



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 15

Paper 1 Physics Chemistry

1. A 1% (mass/vol) KCl solution is ionised to the extent of 80%. The osmotic pressure at 27°C of

the solution will be :

A. 2.64 atm

B. 5.94 atm

C. 26.4 atm

D. 59.4 atm

Answer: B



Watch Video Solution

2. The entropy change involved in the isothermal reversible expansion of 2 moles of an ideal gas from a volume of 10dm^3 to a volume of 100dm^3 at 27°C is

A. 35.8 J/mol/K

B. 32.3 J/mol/K

C. 42.3 J/mol/K

D. 38.3 J/mol/K

Answer: D



Watch Video Solution

3. The charge required to deposit 40.5 g of Al (atomic mass 27 g) from fused $Al_2(SO_4)_3$ is

A. $434 \times 10^5 C$

B. $434 \times 10^5 C$

C. $044 \times 10^5 C$

D. None of these

Answer: A



Watch Video Solution

4. How many grams of NaOH will be required to neutralise 12.2 g benzoic acid ?

A. 12.2 g

B. 16 g

C. 40 g

D. 4 g

Answer: D



Watch Video Solution

5. Which of the two ions from the list given have the geometry that is explained by the same hybridization of orbitals

NO_2^- , NO_3^- , NH_2^- , NH_4^+ , SCN^- ?

A. NO_2^- and NH_2^-

B. NO_2^- and NO_3^-

C. NH_4^+ and NO_3^-

D. SCN^- and NH_2^-

Answer: B



Watch Video Solution

6. Select the incorrect statement.

A. The central atom in NH_3 is sp^2 hybridised

B. BiH_3 is strong reducing agent than NH_3

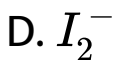
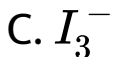
C. NH_3 is strong Lewis base than BiH_3

D. The bond dissociation energy of the E-H bond decreases from NH_3 to BiH_3

Answer: A



7. The deep colour produced when iodine dissolves in potassium iodide solution is due to the presence of



Answer: C





Watch Video Solution

8. The most abundant transition metal in earth crust is :

A. Cr

B. Fe

C. W

D. Zn

Answer: B



Watch Video Solution

9. If helium is allowed to expand in vacuum, it liberates heat because

A. helium is an inert gas

B. helium is an ideal gas

C. the inversion temperature of helium is very low

D. helium is one of the lightest gases

Answer: C



Watch Video Solution

10. Formation of methyl tertiary butyl ether by the reaction of sodium tertiary butoxide and methyl bromide involves.

- A. elimination reaction
- B. electrophilic addition reaction
- C. nucleophilic addition reaction
- D. nucleophilic substitution reaction

Answer: D



Watch Video Solution

11. 40 g of liquid A and 70 g of liquid B are liquid B are mixed together to form ideal solution. Calculate the vapour pressures of liquid A and liquid B in vapour phase . Given , $p_A^\circ = 200 \text{ mm}$

, $p_B^\circ = 700 \text{ mm}$, $M_A = 56 \text{ g/mol}$,

$M_B = 90 \text{ g/mol}$

A. $P_A = 0.208$, $\rho_B = 0.729$

B. $\rho_O = 0.479$, $\rho_B = 0.521$

C. $\rho_A = 0.714$, $\rho_B = 0.778$

D. $\rho_A = 0.7082$, $\rho_B = 0.829$

Answer: A



Watch Video Solution

12. For an endothermic reaction, where ΔH represents the enthalpy of reaction in kJmol^{-1} , the minimum value for the energy of activation will be

A. less than ΔH

B. zero

C. more than ΔH

D. equal to ΔH

Answer: C



Watch Video Solution

13. Oxidation state of phosphorus in pyrophosphoric acid is

A. +5

B. +3

C. +4

D. + 1

Answer: A



Watch Video Solution

14. A catalyst increases the rate of a chemical reaction by

A. increasing the activation energy

B. decreasing the activation energy

C. reacting with reactant

D. reacting with products

Answer: B



Watch Video Solution

15. The interionic distance for cesium chloride crystal will be

A. $\frac{2}{\sqrt{3}}a$

B. $\frac{\sqrt{3}}{2}a$

C. $\sqrt{3}a$

D. $\frac{2a}{\sqrt{3}}$

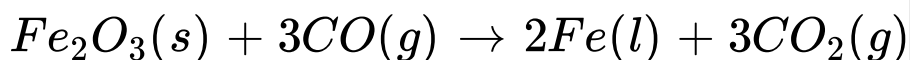
Answer: B

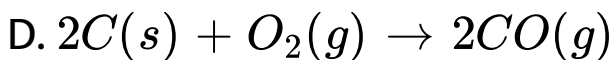
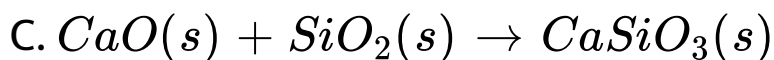


