1. SOLUTIONS

1. 50 cc of deci-normal NaOH solution will be completely neutralized by 'x' ml of deci-molar H_2SO_4 solution. The value of 'x' is ..... [ ]

a) 10 b) 25

c) 50 d) 1

ECET-2018(TS)

2. The normality of 26% (Wt/Vol) solution of ammonia (d = 0.55) is approximately ..... [ ]

a) 1.5 b) 15.3

c) 0.4 d) 4

ECET-2018(TS)

3. The normality f solution obtained by dissolving 5.3 grams of Na_2CO_3 in 1 litre solution is [ ]

a) 1 N b) 0.1 N

c) 0.05 N d) 0.5 N

ECET-2018(AP)

4. The following solution has same molarity and normality [ ]

a) Na_2CO_3 b) NaCl

c) H_2SO_4 d) $K_2Cr_2O_7$

ECET-2018(AP)

5. 5 moles of a solute is dissolved in 10 litres of solution. What is its molarity? [ ]

a) 5M b) 2M

c) 0.5M d) 0.2M

ECET-2018(AP)

6. Molarity of 4% (W/V) solution of NaOH is [ ]

a) 0.1 b) 0.5

c) 0.001 d) 1

ECET-2017(TS)

7. The weight of $H_2C_2O_4.2H_2O$ required to prepare 500 mL of 0.2N solution is [ ]

a) 1.26 g b) 6.3 g

c) 1.575 g d) 3.15 g

ECET-2017(TS)

8. The normality of 2.3M H_2SO_4 solution is [ ]

a) 0.46N b) 0.23N

c) 2.3N d) 4.6N

ECET-2017(AP)

9. 8 grams of substance of molecular weight 40 is dissolved in 250g of water. Then the molality of the solution is [ ]

a) 0.4 b) 0.8

c) 0.2 d) 0.6

ECET-2017(AP)

10. The number of moles of hydroxide (OH^{-1}) ions in 0.3 litre of 0.0005 M solution of $Ba(OH)_2$ is [ ]

a) 0.0050 b) 0.0030

c) 0.0015 d) 0.0075

ECET-2016(TS)

11. The normality of 0.3 M of H_3PO_3 is [ ]

a) 0.1 b) 0.9

c) 0.6 d) 0.3

ECET-2016(TS)

12. One molar solution of sodium hydroxide is prepared by adding [ ]

a) 4g/L b) 0.4g/L

c) 0.04g/L d) 40g/L

ECET-2016(AP)

13. A solution is a mixture of [ ]

a) Two solutes b) Two solids

c) Single solvent

d) Solute and solvent

ECET-2016(AP)

14. What happened to a solution when a non-volatile solute is added to a solvent? [ ]

a) Vapour pressure decreases

b) Vapour pressure increases

c) Boiling point decreases

d) No change in vapour pressure

ECET-2015

15. How much volume of 0.1M H_2SO_4 solution is required to neutralize completely 50 ml of 0.2 N NaoH solution? [ ]

a) 25 ml b) 50 ml

c) 75 ml d) 100 ml

ECET-2015

16. The volume in ml. of 0.1M solution of NaoH required to completely neutralize 100 ml of 0.3 M solution of H_3PO_3 is [ ]

a) 60 b) 600

c) 300 d) 30

ECET-2014

17. 1.43 gms of crystalline sodium carbonate (M.W.286) were dissolved in water and made up to 100ml in a standard flask. 10 ml of this solution were pipette out into another flask and made up to 100 ml with distilled water. The normality of the final solution is ..... [ ]

a) 0.01 N b) 0.1 N

c) 0.05 N d) 0.005 N

ECET-2013

18. 5.85 gms of sodium chloride were dissolved in water and the solution made upto 100 ml in a standard flask. 10 ml this solution were pipette out into another flask and made up with distilled water into 100 ml of solution. The concentration of the sodium chloride solution now is [ ]

a) 0.1 M b) 1.0 M

c) 0.5 M d) 0.25 M

ECET-2012

19. How many grams of NaOH will be needed to prepare 250 ml of 0.1 M solution? [ ]

a) 1g b) 10g

c) 4g d) 6g

ECET-2011

20. The normality of solution containing 60g of CH_3COOH per litre is [ ]

a) 1N b) 2N

c) 0.5N d) 1.5N

ECET-2011

21. Molarity is expressed in [ ]

a) moles kg-1 b) g lit-1

c) moles lit-1 d) lit mole-1

ECET-2011

22. The normality of 4% (w/v) NaOH is [ ]

a) 0.1 b) 1.0

c) 0.05 d) 0.01

ECET-2011

23. Solutions containing relatively very low concentration of solute are called [ ]

a) Concentrated solutions

b) Dilute solutions

c) Homogeneous solutions

d) Heterogeneous solutions

ECET-2010

24. The strength of a solution expressed in gram equivalents per litre of the solution is [ ]

a) Molar solution b) Molar solution

c) Normal solution d) Mole fraction

ECET-2010

25. The molarity of a given solution containing 49 grams per litre of sulphuric acid is [ ]

a) 1.0 M b) 2.0 M

c) 0.25 M d) 0.5 M

ECET-2010

26. The amount of NaOH required to prepare N/100 solution in 250ml of water is [ ]

a) 10 grams b) 1.0 grams

c) 0.1 grams d) 0.01 grams

ECET-2010

27. The molarity is defined as the number of moles of solute present in [ ]

a) One litre of the solvent

b) One litre of the solution

c) One kg of the solvent

d) One kg of the solution

ECET-2009

28. For the preparation of 100ml of 0.2N solution of sulphuric acid, the amount of H_2SO_4 (mo,mas,98) needed is [ ]

a) 4.9g b) 9.8g

c) 14.8g d) 29.6g

ECET-2002

29. The number of molecules of CO_2 present in 44 gm of CO_2 is approximately: [ ]

a) 12×10^{23} b) 3×10^{10}

c) 10^{30} d) 6×10^{23}

ECET-2002

30. How many grams of NaOH will be needed to prepare 250 ml. of 0.1M solution? [ ]

a) 1 grams b) 10 grams

c) 4 grams d) 6 grams

ECET-2002

31. The volume of $KMnO_4$ solution of 0.1M required to completely oxidize 50ml of 0.25M ferrous sulphate solution in acid medium is: [ ]

a) 125 b) 25

c) 50 d) 250

ECET-1999

32. When 0.01 mole of KC*l* is dissolved in 500ml of solution the concentration is [ ]

a) 0.2M b) 0.05M

c) 0.01M d) 0.2M

ECET-1999

KEY

1. b	2. b	3. b	4. b	5. c
6. d	7. b	8. d	9. b	10. c
11. b	12. d	13. d	14. a	15. b
16. b	17. a	18. a	19. a	20. a
21. c	22. b	23. b	24. c	25. d
26. d	27. b	28. b	29. d	30. a
31. b	32. a			

