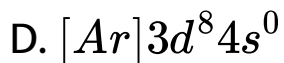
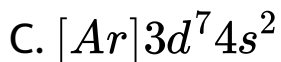
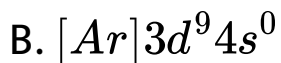
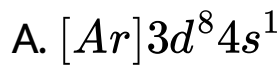
- A. 1-butene
- B. n-butene
- C. 2-butene
- D. butadiene

**Answer: D**



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56. The electronic configuration of  $Cu^{2+}$  ion is

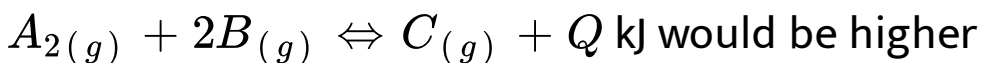


**Answer: B**



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**57.** The yield of the products in the reaction,



at :

- A. high temperature and high pressure
- B. high temperature and low pressure
- C. low temperature and high pressure
- D. low temperature and low pressure

**Answer: C**



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**58. Mesomeric effect involves :**

- A. delocalisation of  $\pi$ -electrons



B. delocalisation of  $\sigma$ -electrons

C. partial displacement of electrons

D. delocalisation of  $\pi$  and  $\sigma$ -electrons

**Answer: A**



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