Watch Video Solution

16. The following reaction take place in the blast in the preparation of impure iron identify the reaction pertaining to the formation of the slag

A.



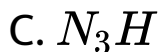
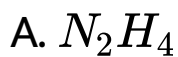


Answer: C



Watch Video Solution

17. In which of the following compounds, nitrogen exhibits highest oxidation state?



Answer: C



Watch Video Solution

18. Cellulose is not digestible by human beings due to the absence of cellulose hydrolysing enzyme called

A. cellulose

B. zymase

C. invertase

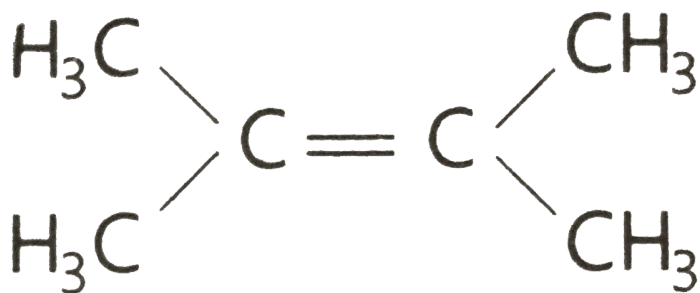
D. urease

Answer: A



Watch Video Solution

19. IUPAC name of given compound,



A. 2,3-dimethyl but-2-ene

B. 2,3-dimethyl propene

C. 1,1,2,2-dimethyl ethene

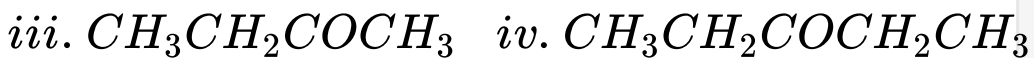
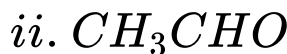
D. None of the above

Answer: A

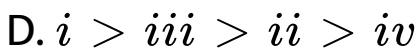
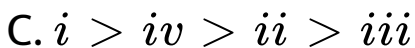
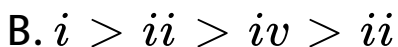
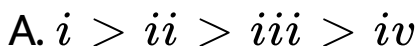


Watch Video Solution

20. Consider the following substances



The correct order of reactivity towards nucleophilic addition reaction is



Answer: A



Watch Video Solution

21. The freezing point of solution containing $0.2g$ of acetic acid in $20.0g$ of benzene is lowered by $0.45^{\circ}C$. Calculate the degree of association of acetic acid in benzene.

$$(K_f = 5.12K^{\circ} mol^{-1} kg^{-1})$$

A. 9.45 %

B. 94.5 %

C. 47.2 %

D. 4.72 %

Answer: B



Watch Video Solution

22. The first law of thermodynamics confirms the law of

A. conservation of energy

B. conservation momentum of molecules

C. flow of heat in a particular direction

D. conservation of heat energy and
mechanical energy

Answer: A



Watch Video Solution

23. The standard electrode potential (E°) for
 $Ocl^- | Cl^-$ and $Cl^- | \frac{1}{2} cl_2$ will be

A. $-0.42V$

B. $-2.20V$

C. $0.52V$

D. $1.04V$

Answer: C



View Text Solution

24. Half-life period for a first order reaction is 10 min. How much time is needed to change the concentration of the reactant from 0.08 M to 0.01 M ?

