



CHEMISTRY

BOOKS - AIIMS PREVIOUS YEAR PAPERS

AIIMS 2002

Chemistry

1. Methyl orange is the example of which type of dye

A. acid dye

B. mordant dye

C. azo dye

D. both (a) and (c) .

Answer: D



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2. Enzymes with two sites are called

A. apoenzyme

B. allosteric enzyme

C. holoenzyme

D. conjugate enzyme.

Answer: B



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3. Teflon is a polymer of:

- A. tetrafluoroethylene
- B. tetrabromoethylene
- C. tetraiodoethylene
- D. tetrachloroethylene .

Answer: A



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4. Lucas test is used for the determination of :

A. alcohols

B. alkyl halides

C. phenols

D. aldehydes .

Answer: A



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5. Which of the following is involved in Sandmeyer's reaction ?

A. ferrous salt

B. diazonium salt

C. ammonium salt

D. cupromonium salt.

Answer: B



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6. The weight of one molecules of a compound $C_{60}H_{122}$

is

A. $1.2 \times 10^{-20} \text{ g}$

B. $2.025 \times 10^{23} \text{ g}$

C. $1.4 \times 10^{-21} \text{ g}$

D. $6.023 \times 10^{23} \text{ g}$

Answer: C



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7. Which of the following is not an ore of Iron

A. limonite

B. caniterite

C. magnetite

D. none of these .

Answer: B



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8. If P is the pressure and ρ is the density of a gas, then

P and ρ are related as :

A. $P \propto \rho$

B. $P \propto (1/\rho)$

C. $P \propto \rho^2$

D. $P \propto (1/\rho^2)$

Answer: A



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9. Quantum number of an atom can be defined on the basis of

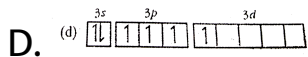
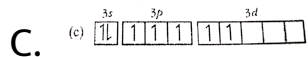
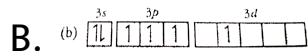
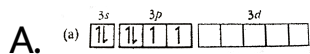
- A. Hund's rule
- B. Pauli's exclusion principle
- C. Aufbau's principle
- D. Heisenberg's uncertainty principle .

Answer: B



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10. Which of the following has maximum energy ?



Answer: C



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11. The intermediate formed in aldol condensation is

A. aldol

B. carbanion

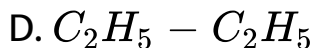
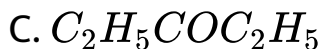
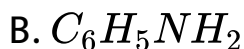
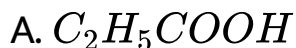
C. alcohol

D. α -hydrogen ester .

Answer: B

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12. The compound most suitable for the preparation of cyanohydrin is

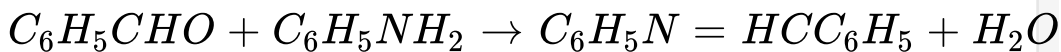


Answer: C



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13. In the reaction :



, the compound $C_6H_5N = HCC_6H_5$ is known as

- A. aldol
- B. Schiff's base
- C. Schiff's reagent
- D. Benedict's reagent .

Answer: B



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14. Action of acetylene on dilute H_2SO_4 gives

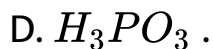
- A. acetic acid
- B. acetaldehyde
- C. acetone
- D. acetoacetic ester .

Answer: B



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15. CH_3COCH_3 can be converted to $CH_3CH_2CH_3$ by the action of



Answer: C



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16. At $80^\circ C$ distilled water has $[H_3O^+]$ concentration equal $[OH^-] 1 \times 10^{-6} \text{ mole/litre}$. The value of K_w at this temperature will be

A. 1×10^{-6}

B. 1×10^{-12}

C. 1×10^{-9}

D. 1×10^{-15}

Answer: B



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17. The pH of a solution at $25^\circ C$ containing $0.10M$ sodium acetate and $0.03M$ acetic acid is (pK_a for $CH_3COOH = 4.57$)

A. 4.09

B. 6.09

C. 5.09

D. 7.09

Answer: C



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18. The oxidation state of Fe in Fe_3O_4 is :

A. $3/2$

B. $5/4$

C. $4/5$

D. $8/3$

Answer: D



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19. For the reaction : $H_2 + Cl \xrightarrow{\text{sunlight}} 2HCl$ the order of reaction is

A. 0

B. 2

C. 1

D. 3

Answer: A



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20. The correct order of solubility in water for *He, Ne, Ar, Kr, Xe*, is

A. *He > NE > Ar > Kr > Xe*

B. *Xe > Kr > Ar > Ne > He*

C. $Ne > Ar > Kr > He > Xe$

D. $Ar > Ne > He > Kr > Xe$.

Answer: B



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21. Spectrum of Li^{2+} is similar to that of