2019 – AP ECET

1. One mole of any of the particles contains [ ]

a) 6.023×10^{-23} b) 6.022×10^{23}

c) 60.23×10^{23} d) 6.023×10^{25}

2. The normal of the solution obtained by dissolving 4 gm of NaOH in 1 Litre is [ ]

a) 1 N b) 0.1 N c) 0.5 N d) 0.02 N

3. Molecular weight of H_2SO_4 is [ ]

a) 92 b) 96 c) 98 d) 99

2019 – TS ECET

4. 4.9 gm of H_2SO_4 is present in 2 lit of its solution. The molarity of the solution is _____ [ ]

a) 0.1 M b) 0.025 M

c) 0.25 M d) 0.01 M

5. The molecular weight of H_3PO_4 is 98. The equivalent weight is _____ gram/ equivalents. [ ]

a) 98 b) 49 c) 32.66 d) 24.5

2020 – AP ECET

6. Sum of mole fractions of the two components of a solution is always [ ]

a) more than one b) less than one

c) exactly one d) not fixed

7. A 10N solution stands for [ ]

a) normal solution

b) decanormal solution

c) decinormal solution

d) seminormal solution

8. The molarity of pure water is [ ]

a) 55.6 b) 50 c) 100 d) 18

2020 – TS ECET

9. What is the required volume of water to prepare 1.8 M H_2SO_4 solution from 250 ml of 9M H_2SO_4 solution? [ ]

a) 750ml b) 500 ml

c) 250 ml d) 1000 ml

10. What is the gram equivalent weight (G.E.W) of oxalic acid? [ ]

a) 90 gm b) 85 gm c) 45 gm d) 55 gm

11. The solvent moves from low concentration to higher concentration through a semi permeable membrane, the process is known as [ ]

a) Osmosis b) Reverse Osmosis

c) Electrodialysis d) Flash distillation

2021 – AP ECET

12. To half the molarity of a solution, the following should be adopted [ ]

a) weight of the solute to be doubled

b) weight of the solvent to be doubled

c) volume of the solvent to be doubled

d) volume of the solution to be doubled

13. The molecular weight of $KMnO_4$ is "M". In a reaction $KMnO_4$ is reduced to K_2MnO_4. The equivalent weight of $KMnO_4$ is [ ]

a) M b) M/2 c) M/3 d) M/4

14. Calculate the weight of NaOH present in 500 ml of 0.5 N solution [ ]

a) 5g b) 10g c) 12g d) 15g

2021 – TS ECET

15. When the phenol and water mixed together. The formed solution is called [ ]

a) homogeneous b) heterogeneous

c) colloidal d) azeotropic

16. How many grams of anhydrous oxalic acid is required to prepare one liter of 0.1 N oxalic acid solution? [ ]

a) 45 grams b) 9.0 grams

c) 4.5 grams d) 0.9 grams

17. If the sulphate ion concentration in a solution of $Al_2(SO_4)_3$ is 0.25 M, the concentration of $Al_2(SO_4)_3$ in the solution is [ ]

a) 0.250 M b) 0.0625 M

c) 0.0833 M d) 0.125 M

2022 – AP ECET

18. 0.2 equivalents of H_2SO_4 is present in 100 mL of the solution. What is its normality? [ ]

a) 1N b) 2N c) 4N d) 20N

19. 20 mL of 0.01 M HCl solution is diluted to 100 mL. What is the molarity of final solution? [ ]

a) 0.02 M b) 0.002 M

c) 0.05 M d) 0.001 M

20. How many moles of HCl are required to react with completely with 2 moles of Na_2CO_3? [ ]

a) 1 b) 2 c) 3 d) 4

2022 – TS ECET

21. Molecular weight of a dibasic acid is M. Its equivalent weight is [ ]

a) M b) M/2 c) 2M d) M+2

22. Lyophobic colloids are [ ]

a) required stabilisers

b) prepared by direct mixing

c) more stable

d) solvent attracting colloids

KEY

1) b	2) b	3) c	4) a	5) b
6) c	7) b	8) a	9) d	10) c
11) a	12) d	13) a	14) b	15) b
16) x	17) x	18) b	19) b	20) s
21) b	22) a			

2. ACIDS AND BASES

1. Arrange the following in the decreasing order of acidity: [ ]

I) H_2SO_3 II) H_3PO_4 III) $HClO_3$

a) I>II>III b) II>III>I

c) III>II>I d) I>III>II

ECET-2018(TS)

2. Which anion is the weakest conjugate base? [ ]

a) $C_2H_5O^{\ominus}$ b) $F^{\ominus}$

c) $C_3H_3COO^{\ominus}$ d) $NO_3^{\ominus}$

ECET-2018(TS)

3. Process in which acids (H^+) and bases (OH^-) react to form salts and water is called [ ]

a) Neutralization b) Halogenation

c) Hydrogenation d) Hydrolysis

ECET-2018(AP)

4. A substance that donates a pair of electrons to form coordinate covalent bond is called [ ]

a) Lewis acid b) Lewis base

c) Bronsted-Lowry acid

d) Bronsted-Lowry base

ECET-2018(AP)

5. The conjugate base of hydrogen molecule is [ ]

a) Electron b) Hydride ion

c) Proton d) Hydroxide ion

ECET-2017(TS)

6. P^H of a solution is 1. It is diluted by 1×10^3 times. The P^H of the resulting solution will be [ ]

a) 1 b) 3

c) 4 d) 5

ECET-2017(TS)

7. The P^H value of 0.05M $Ba(OH)_2$ solution is [ ]

a) 10 b) 12

c) 13 d) 11

ECET-2017(AP)

8. Which of the following molecule is not a Lewis Base? [ ]

a) H_2O b) BF_3

c) NH_3 d) CO

ECET-2017(AP)

9. In I_3^- Lewis base is [ ]

a) I^- b) I_2^+

c) I_2^- d) I_2

ECET-2016(TS)

10. One ml of 0.1N HC*l* is added to one litre of sodium chloride solution, the P^H of the resulting solution s [ ]

a) 7 b) 1

c) 4 d) 2

ECET-2016(TS)

11. According to Lewis theory, acid species will [ ]

a) Donate electrons

b) Accept electrons

c) Accept proton d) Donate proton

ECET-2016(AP)

12. The P^H of the neutral solution is [ ]

a) 2.0 b) 7.0

c) 3.0 d) 5.0

ECET-2015(AP)

13. What is the conjugate base of OH^-? [ ]

a) H_2O b) H_2O^+

c) O^{-1} d) 2.7

ECET-2015(AP)

14. 10 ml of 0.05 M H_2SO_4 is diluted to 100ml with water. What is the P^H of the resultant solution? [ ]

a) 2.0 b) 1.0

c) 2.3 d) 2.7

ECET-2015(AP)