A. 20 min

B. 30 min

C. 40 min

D. 50 min

Answer: B



Watch Video Solution

25. Calcination is used in matallurgy for removal of

A. water and sulphide

B. water and H_2S

C. water and CO_2

D. water and CO

Answer: C



Watch Video Solution

26. The hybridised state of S in sulphours acid is

A. sp^2

B. sp^3

C. dsp^3

D. dsp^2

Answer: B



Watch Video Solution

27. In the reaction, $M + O_2 \rightarrow MO_2$

(superoxide), the metal M is

A. lithium

B. sodium

C. potassium

D. barium

Answer: C



Watch Video Solution

28. Wurtz reaction involves the interaction of alkyl halides in dry ether with

A. sodium

B. zinc

C. copper

D. platinum

Answer: A



Watch Video Solution

29. 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-dichloro propane

B. 1,1-dichloro propane

C. 1,3-dichloro propane

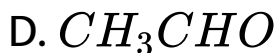
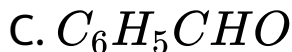
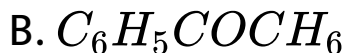
D. 2,2-dichloro propane

Answer: B



Watch Video Solution

30. Which one of the following does not form sodium bisulphite addition product with sodium bisulphite solution



Answer: B



Watch Video Solution

31. The tendency of showing -2 oxidation state diminishes from S to Po due to

A. increase in atomic radii

B. decrease in effective nuclear charge and electronegativity

C. Both a and b

D. None of the above

Answer: C



Watch Video Solution

32. $[SiF_6]^{2-}$ is known whereas $[SiC_6]^{2-}$ not.

The main reason is/are

I Six large chloride ions cannot be accommodated around Si^{4+} due to limitation of its size.

II. Interaction between lone pair of chloride ion and Si^{4+} is not very strong.

Choose the correct option.

A. Only I

B. Only II

C. Both I and II

D. Neither I nor II

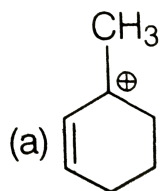
Answer: C



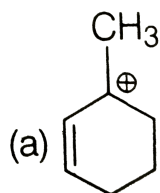
Watch Video Solution

33. Most stable carbocation among the following

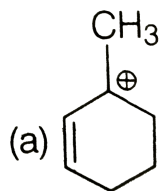
is



A.



B.



C.

D. All are equally stable

Answer: A



View Text Solution

34. The compound which reacts fastest with lucas reagent (at room temperature) is

A. butan-1-ol

B. butan-2-ol

C. 2-methylpropan-1-ol

D. 2-methylpropan-2-ol

Answer: D



Watch Video Solution

35. Acetic acid has molecular weight of 120 in benzene solution. This is due to

A. ion-dipole attraction

B. dipole-dipole attraction

C. van der Waal's forces

D. None of the above

Answer: B



Watch Video Solution

36. An haloalkane is made to react with excess of alcoholic ammonia to give mainly

A. 1° amine

B. mixture of 1° , 2° , 3° amines

C. mixture of 1° and 3° amines

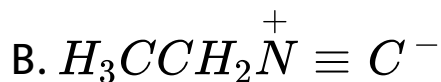
D. mixture of 1° , 2° , 3° amines and
quarternary ammonium salts

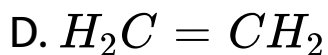
Answer: A



View Text Solution

37. The main product of the reaction
 CH_3CH_2Br and $AgCN$ is





Answer: B



Watch Video Solution

38. The gas that is adsorbed to a larger extent on charcoal is



C. CO

D. NH_3

Answer: D



Watch Video Solution

39. The polymers which does not become soft on heating and annot remould or recycled are

A. elastomer

B. fibres

C. thermoplastic polymer

D. thermosetting polymers

Answer: D



Watch Video Solution

40. Refrigeration helps in food preservation by

A. killing the germs

B. reducing the rates of biochemical
reaction

C. destroying enzyme action

D. sealing the food with a layer of ice

Answer: B



Watch Video Solution

41. Pick out the incorrect statement for ClF_3 .

A. It has trigonal planar geometry

B. It is used to make gaseous UF_6 , which is

useful in making enriched U-235 fuel

C. it is used as powerful fluorinating agent
for inorganic compounds

D. ClF_3 has been used as fuel in short range
rockets reacting with hydrazine

Answer: A

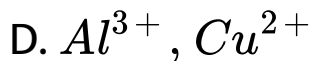
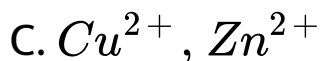
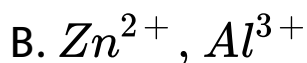
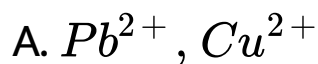


Watch Video Solution

42. In which of the pairs of ions given, there is
an ion that forms a co-ordination compound
both aqueous sodium hydroxide and ammonia

and another ion that forms a co-ordination compound only with aqueous sodium hydroxide

?