A. H

B. Be

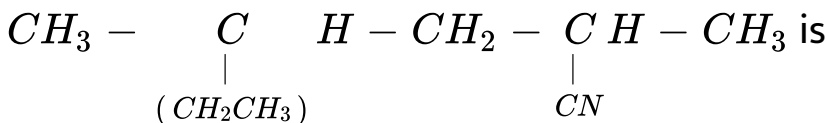
C. He

D. Ne .

Answer: A

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22. IUPAC name of



- A. 2-cyano, 3-methylhexane
- B. 2-dimethyl, 4-cyanopentane
- C. 3-methyl, 5-cyanohexane .
- D. 2-cyano, 3-methylhexane .

Answer: C





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23. Which of the following molecule has highest bond energy ?

- A. F-F
- B. N-N
- C. C-C
- D. O-O

Answer: C



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24. The heat of neutralisation of a strong acid and a strong alkali is 57.0 kJ mol^{-1} . The heat released when 0.5 mole of HNO_3 solution is mixed with 0.2 mole of KOH is

- A. 11.5 kJ
- B. 34.5 kJ
- C. 23.5 kJ
- D. 58.8 kJ

Answer: A



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25. The solubility of $CuBr$ is 2×10^{-4} at $25^\circ C$. The

K_{sp} value for $CuBr$ is

A. $4 \times 10^{-8} \text{mol}^2 L^{-2}$

B. $4 \times 10^{-4} \text{mol}^2 L^{-2}$

C. $4 \times 10^{-11} \text{mol}^2 L^{-2}$

D. $4 \times 10^{-15} \text{mol}^2 L^{-2}$

Answer: A



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26. Schottky defect defines imperfection in the lattice structure of a

A. solid

B. gas

C. liquid

D. plasma .

Answer: A



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27. An AB_2 type structure is found in

A. $NaCl$

B. CaF_2

C. Al_2O_3

D. N_2O

Answer: B



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28. Azimuthal quantum number defines.

A. elm ratio of electron

B. angular momentum of electron

C. spin of electron

D. magnetic momentum of electron .

Answer: B



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29. Which of the of following does not have valence electron in 3d-series ?

A. Fe (III)

B. Cr(I)

C. Mn(II)

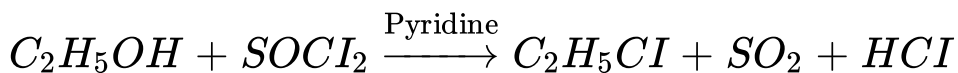
D. P(O)

Answer: D



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30. The following reaction is known as



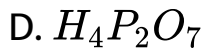
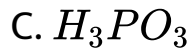
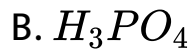
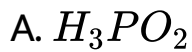
- A. Kharasch effect
- B. Williamson's sythesis
- C. Darzen's procedure
- D. Hunsdiecker reaction .

Answer: C



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31. Which of the following compound is tribasic acid?



Answer: B



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32. Thermite is a mixture of iron oxide and

A. zinc powder

B. potassium metal

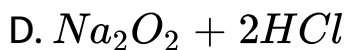
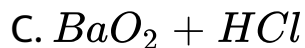
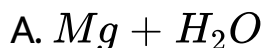
C. sodium shavings

D. aluminium powder .

Answer: D

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33. Which of the following reaction produces hydrogen ?



Answer: A



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34. An element (atomic mass = 100g/mol) having bcc structure has unit cell edge 400 pm . Then density of the element is

A. 2.144g/cm^3

B. 7.289g/cm^2

C. 5.188g/cm^2

D. 10.367g/cm^3

Answer: C



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35. The size of colloidal particle is

A. 10^{-3} to 10^{-9} m

B. 10^{-9} to 10^{-12} m

C. 10^{-6} to 10^{-9} m

D. 10^{-12} to 10^{-19} m .

Answer: C



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36. Which of the following is a chiral compound?

A. hexane

B. n-butane

C. methane

D. 2,3,4-trimethyl hexane .

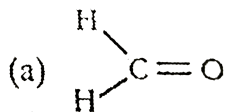
Answer: D



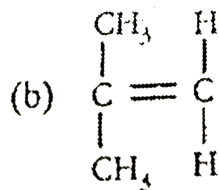
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37. Which of the following has the highest dipole moment ?

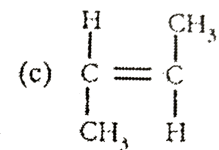
A.