15. The P^{ka} values of four carboxylic acids are 4.75, 4.19, 0.23 and 3.41 respectively. The strongest carboxylic acid among them is the one having P^{ka} value of [ ]

a) 4.19 b) 3.41

c) 0.23 d) 4.76

ECET-2014

16. If P^H value of a solution, is 8, then is P^{OH} value will be [ ]

a) 7 b) 1

c) 6 d) 10

ECET-2014

17. The P^H value of potable water should be between [ ]

a) 1 to 1.5 b) 6.5 to 8

c) 13 to 14 d) 4 to 5

ECET-2014

18. Which of the following is a non-aprotic and non-polar solvent? [ ]

a) Chloroform b) n-Butanol

c) Dimethyl formamide

d) Diethyl ether

ECET-2013

). The P^H of an aqueous solution of KOH was found to be 10.0. Then its P^{OH}... [ ]

a) 10.0 b) 4.0

c) 14.0 d) 3.0

ECET-2013

0. Which one of the following is a Lewis base? [ ]

a) Aq. MgCl2 b) Anh. AlCl3

c) Pyridine

d) Lithium hydroxide

ECET-2013

1. An aqueous solution of which of the following compounds will conduct electricity? [ ]

a) Urea b) D-Glucose

c) Ethylene glycol d) Propionic acid

ECET-2013

22. Concentration of a 1.0M solution of phosphoric acid in water is [ ]

a) 0.33N b) 1.0N

c) 2.0N d) 3.0N

ECET-2012

23. Which of the following is a Lewis acid? [ ]

a) Ammonia

b) Berylium chloride

c) Boron trifluoride

d) Magnesium oxide

ECET-2012

24. Which of the following constitutes the components of a buffer solution? [ ]

a) Potassium chloride and potassium hydroxide

b) Sodium acetate and acetic acid

c) Magnesium sulphate and sulphuric acid

d) Calcium chloride and calcium acetate

ECET-2012

25. The compound that does not act as Lewis [ ]

a) $AlCl_3$ b) BF_3

c) NH_3 d) $FeCl_3$

ECET-2012

26. The conjugate acid of NH_2^0 is [ ]

a) NH_3 b) NH2OH

c) $NH_4^{\oplus}$ d) N_2H_2

ECET-2012

27. The PH of a solution is 2. Its PH is to be changed to 4. Then the $H^{\oplus}$ concentration of the original solution has to be [ ]

a) Halved b) Doubled

c) Increased by 100 times

d) Decreased by 100 times

ECET-2012

28. The solvent which can donate protons is called [ ]

a) Protophilic b) Amphiprodtic

c) Aprotic d) Protogenic

ECET-2010

29. Which of the following salts solution forms a buffer? [ ]

a) NH_4OH and NH_4Cl

b) HCl and CH_3COCl

c) NH_4OH and CH_3COONa

d) NH_4Cl and CH_3COOH

ECET-2010

30. The ionic product of water is expressed as [ ]

a) 10^{-14} b) 10^{-7}
c) 10^{14} d) 10^{7}

ECET-2010

31. The pH of 0.001M HC*l* solution is [ ]
a) 1 b) 2
c) 3 d) 4

ECET-2009

32. Which of the following is not a buffer solution? [ ]
a) $NH_4Cl + NH_4OH$
b) $CH_3COONa + CH_3COOH$
c) $NaOH + HCl$
d) $HCOONa + HCOOH$

ECET-2009

33. The compound that is not Lewis acid is [ ]
a) BF_3 b) $AlCl_3$
c) $BeCl_2$ d) $BaCl_2$

ECET-2009

34. The compound that is not a Lewis acid is: [ ]
a) $AlCl_3$ b) BF_3
c) NH_3 d) $FeCl_3$

ECET-2002

35. The P^H of 0.001M HC*l* is: [ ]
a) 4 b) 2
c) 1 d) 3

ECET-1999

KEY

1. c	2. d	3. a	4. b	5. b
6. c	7. c	8. b	9. a	10. c
11. b	12. b	13. c	14. a	15. c
16. c	17. b	18. d	19. b	20. c
21. d	22. d	23. b	24. b	25. c
26. a	27. d	28. d	29. a	30. a
31. c	32. c	33. d	34. c	35. d

2019 – AP ECET

1. A Lewis acid is a substance which [ ]
a) accept protons
b) accept a lone pair of electrons
c) donate protons
d) donate a lone pair of electrons

2. P^H of a solution is 9.5, the solution is [ ]
a) basic b) acidic
c) neutral d) amphoteric

2019 – TS ECET

3. Which of the following is the Bronsted acid? [ ]
a) Cl^- b) NH_2^-
c) $CH3COO^-$ d) NH_4^-

4. The pH of 1 M KOH is _____ [ ]
a) 12 b) 11 c) 14 d) 13

5. The basic buffer solution is a mixture of _____ [ ]
a) $NH_3 + NH_4Cl$ b) $HCl + NH_4Cl$
c) $NaCl + NH_4Cl$ d) $KOH + NH_4Cl$

2020 – AP ECET

6. According to Bronsted – Lowry theory which one of the following is considered as an acid? [ ]
a) OH^- b) HSO_4^- c) H_3O^+ d) Cl^-

7. The pH of a solution containing of 10^{-6} HC*l* is [ ]
a) 4 b) 6 c) 8 d) 10

2020 - TS ECET

8. Which of the following compounds are Lewis acids [ ]

a) $H_2, NH_3, NaOH$

b) CH_3COOH, Cl^-, OH^-

c) C_6H_6, N_2, CH_3OH

d) $FeCl_3, BCl_3, H^+$

9. pH value of 0.01 M HCl solution is [ ]

a) 2 b) 1 c) 4 d) 3

10. Match the following

i) Ionic product of water	a) $NH_4Cl + NH_4OH$
ii) Basic buffer	b) $CH_3COOH + CH_3COONa$
iii) Bronsted base	c) $[H^+][OH^-]$
iv) Acidic buffer	d) NH_3

Choose the correct option from the following: [ ]

a) i-a, ii-b, iii-c, iv-d b) i-d, ii-c, iii-b, iv-a

c) i-c, ii-a, iii-d, iv-b d) i-b, ii-d, iii-a, iv-c

2021 – AP ECET

11. On addition of NaOH to water [ ]

a) Ionic product will increase

b) Ionic product will decrease

c) No change in ionic product of water

d) H_3O^+ concentration increases

12. Which of the following is not a buffer solution? [ ]

a) (CH_3COOH/CH_3COONa)

b) $(HCl/NaCl)$

c) $(HCOOH/HCOONa)$

d) $(NH_4$ 僭$H/NH_4Cl)$

2021 – TS ECET

13. Which of the following pair of species represent as conjugate acid base? [ ]

a) HCl, H_2O b) H_3PO_4, H_3O^+

c) HSO_3^-, SO_3^{2-} d) H_2CO_3, CO_2

14. From the following choose the correct $[H^+]$ of a NaOH solution in M, if its pOH is 11.3 [ ]

a) 2×10^{-3} b) 2.7×10^{-3}

c) 2.7×10^{-12} d) 6.2×10^{-8}

15. Hydrochloric acid is a strong acid. This means that _____ [ ]

a) HCl dissociates completely in to $H^+(aq)$ and $Cl^-(aq)$ when it dissolves in water

b) HCl does not dissociate at all when it is dissolved in water

c) HCl produces a gaseous product when it is neutralized

d) HCl cannot be neutralized by a weak base

2022 – AP ECET

16. Which one among the following is a Lewis acid also Bronsted acid? [ ]

a) CO_2 b) $AlCl_3$ c) H^+ d) Cu^{2+}

17. What is the pH of 0.01 M NaOH solution? [ ]

a) 2 b) 8 c) 10 d) 12

2022 –TS ECET

18. Which one of the following is not a Lewis acid [ ]

a) HCl b) BF_3 c) Mg^{2+} d) SO_2

19. The solution with more pH value [ ]

a) 0.1 M HCl b) 0.5 M HCl

c) 0.1 M NaOH d) 0.5 M NaOH

KEY

1) b	2) a	3) d	4) c	5) a
6) c	7) b	8) d	9) a	10) c
11) c	12) b	13) c	14) a	15) a
16) c	17) d	18) a	19) d	

