

CHEMISTRY

31. S_N1 reaction is favored by
- non polar solvents
 - more number of alkyl group on the carbon atom attached to the halogen atom
 - small groups on the carbon attached to the halogen atom
 - no groups on the carbon attached to the halogen atom
32. Phenol is less acidic than
- ethanol
 - o-nitrophenol
 - o-methylphenol
 - o-methoxyphenol
33. Chloro ethane reacts with compound Z to form diethyl ether. Identify Z?
- NaOH
 - H_2SO_4
 - C_2H_5ONa
 - $Na_2S_2O_3$
34. Which of the following reagents may be used to distinguish between phenol and benzoic acid?
- Tollens' reagent
 - Molisch reagent
 - Neutral $FeCl_3$
 - Aqueous NaOH
35. In the following sequence of reactions, the alkene affords the compound 'B'.
- $$CH_3CH=CHCH_3 \xrightarrow{O_3} A \xrightarrow[Zn]{H_2O} B$$
- The compound B is
- CH_3CHO
 - CH_3COCH_3
 - CH_3CH_2CHO
 - $CH_3CH_2COCH_3$
36. How many chiral carbons are there in β -D-(+)-glucose?
- five
 - six
 - three
 - four
37. Why are certain rubbers called as 'vulcanized rubber'?
- They are formed under volcanic eruption
 - They are prepared by adding 5% of sulphur as cross-linking agent
 - They do not use any co-monomer
 - By the addition of excessive co-monomer

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38. One of the common components of photochemical smog is
- | | |
|-----------------|--------------------|
| a) formaldehyde | b) acetaldehyde |
| c) methane | d) CO ₂ |
39. Sodium dodecylbenzenesulphonate refers to
- | | |
|-----------------------|-----------------------|
| a) anionic detergent | b) soap |
| c) cationic detergent | d) nonionic detergent |
40. Which one of the following acts as antihistamine?
- | | |
|---------------|---------------------|
| a) Equanil | b) Morphine |
| c) Serotonine | d) Bromophenylamine |
41. The actual atomic weight of an element is represented in
- | | |
|-----------|---------|
| a) number | b) "u" |
| c) "amu" | d) "mu" |
42. The weight of nascent oxygen in milligrams obtained from 6.32 g of potassium permanganate (Molecular weight 158) in acid medium is
- | | |
|---------|----------|
| a) 16 | b) 0.016 |
| c) 0.16 | d) 1.6 |
43. The value of Plank's constant in units of Js is
- | | |
|----------------------------|----------------------------|
| a) 6.626×10^{-34} | b) 6.626×10^{-23} |
| c) 6.626×10^{-27} | d) 1.38×10^{-23} |
44. The mass of proton having a wavelength of 4.2\AA is
- | | |
|------------------------------|-----------------------------|
| a) 4.78×10^{-33} kg | b) 4.78×10^{-33} g |
| c) 7.17×10^{-33} kg | d) 2.39×10^{-33} g |
45. The measurement of a thermodynamic property known as temperature is based on
- | | |
|---------------------------------|--------------------------------|
| a) zeroth law of thermodynamics | b) first law of thermodynamics |
| c) second law of thermodynamics | d) kirchoffs equation |
46. The bond dissociation enthalpies of H₂(g), Cl₂(g) and HCl(g) are 435, 243 and 431 kJ/mol respectively. The enthalpy of formation of HCl(g) in kJ/mol will be
- | | |
|---------|----------|
| a) 121 | b) -1211 |
| c) -121 | d) -242 |
47. Defective coating of zinc over mild steel leads to
- | |
|---------------------------------------|
| a) enhanced corrosion of mild steel |
| b) increase of corrosion potential |
| c) corrosion of zinc coating |
| d) hydrogen evolution over mild steel |

48. What will happen to the rate constant of a reaction when the temperature is raised by 10°C ?
- a) Increase by 10 times
b) Is halved
c) Is doubled
d) Not affected
49. The equivalent conductances at infinite dilution (λ^∞) of ammonium chloride, sodium hydroxide and sodium chloride are 120, 240 and $150\text{ mho cm}^2\text{eq}^{-1}$. The λ^∞ of ammonium hydroxide in $\text{mho cm}^2\text{eq}^{-1}$ is
- a) 270
b) 210
c) 30
d) 510
50. 100 cm^3 of an aqueous solution of protein contains 0.63 g of protein. If the osmotic pressure of the solution at 300K is 2.57×10^{-3} bar, the molar mass of the protein will be
- a) 60039
b) 61039
c) 62039
d) 63039
51. A compound formed by elements P and Q crystallizes in cubic structure in which atoms of P are at corners and atoms of Q are at the face center. The formula of the compound is
- a) AB_3
b) AB
c) A_3B
d) A_3B
52. Syn gas is a mixture of
- a) carbon dioxide and hydrogen
b) carbon monoxide and hydrogen
c) methane and hydrogen
d) methane and carbon monoxide
53. Which one of the following alkali metal hydrides is thermally stable?
- a) Lithium hydride
b) Sodium hydride
c) Potassium hydride
d) Rubidium hydride
54. The correct order of acidic character of the following is
- a) $\text{SO}_2 > \text{CO}_2 > \text{CO} > \text{N}_2\text{O}_5$
b) $\text{SO}_2 > \text{N}_2\text{O}_5 > \text{CO} > \text{CO}_2$
c) $\text{N}_2\text{O}_5 > \text{SO}_2 > \text{CO} > \text{CO}_2$
d) $\text{N}_2\text{O}_5 > \text{SO}_2 > \text{CO}_2 > \text{CO}$
55. Bell metal is an alloy of
- a) copper and tin
b) silver and copper
c) copper and nickel
d) copper, zinc and tin
56. Ammonium dichromate is used in fireworks. The green coloured powder blown in the air is
- a) CrO_3
b) Cr_2O_3
c) Cr
d) $\text{CrO} (\text{O}_2)$

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57. Which one of the following complexing agents is used for the estimation of hardness of water?

- a) Cyanide
- b) Pyrophosphate
- c) EDTA
- d) Ethylene diamine

58. How many σ and π bonds are present in nitromethane

- a) 6 σ and 1 π
- b) 5 σ and 2 π
- c) 6 σ and 2 π
- d) 5 σ and 1 π

59. Retardation factor is calculated as

- a) ratio between 'distance travelled by the substance from the base line and distance moved by the solvent from the base line'
- b) ratio between 'distance travelled by the solvent from the base line and distance moved by the substance from the base line'
- c) sum of 'distance travelled by the substance from the base line and distance moved by the solvent from the base line'
- d) difference of 'distance travelled by the substance from the base line and distance moved by the solvent from the base line'

60. In which one of the following, Mn exhibits its highest oxidation state?

- a) MnO_2
- b) MnO_4^{2-}
- c) MnO_4^-
- d) MnO

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