Answer: B



Watch Video Solution

43. The spin magnetic moment of cobalt in the compound $Hg[Co(SCN)_4]$ is

A. $\sqrt{3}$

B. $\sqrt{15}$

C. $\sqrt{24}$

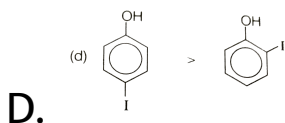
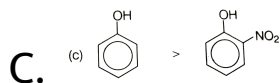
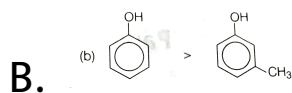
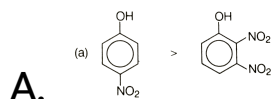
D. $\sqrt{8}$

Answer: B



Watch Video Solution

44. In which of the following first is more acidic than second ?



Answer: B



Watch Video Solution

45. Reaction of ethyl formate with excess with excess of CH_3MgI followed by hydrolysis gives

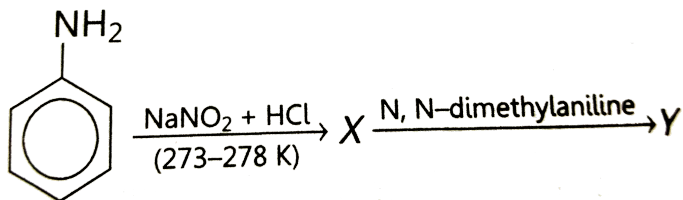
- A. n-propyl alcohol
- B. iso-propyl alcohol
- C. acetaldehyde
- D. acetone

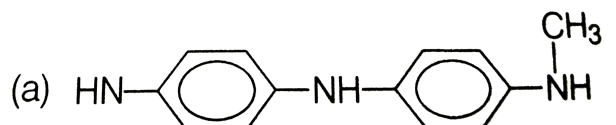
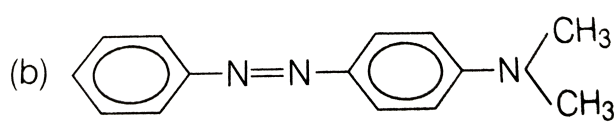
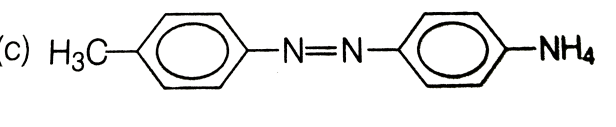
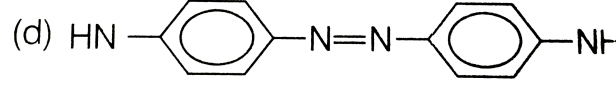
Answer: B



Watch Video Solution

46. Aniline in a set of the following reactions yielded a coloured product Y



- A. (a) 
- B. (b) 
- C. (c) 
- D. (d) 

Answer: B



Watch Video Solution

47. In both *DNA* and *RNA*, the heterocyclic base and phosphate ester linkages are at:

A. C_5 and C_2 respectively of the sugar molecule

B. C_2 and C_5 respectively of the sugar molecule

C. C_1 and C_5 respectively of the sugar molecule

D. C_5 and C_1 respectively to the sugar molecule

Answer: C



Watch Video Solution

48. Caprolactum is a monomeer of nylon-6. It can be obtained from

A. adipic acid

B. hexamethylenediamine

C. ϵ – amino caproic acid

D. β – amino caproic acid

Answer: C



View Text Solution

49. Heroin is an example of

A. ceffeine

B. cocaine

C. nicotine

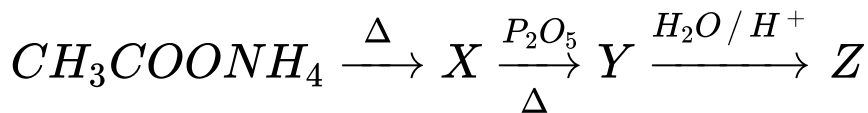
D. morphine

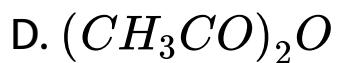
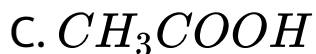
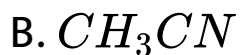
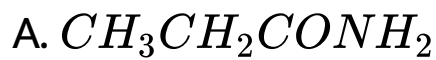
Answer: D



Watch Video Solution

50. Identify the end product in the following sequence of reactions





Answer: C



Watch Video Solution