3. ELECTRO CHEMISTRY

1. Number of coulombs of current required to convert completely one mole on $MnO_4^{\ominus}$ ions is acid medium to one mole of Mn^{+2} ions electrically ... [ ]
   a) 96500 b) 96500×2
   c) 96500×6 d) 5×96500
2. Which of the following elements has the highest value of the electrochemical equivalent? [ ]
   a) Mg b) Ca
   c) K d) Na
3. The standard reduction potential for Zn^{+2}/Zn and Cu^{+2}/Cu electrodes are –0.76V and +0.34V respectively. For the cell reaction $Zn + Cu^{+2} \rightarrow Zn^{+2} + Cu$ the standard e.m.f. is ..... [ ]
   a) +1.10 V b) –0.42 V
   c) +0.42 V d) –1.10 V
4. One Faraday is equal to [ ]
   a) 99650 C b) 93100 C
   c) 96500 C d) 94500 C

ECET-2018(AP)

5. The cell reaction of a cell is $Mg(s) + 2H^+(aq) \rightarrow Mg^{2+}(aq) + H_2(g)$. If the standard reduction potential of Zn is –2.372V, then the emf of the cell is [ ]
   a) +2.372 V b) –2.372 V
   c) 0.00 V d) –1.372 V

ECET-2018(AP)

6. Galvanic cells are the cells which convert [ ]
   a) Electrical energy to chemical energy
   b) Chemical energy to electrical energy
   c) Chemical energy to free energy
   d) Potential energy to kinetic energy

ECET-2018(AP)

7. Mass of substance provided at electrode is directly proportional to the quantity of electricity passed. This is known as [ ]
   a) Faraday's second law
   b) Faraday's first law
   c) Newton's third law
   d) Newton's first law

ECET-2018(AP)

8. Three faradays of electricity was passed through an aqueous solution of Ferrous chloride. The weight of iron metal (At w.t. = 56) deposited at the cathode in grams is [ ]
   a) 56 b) 84
   c) 112 d) 168

ECET-2017(TS)

9. Which one of the following could not be liberated from a suitable electrolyte by the passage of 0.25 faraday of electricity through the electrolyte [ ]
   a) 0.5 mole of Ag b) 16 gms of Cu
   c) 2 gms of $O_2(g)$
   d) 2.8 lit of H_2 at STP

ECET-2017(TS)

10. Given standard electrode potentials $Fe^{3+} + 3e^- \rightarrow Fe\ E° = -0.036V$, $Fe^{2+} + 2e^- \rightarrow Fe\ E° = -0.440V$. The standard electrode potential $E°$ for $Fe^{3+} + e^- \rightarrow Fe^{2+}$ is [ ]

a) 0.476V b) –0.404V

c) 0.40V d) 0.772V

ECET-2017(TS)

11. During the electrolysis of brine, 710 g of Cl2 was liberated at anode. The weight of NaOH formed [ ]

a) 800g b) 400g

c) 80g d) 40g

ECET-2017(AP)

12. In the Danniel cell, which electrode acts as anode? [ ]

a) Cu b) Hg

c) Zn d) Pt

ECET-2017(AP)

13. The molar conductance of HC*l* is more than that of NaC*l* because [ ]

a) NaC*l* is more polar than KC*l*

b) NaC*l* is ionic while HC*l* is covalent

c) Ionic mobility of H^+ is more than that of Na^+

d) H^+ get hydrated

ECET-2017(AP)

14. The units for electrochemical equivalent are [ ]

a) Grams b) Grams ampere

c) Coulomb

d) Grams per coulomb

ECET-2017(AP)

15. E° of Zn electrode is –0.762 volts. The single electrode potential of Zn electrode in deci-molar $ZnSO_4$ solution is [ ]

a) –0.7915V b) –0.671V

c) +0.7915V d) +0.671V

ECET-2016(TS)

16. The function of salt bride is [ ]

a) To produce a link between two half cells

b) To allow ions to go from one cell to another cell

c) To keep the EMF of the cell positive

d) To maintain electrical neutrality of the sodium in two half cells

ECET-2016(TS)

17. Which of the following is a good conductor? [ ]

a) De-ionized water b) Copper

c) Teflon d) Bakelite

ECET-2016(AP)

18. In galvanic cell chemical energy is converted to [ ]

a) Electrical energy b) Thermal energy

c) Sound energy d) Water

ECET-2016(AP)

19. According to Faraday's first law, the mass of any substance deposited or liberated at electrode is directly proportional to [ ]

a) Quantity of electricity passed

b) Temperature of electrode

c) Electrode potential

d) Solution concentration

ECET-2016(AP)

20. In a given galvanic cell the standard reduction potential of Zinc electrode is

–0.76V and that of copper electrode is –0.40V. the emf of the galvanic cell is[ ]

a) 0.36V b) 1.16V

c) –0.40V d) –0.76V

ECET-2016(AP)

21. When one faraday of electricity is passed for $CuSO_4$ solution, how much copper is deposited a cathode? (Atomic weight of Cu = 63.54) [ ]

a) 63.54g b) 31.72g

c) 15.86g d) 127.08g

ECET-2015

22. Calculate the emf of the following cell at 25°C of $Zn/Zn^{2+} + (0.1M)/Cu^{2+}\ 0.1M/Cu$ standard reduction potential of Zn/Zn^{2+} and Cu^{2+}/Cu are –0.76 and +0.34 respectively [ ]

a) +1.1V b) –1.1V

c) +1.07V d) +1.13V

ECET-2015

23. The standard reduction potential for potential for $Li^{+}/Li\ Zn^{+}/Zn$; H^{+}/H_2 and Ag^{+}/Ag are –3.05, –0.762, 0.000 and +0.80V respectively. Which is the strongest reducing agent? [ ]

a) Ag b) H_2

c) Zn d) Li

ECET-2014

24. The standard reduction potential for the following half-cell reactions are $Zn = Zn^{+2} + 2e^{-}\ E^0 = -0.76V$; $Fe = Fe^{+2} + 2e^{-}\ E^0 = -0.44V$. The E.M.F. for the cell reaction $Fe^{+2} + Zn \rightarrow Zn^{+2} + Fe$ will be [ ]

a) –0.32V b) +0.32V

c) +1.20V d) –1.20V

ECET-2014

25. In salt bride, KC*l* is used because [ ]

a) KC*l* is present in calomel electrode

b) K^{+} and Cl^{-} ions are not iso electronic

c) K^{+} and Cl^{-} ions have the same transport number

d) KC*l* is an electrolyte

ECET-2014

26. The metal that cannot be obtained by electrolysis of aqueous solution of its salt is [ ]

a) Ag b) Au

c) Cu d) A*l*

ECET-2014

27. Given that E° for $Ni/Ni^{+2} = (-)0.38V$ and E° for $Cu/Cu^{+2} = (+)0.34V$, the standard emf of the cell $Ni/Ni^{+2}\ //\ Cu^{+2}/Cu$ is ..... [ ]