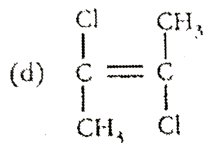
B.



C.



D.



Answer: A



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38. The length of C-C bonds in benzene is

A. 1.22\AA

B. 1.54\AA

C. 1.39\AA

D. 1.56\AA

Answer: C



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39. The number of σ – and π bonds present in pent-4en-1-yne is :

A. 10,3

B. 4,9

C. 3,10

D. 9,4

Answer: A



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40. Which of the following is most stable ?

A. 1-butene

B. 1-pentene

C. 2-butene

D. 2-pentene

Answer: D



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41. Assertion : During an adiabatic process, heat energy is not exchanged between system and its surroundings.

Reason : The temperature of a gas increases when it undergoes an adiabatic expansion.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the

assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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42. Statement-1: Potassium and caesium are used in photo-electric cells.

Statement-2: Potassium and caesium emit electrons on exposure to light above certain minimum frequency.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: A



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43. Assertion: Physisorption of molecules occurs on surface only.

Reason: in this process, the bonds of the adsorbed molecules are broken.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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44. Assertion: Boiling and melting point of amides are higher than corresponding acids

Reason : It is due to strong intermolecular hydrogen bonding in their molention.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the

assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: A



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45. Assertion : Stannous chloride gives grey precipitate with mercuric chloride , but stannic chloride does not do so.

Reason : Stannous chloride is a powerful oxidising agent which oxidises mercuric chloride to metallic mercury .

- A. If both the assertion and reason are true and reason is correct explanation of the assertion .
- B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .
- C. If the assertion is true but the reason is false.
- D. If both assertion and reason are false.

Answer: C



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46. Assertion : DNA molecules and RNA molecules are found in the nucleus of cell.

Reason : On heating, enzymes do not lose their specific activity.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: D



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47. Assertion : All halogens are coloured.

Reason : The halogens absorb visible light .

- A. If both the assertion and reason are true and reason is correct explanation of the assertion .
- B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .
- C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: A



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48. Assertion : F-F bond has low bond dissociation

Reason : The fluorine has lower reactivity.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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49. Assertion : Phenol is a weak acid than ethanol.

Reason : Groups with +M effect and -I effect decrease acidity at m-position .

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: D

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50. (A) Ether behaves as bases in the presence of mineral acids.

(R) Due to the presence of lone pair of electrons on oxygen.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: A



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51. Assertion : For Balmer series of hydrogen spectrum, the value $n_1 = 2$ and $n_2 = 3, 4, 5$.

Reason : The value of n for a line in Balmer series of hydrogen spectrum having the highest wave length is 4 and 6 .

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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52. Each question contains STATEMENT-1(Assertion) and STATEMENT-2(Reason).the statement carefully and mark the correct answer accoring to the instrution given below:

STATEMENT - 1 : An increase in surface area increases the rate of evaporation.

STATEMENT - 2 : Stronger the intermolecular attaction force, faster is the rate of evaporation at a given temperature.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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53. Assertion : Diamond is a bad conductor .

Reason : Graphite is a good conductor.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: B



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54. Assertion: Atoms can neither be created nor destroyed.

Reason: Under similar condition of temperature and pressure, equal volume of gases does not contain equal number of atoms.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C

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55. Assertion: Mass and volume are extensive properties.

Reason: Mass/volume is also an extensive parameter.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the

assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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56. Assertion: Absolute values of internal energy of substances cannot be determined.

Reason: It is impossible to determine exact values of constituent energies of the substances.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: A



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57. Assertion : Cuprous ion (Cu^+) is colourless whereas cupric ion (Cu^{++}) is blue in the aqueous solution.

Reason : Cuprous ion (Cu^+) has unpaired electrons while cupric ion (Cu^{++}) does not .

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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58. Assertion : Dinegative anion of oxygen (O^{2-}) is quite common but dinegative anion of sulphur (S^{2-}) is less common.

Reason : Covalency of oxygen is two.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the

assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: B



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59. Assertion : σ -bond is strong while π -bond is a weak bond.

Reason : Atoms rotate freely about π -bond.

A. If both the assertion and reason are true and reason is correct explanation of the assertion .

B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .

C. If the assertion is true but the reason is false.

D. If both assertion and reason are false.

Answer: C



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60. Assertion : Absorption spectrum consists of some bright lines separated by dark spaces .

Reason : Emission spectrum consists of dark lines.

- A. If both the assertion and reason are true and reason is correct explanation of the assertion .
- B. If both the assertion and reason are true but reason is not a correct explanation of the assertion .
- C. If the assertion is true but the reason is false.
- D. If both assertion and reason are false.

Answer: D



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