a) 0.72V b) 0.02V

c) (–)0.04V d) (–)0.72V

ECET-2013

28. A solution of silver nitrate was electrolyzed using Pt electrodes and a DC current of strength 2 amperes for 965 sec The weight of silver (At. Wt. 108) deposited was ..... [ ]

a) 2.16 gm b) 1.08 gm

c) 108 gm d) 0.432 gm

ECET-2013

29. Which of the following metal ions will undergo fastest reduction? [ ]

a) K^{+} b) Al^{+3}

c) Cd^{+2} d) Ag^{+}

ECET-2013

30. Which of the following is an electrotype? [ ]

a) Acetic acid b) Glucose

c) Urea d) Pyridine

ECET-2012

31. Calculate the standard emf of the cell, $Cd/Cd^{+2}//Cu^{+2}/Cu$ given that $E^0Cd/Cd^{+2} = 0.44V$ and $E^0Cu/Cu^{+2} = (-)0.34V.E$ [ ]

a) $(-1)1.0V$ b) 1.0V

c) $(-1)0.78V$ d) 0.78V

ECET-2012

32. A solution of nickel chloride was electrolysed using Platinum electrodes. After electrolysis, [ ]

a) Nickel will be deposited on the anode

b) Cl2 gas will be liberated at the cathode

c) H2 gas will be liberated at the anode

d) Nickel with be deposited on the cathode

ECET-2012

33. Which of the following metals will undergo oxidation fastest? [ ]

a) Cu b) Li

c) Zinc d) Iron

ECET-2012

34. The P^H of 0.1N NaOH is: [ ]

a) 12 b) 13

c) 10 d) 14

ECET-2002

35. Which of the following is a strong electrolyte? [ ]

a) CH_3COOH b) HCOOH

c) NH_4OH d) HCl

ECET-2002

36. The emf of a galvanic cell consisting of $Zn^{2+}/Zn(0.76V)$ and $Fe^{2+}/Fe(0.44V)$ [ ]

a) +1.20V b) –1.20V

c) –0.32V d) +0.32V

ECET-2001

37. Electrolysis of an aqueous solution of Sodium acetate gives [ ]

a) Ethane b) Ethylene

c) Acetylene d) Methane

ECET-2001

38. The e.m.f of a galvanic cell constituting $Zn^{2+}/Zn(0.76V)$ and $Cu^{2+}/Cu(-0.84V)$ is: [ ]

a) 1.10V b) –1.10V

c) 0.42V d) –0.42V

ECET-1999

KEY

1. d	2. c	3. a	4. c	5. a
6. b	7. b	8. b	9. b	10. d
11. a	12. c	13. c	14. d	15. a
16. d	17. b	18. a	19. a	20. b
21. b	22. a	23. d	24. b	25. c
26. d	27. d	28. a	29. d	30. a
31. c	32. d	33. b	34. b	35. d
36. d	37. a	38. a		

2019 – AP ECET

1. Laws of electrolysis were given by [ ]
   a) Ostwald b) Faraday
   c) Arrhenius d) Volta

2. Common electrolyte used in the salt bridge is [ ]
   a) NaOH b) $NaCO_3$ c) KCl d) KOH

3. Standard Reduction Potential of an element is equal to [ ]
   a) 1 × its reduction potential
   b) –1 × its standard oxidation potential
   c) –1 × its reduction potential
   d) 1 × its standard oxidation potential

4. The standard emf for the cell reaction, $Zn + Cu^{+2} \rightarrow Cu + Zn^{2+}$ is 1.10 V at 25°C. The emf of the cell reaction when 0.1 $0.1M\ Cu^{+2}$ and $0.1M\ Zn^{+2}$ solutions are used at 25°C is [ ]
   a) 1.10V b) 0.11V c) –1.10V d) –0.11V

2019 – TS ECET

5. Which of the following statements is correct? [ ]
   a) Cathode is positive terminal in an electrolytic cell
   b) Cathode is negative terminal in a galvanic cell
   c) Reduction occurs at cathode in either of cells
   d) Oxidation occurs at cathode in either of cells

6. In the electrolysis of $CuCl_2$ solution using copper electrode. If 2.5 gm of Cu is deposited at cathode, then at anode _____ [ ]
   a) 890 mL of Cl_2 at STP is liberated
   b) 445 mL of O_2 at STP is liberated
   c) 2.5 gm of copper is deposited
   d) a decrease of 2.5 gm of mass takes place

7. The unit of resistivity is _____ [ ]
   a) Ω b) Ω m c) Ω/m d) Ω m^2

2020 – AP ECET

8. Calculate the quantity of electricity that will be required for liberating 710g of chlorine gas by the electrolysis of a concentrated solution of $NaCl$. [ ]
   a) 10 faradays b) 20 faradays
   c) 5 faradays d) 18 faradays

9. The standard reduction protentials (E°) for the half reactions are as given below

   $$Zn = Zn^{2+} + 2e^-; E^\circ = +0.76\ V$$

   $$Fe = Fe^{2+} + 2e^-; E^\circ = +0.41\ V$$

   The EMF for the cell reaction $Fe^{2+} + Zn \rightarrow Zn^{2+} + Fe$ is [ ]
   a) –0.35 V b) +0.35 V
   c) +1.17 V d) –1.17 V

10. The best electronic conductor is [ ]
    a) copper b) aluminium
    c) zinc d) silver

11. The electric charge for electrode deposition of one gram equivalent of a substance is [ ]
    a) charge on one mole of electrons
    b) one ampere per second
    c) 96500 coulombs per second
    d) one ampere for one hours

2020 – TS ECET

12. Electrolyte that is present in salt bridge of Galvanic cell is [ ]

a) NaCl aqueous b) Fused NaCl

c) KCl d) HCl

13. Which of the following electrode has highest oxidation potential value in electro chemical series? [ ]

a) Hydrogen b) Lithium

c) Copper d) Gold

2021 – AP ECET

14. Which of the following is a good conductor of electricity? [ ]

a) Diamond b) Graphite

c) Solid NaCl d) Wood

15. Which of the following (1M) conducts more electricity? [ ]

a) Acetic acid b) Boric acid

c) Phosphorous acid d) Sulphuric acid

16. In electrolysis of dilute H_2SO_4 which of the following is liberated at anode in presence of inert electrode? [ ]

a) H_2 b) SO_2 c) O_2 d) SO_3

17. The EMF of the cell Ni/Ni^{2+} (0.01M)/ $Cl^-(0.01M)/Cl_2$, Pt is ---V if the SRP of nickel and chlorine electrodes are -0.25V and +1.36V respectively [ ]

a) +1.61 b) –1.61 c) +1.79 d) –1.79

2021 – TS ECET

18. The degree of dissociation of weak electrolytes is [ ]

a) 100% b) ≥ 30%

c) ≤ 10% d) <3%

19. With reference to Faraday's second law, the weights of different substances deposited by the passage of the same quantity of electricity are proportional to their _____ [ ]

a) Chemical equivalent weights

b) Current supply

c) Chemical equivalent density

d) Molecular weights

20. A zinc rod is placed in 0.1 M solution of zinc sulphate at 25°C. Assuming that the salt is dissociated to the extent of 95% at this dilution. The potential of the electrode at this temperature is ($E^\circ_{\frac{Zn^{2+}}{Zn}} = -0.76$V and log 0.095 = –1.0223)

a) – 0.76 V b) + 0.76 V

c) – 0.76 V d) + 0.79 V

2022 – AP ECET

21. Four alkali metals A, B, C and D are having standard electrode potentials as –3.05, –1.66, –0.40 and 0.80 V respectively. Which one will be most reducing? [ ]

a) A b) B c) C d) D

22. Which one among the following is used as depolarizer in dry cell battery? [ ]

a) Ammonium chloride

b) Potassium hydroxide

c) Manganese dioxide

d) Sodium phosphate

23. How much copper is deposited when 2 Faraday of electricity is passed through a $CuSO_4$ solution? (Cu atomic weight = 63.54) [ ]

a) 31.77 g b) 159.54 g

c) 127.77 g d) 63.54 g

24. What is the cell potential for the following cell at 298 K? $Mg(s)|Mg^{2+}(0.001M)\|$

$Cu^{2+}(0.0001M)|Cu(s)$ Given E_0 of $Cu^{2+}|Cu = 0.34\,V$ and E_0 of $Mg^{2+}|Mg = -2.37\,V$

a) 1.34 V b) 2.68 V

c) 0.268 V d) 0.134 V

2022 – TS ECET

25. A device that converts the energy of combustion of fuels like hydrogen and methane directly into electrical energy is known as [ ]

a) Electrolytic cell b) Leclanche cell

c) Fuel cell d) Ni – Cd cell

26. Anode used in the electrolytic refining of copper is [ ]

a) Pt b) Impure Cu

c) Graphite d) pure copper

27. Number of Faradays of current required to decompose 36 grams of water completely [ ]

a) 2 b) 4 c) 3 d) 6

28. The atomic weight of Cu is x, the electrochemical equivalent of Cu in the solution of copper sulphate is [ ]

a) $\frac{2x}{F}$ b) $\frac{x}{2F}$ c) $\frac{x}{F}$ d) xF

KEY

1) **b**	2) **c**	3) **b**	4) **a**	5) **c**
6) **d**	7) **b**	8) **b**	9) **a**	10) **d**
11) **a**	12) **c**	13) **b**	14) **b**	15) **d**
16) **c**	17) **c**	18) **d**	19) **a**	20) **c**
21) **a**	22) **c**	23) **d**	24) **b**	25) **c**
26) **b**	27) **b**	28) **b**		

4. CORROSION

1. Corrosion is an example of [ ]

a) Oxidation b) Reduction

c) Electrolysis d) Halogenation

ECET-2018(AP)

2. The composition of rust is [ ]

a) $Fe(OH)_3$ b) $FeCl_3$

c) FeO d) $Fe_2O_3XH_2O$

ECET-2018(AP)

3. Which one of the following metals could provide cathodic protection to iron [ ]

a) Cu and N*i* b) Zn and Cu

c) A*l* and Zn d) Al, Zn and N*i*

ECET-2017(TS)

4. Rusting of iron is catalysed by which of the following [ ]

a) Fe b) Zn

c) O_2 d) H^+

ECET-2017(AP)

5. Difficult to monitor and very dangerous form of corrosion is [ ]

a) Galvanic b) Pitting

c) Crevice d) Stress

ECET-2017(AP)

6. When Pt and Co are electrically connected, which one gets corroded? [ ]

a) Co b) Pt

c) None d) Both

ECET-2017(AP)

7. The chemical composition of rust is [ ]

a) $Fe_2O_3 \cdot XH_2O$ b) Fe_2O_3

c) $Fe_3O_4 \cdot XH_2O$ d) Fe_3O_4

ECET-2016(TS)

8. Which one of the following could provide cathodic protection to iron? [ ]
   a) Cu b) Zn
   c) N*i* d) Co

ECET-2016(TS)

9. Wet corrosion is best explained by [ ]
   a) Bohr's theory
   b) Electrochemical theory
   c) Bronsted-Lowry theory
   d) Arrhenius theory

ECET-2016(AP)

10. By using cathodic protection technique the corrosion of metal surface is avoided by making it work as [ ]
   a) Salt bride of electrochemical cell
   b) Anode of electrochemical cell
   c) Cathode of electrochemical cell
   d) Insulator

ECET-2016(AP)

11. Which one of the following reaction takes place under standard conditions? [ ]
   a) A strip of lead is placed into an aqueous solution of zinc nitrate
   b) A strip of copper is placed into an aqueous solution zinc nitrate
   c) A strip of silver is placed into an aqueous solution of copper nitrate
   d) A strip of iron is placed in the air under acidic conditions

ECET-2015

12. How is anode metal selected to prevent corrosion by sacrificial anodic protection method? [ ]
   a) Oxidation potential of anode metal is higher than that of protected metal
   b) Oxidation potential of anode metal is lower than that of protected metal
   c) Reduction potential of anode metal is higher than that of protected metal
   d) Sacrificial anode is always zinc

ECET-2015

13. Which one of the following statement is correct? [ ]
   a) Aluminium corrodes faster than iron in air
   b) Rusting of iron is quicker in saline water
   c) Corrosion do not occur in steel pipe connected to copper plumbing
   d) Bolts and nuts made of the different metals are preferred to prevent corrosion

ECET-2015

14. Glass is corroded by [ ]
   a) Fluorine (dry or wet)
   b) Sulphuric acid (concentrated)
   c) Phosphoric acid d) Carbonic acid

ECET-2014

15. The most resistant material to alkaline corrosion is [ ]
   a) Cast iron b) Nickel
   c) Aluminium d) Brass

ECET-2014

16. A zinc rod half immersed in a breaker containing water [ ]
   a) Corrodes fastest at the top
   b) Does not corrode at all
   c) Corrodes fastest at the water metal boundary

d) Corrodes fastest at the bottom

ECET-2013

17. The effect of sulphur dioxide on iron is to [ ]

a) Decrease the rate of corrosion

b) Increase the rate of corrosion

c) First decrease and then increase the rate of corrosion

d) Bring no change in its corrosion

ECET-2013

18. The process of cementation with zinc powder is known as [ ]

a) Sherardizing b) Zincing

c) Metal cladding d) Electroplating

ECET-2012

19. Corrosion of a metal is fastest in [ ]

a) Rain-water

b) Acidulated water

c) Distilled water

d) De-ionised water

ECET-2012

20. The process of coating zinc over iron to improve corrosion resistance of iron is called [ ]

a) Annealing b) Galvanising

c) Zincification d) Tempering

ECET-2011

21. Which of the following is most prone to atmospheric corrosion [ ]

a) Silver b) Iron

c) Tin d) Copper

ECET-2011

22. One of the following metal gives passive layer over iron metal to protect iron from corrosion [ ]

a) Sodium b) Magnesium

c) Zinc d) Chromium

ECET-2010

23. The method of protection of a base (iron) metal from corrosion attaching a small anode metal is known as [ ]

a) Sacrificial cathode

b) Sacrificial Anode

c) Impressed current

d) Passive method

ECET-2010

24. Rusting of iron materials is catalysed by the presence of [ ]

a) Fe b) Zn

c) O2 d) H+

ECET-2009

25. During wet corrosion in neutral environment [ ]

a) H2 absorption takes place

b) Oxygen absorption takes place

c) O2 evolution occurs

d) H2 evolution occurs

ECET-2009

26. Galvanizing ins the process of giving a protective coating over iron metal by using [ ]

a) Sn b) Zn

c) Cr d) Ni

ECET-2009

27. The food containers are generally coated internally by the metal [ ]

a) Tin b) Zinc

c) Copper d) Lead

ECET-2009

28. Corrosion of metals is most efficiently prevented by: [ ]
a) Organic coatings b) Alloying
c) Electroplating
d) Inorganic coatings

ECET-2008

29. Aluminium differs from iron in that: [ ]
a) It does not undergo corrosion
b) It does not react with oxygen
c) Initial protective oxide formation
d) Its oxide is easily removed form tis surface

ECET-2008

30. Which of the following elements is used as sacrificial electrode for protection of Fe from electro-chemical corrosion? [ ]
a) Cadmium b) Nickel
c) Copper d) Zinc

ECET-2008

31. Which one of the following oxides is a volatile oxidation corrosion product of the metal? [ ]
a) Fe_2O_3 b) ZnO
c) Al_2O_3 d) MoO_3

ECET-2008

32. A pure metal rod half-immersed in water starts corroding at: [ ]
a) The bottom b) The top
c) The boundary
d) Slightly above the boundary

ECET-2008

33. During electrochemical corrosion process: [ ]
a) Cathode undergoes oxidation
b) Anode undergoes oxidation
c) Anode undergoes reduction
d) Both cathode and anode undergo oxidation

ECET-2002

34. The process of coating zinc over the base metal iron by cementation process is called: [ ]
a) Colorizing b) Galvanizing
c) Sheradising d) Zincing

ECET-2002

35. Stainless steel is corrosion resistant because of the presence of [ ]
a) W b) Fe
c) Al d) Cr

ECET-2001

36. In electro-chemical series, the metals are arranged in a series on the basis of [ ]
a) Electron affinity
b) Electro negativity
c) Electro-positivity
d) Thermal conductivity

ECET-2001

37. The metal that forms a protective oxide film which prevents further corrosion is [ ]
a) Al b) Zn
c) Cu d) Fe

ECET-2001

38. The process of covering iron with the zinc to protect iron corrosion is: [ ]
a) Tinning b) Cladding
c) Anodizing d) Galvanizing

ECET-2000

39. Prevention of corrosion of metals is most effectively achieved by: [ ]

a) Protective covering
b) Inorganic coatings
c) Organic coatings d) Alloying

ECET-2000

40. Subsequent corrosion in aluminium coin is prevented by: [ ]
a) Protective film formation of oxide
b) Zinc present in the coin
c) Iron present in the coin
d) Copper present in the coin

ECET-2000

41. The element used as sacrificial electrode for protection against electrochemical corrosion of iron is: [ ]
a) Cadmium b) Copper
c) Zinc d) Lead

ECET-2000

42. Galvanizing is a process in which iron is protected against corrosion by: [ ]
a) Cd b) Al
c) Zn d) Mg

ECET-1999

43. The metal that forms a self protecting film of oxide to protect against corrosion is: [ ]
a) Fe b) Zn
c) Al d) Cu

ECET-1999

44. Which of the following metals is most readily corroded in moist air? [ ]
a) Copper b) Iron
c) Silver d) Nickel

ECET-1998

45. Galvanization of iron denotes coating with [ ]
a) Cu b) Sn
c) Al d) Zn

ECET-1998

KEY

1. a	2. d	3. c	4. d	5. b
6. a	7. a	8. b	9. b	10. b
11. d	12. a	13. b	14. a	15. b
16. d	17. b	18. a	19. b	20. b
21. c	22. c	23. b	24. d	25. b
26. b	27. a	28. c	29. c	30. d
31. d	32. a	33. b	34. c	35. d
36. c	37. a	38. d	39. d	40. b
41. c	42. c	43. c	44. b	45. d

2019 - AP ECET

1. Chemically the rust is [ ]
a) Fe_2O_3 b) $Fe_2O_3.FeO$
c) $Fe_2O_3 \times H_2O$ d) $Fe_2O_3.NH_3$

2. Galvanizing is the process of coating iron with [ ]
a) Mg b) Cu c) Au d) Zn

2019 – TS ECET

3. Which of the following metals provide cathodic protection to iron? [ ]
a) Cu and Ni b) Al and Zn
c) Al and Cu d) Co and Ni

4. The chemical composition of rust is _____ [ ]
a) Fe_3O_4 b) Fe_3O_3
c) Fe_2O_3, nH_2O d) Fe_3O_3, xH_2 _

2020 - AP ECET

5. The metal oxide film that can easily undergo corrosion is [ ]

a) stable b) porus

c) volatile d) unstable

6. In galvanized articles, which metal protects the base metal? [ ]

1) Fe 2) Cu 3) Zn 4) Pb

2020 - TS ECET

7. Statement a: Pure metal resists corrosion

Statement b: Electro chemical theory of corrosion of metal is done in dry environment

Choose the correct option from the following:

a) Both the statements are correct

b) Both the statements are incorrect

c) Statement 'a' is incorrect, 'b' is correct

d) Statement 'a' is correct, 'b' is incorrect

8. In sacrificial anodic protection method the metal that saves steel pipes from corrosion is [ ]

a) Copper b) Magnesium

c) Gold d) Cadmium

9. Match the following

i) Co_2, SO_2 gases with humidity	a) pH = 11
ii) Zn corrodes maximum	b) pH = 5.5
iii) Al corrodes minimum	c) Galvanic corrosion
iv) Zn corrodes minimum	d) pH > 11

Choose the correct option from the following: [ ]

a) i-c, ii-b, iii-d, iv-a b) i-c, ii-a, iii-d, iv-b

c) i-c, ii-d, iii-b, iv-a d) i-c, ii-b, iii-a, iv-d

2021- AP ECET

10. _____ is resulted when electrochemical corrosion happened in acidic environment. [ ]

a) Evolution of oxygen

b) Absorption of oxygen

c) Evolution of hydrogen

d) Absorption of hydrogen

11. Impure metal corrodes faster than pure metal due to [ ]

a) Heterogeneity b) Homogeneity

c) Non-galvanic cell d) Localize corrosion

2021 – TS ECET

12. Which of the following does not corrode when exposed to air? [ ]

a) Cu b) Al c) Ag d) Fe

13. Which metals from the following can provide cathodic protection to Iron? [ ]

a) Zn and Cu b) Al and Cu

c) Al and Ni d) Al and Zn

2022 – AP ECET

14. The rate of corrosion is high if [ ]

a) Anodic areas are small and cathodic areas are large

b) Anodic areas are large and cathodic areas are small

c) Both anodic and cathodic areas are large

d) Does not depend upon the area of anode and cathode

15. In electroplating the metal to be coated or electroplated is made of [ ]

a) Anode b) Cathode

c) Both anode and cathode

d) Inert metal

2022 – TS ECET

16. Rate of corrosion increases with [ ]

a) decrease of temperature

b) decrease of humidity

c) reactivity of metal

d) purity of metal

17. Chemical formula of the rust is [ ]

a) Fe_2O_3, XH_2O b) Fe_3O_4

c) $Fe_2(C_2O_4)_3$ d) $FeCl_3$

KEY

1) c	2) d	3) b	4) c	5) b
6) c	7) d	8) b	9) c	10) c
11) a	12) b, c	13) d	14) a	15) b
16) c	17) a			

5. WATER TECHNOLOGY

1. A raw water sample has 300 ppm calcium ions and its $CaCO_3$ equivalent in ppm is ..... [ ]

a) 625 b) 750

c) 1500 d) 25

ECET-2018(TS)

2. A process which removes ionic, non ionic, colloidal and organic matter from water is ..... [ ]

a) Ion exchange process

b) Permutit process

c) Zeolite process

d) Reverse osmosis

ECET-2018(TS)

3. The exhausted anion exchange column in the demineralization process is regenerated by passing a solution of ..... [ ]

a) dil H_2SO_4 b) dil HCl

c) dil NaOH d) dil NH_4OH

ECET-2018(TS)

4. Hardness of water is expressed in terms of equivalent of [ ]

a) Na_2CO_3 b) K_2CO_3

c) $MgCO_3$ d) $CaCO_3$

ECET-2018(AP)

5. Temporary hardness is caused by [ ]

a) Carbonates of calcium and magnesium

b) Chlorides of calcium and magnesium

c) Sulphates of calcium and magnesium

d) Nitrates of calcium

ECET-2018(AP)

6. The exhausted Zeolite bed can be regenerated by washing with [ ]

a) $NaCl$ b) dil. NaOH

c) dil. HCl d) Distilled water

ECET-2018(AP)

7. Water acts as an excellent solvent, due to which property among the following: [ ]

a) High viscosity

b) High enthalpy of formation

c) High dielectric constant

d) High density

ECET-2017(TS)

8. A sample of water has

$Mg(HCO_3)_2 = 73$ mg/L,

$Ca(HCO_3)_2 = 162$ mg/L,

$MgCl_2 = 95$ mg/L and $CsSO_4 = 136$ mg/L
Temporary hardness in ppm is [ ]

a) 150 b) 350
c) 500 d) 200

ECET-2017(TS)

9. The process which removes all ionic, colloidal and high molecular weight organic matter in water is [ ]
   a) Ion exchange process
   b) Zeolite process
   c) Reverse osmosis
   d) Lime soda process

ECET-2017(TS)

10. Zeolite softening process removes [ ]
   a) Only permanent hardness of water
   b) Only temporary hardness of water
   c) Both temporary and permanent hardness of water
   d) The dissolved gases in permanent hard water

ECET-2017(AP)

11. The permanent hardness of water is caused by the presence of [ ]
   a) Bicarbonates of Ca and Mg
   b) Carbonates of Na and K
   c) Chlorides and Sulphates of Ca and Mg
   d) Phosphates of Na and K

ECET-2017(AP)

12. The secondary treatment of water uses ..... to consume wastes in water [ ]
   a) Filtration b) Sedimentation
   c) Chemicals d) Microorganisms

ECET-2017(AP)

13. Degree French (ॅ°F) is [ ]
   a) The parts of $CaCO_3$ equivalent hardness per 10^5 parts of water
   b) The parts of $CaCO_3$ equivalent hardness per 10^6 parts of water
   c) The parts of $CaCO_3$ equivalent hardness per 10^4 parts of water
   d) The parts of $CaCO_3$ equivalent hardness per 10^7 parts of water

ECET-2016(TS)

14. The decimal formula of Zeolite is [ ]
   a) $Na_2OAl_2OxSiO_2yH_2O$ $(x-2-10, y=2-6)$
   b) $K_2OAl_2O_3SiO_2H_2O$
   c) $CaOAl_2O_3xSiO_2yH_2O$ $(x=2-10, y=2-6)$
   d) $BaOAl_2O_3SiO_2H_2O$

ECET-2016(TS)

15. The total dissolved solids in drinking water should be [ ]
   a) Less than 600 ppm
   b) Less than 700 ppm
   c) Less than 500 ppm
   d) Less than 1000 ppm

ECET-2016(TS)

16. Hard water contains [ ]
   a) Small stones b) Oil
   c) Dissolved calcium and magnesium salts
   d) Bacteria

ECET-2016(AP)

17. The unit used to express hardness of water is [ ]
   a) Siemens b) Volts
   c) mg/L d) Moles

ECET-2016(AP)

18. Ion exchange process is done in water to remove [ ]
a) Solid particles b) Colour
c) Smell d) Dissolved slats

ECET-2016(AP)

19. Which solvent also called universal solvent [ ]
a) Ethyl acetate b) Methanol
c) Water
d) Dichloromethane

ECET-2016(AP)

20. Which one among the following water sample contains more hardness? [ ]
a) 5000 ppm of harness
b) 0.5g of $CaCO_3$ in 100ml of water
c) 50 equivalents of $CaCO_3$ in 100 ml of water
d) 50 moles of $CaCO_3$ in 100 ml of water

ECET-2015

21. 100 ml of a water contains 40 mg of Ca^{2+} ions. What is the hardness of the water? [ ]
a) 500 ppm b) 100 ppm
c) 400 ppm d) 1000 ppm

ECET-2015

22. Which solution is used to regenerate the cationic exchange resin? [ ]
a) NaOH b) HC*l*
c) NaC*l* d) KC*l*

ECET-2015

23. The concentration of a 1.0×10^{-3}M solution of calcium nitrate in water is [ ]
a) 1.64 ppm b) 164 ppm
c) 32.8 ppm d) 100 ppm

ECET-2013

24. Which of the following can be the best for sterilization of water? [ ]
a) N_2 b) Chlorine
c) Lime d) Na_2CO_3

ECET-2013

25. The adsorbent used in Permutit process is [ ]
a) Sodium aluminostannate
b) Potassium aluminozincate
c) Sodium aluminosilicate
d) Potassium zincostannate

ECET-2013

26. Which of the following cannot be used for aterilization of drinking water? [ ]
a) Ozone
b) Calcium Oxychloride
c) Potassium Chloride
d) Chlorine water

ECET-2012

27. A water sample showed it to contain 1.20 mg/litre of magnesium sulphate. Then, its hardness sin terms of calcium carbonate equivalent is [ ]
a) 1.0 ppm b) 1.20 ppm
c) 0.60 ppm d) 2.40 ppm

ECET-2012

28. Soda used in the L-S process for softening of water is, Chemically [ ]
a) Sodium bicarbonate
b) Sodium carbonate
c) Sodium carbonate
d) Sodium hydroxide

ECET-2012

29. Ne of the following dissolved salt causes temporary hardness to water [ ]

a) $CaCl_2$ b) $Ca(NO_3)_2$

c) $CaSO_4$ d) $Ca(HCO_3)_2$

ECET-2011

30. A sample of water contains 11.1 mgs/1 of $CaCl_2$. Its hardness in terms of $CaCO_3$ equivalents is [ ]

a) 100 mg/*l* b) 10 mg/*l*

c) 12 mg/*l* d) 20 mg/*l*

ECET-2011

31. In water treatment, alum $\left[Al_2[SO]_3\right]$. Is used for the process of [ ]

a) Filtration b) Coagulation

c) Sedimentation d) Disinfection

ECET-2011

32. The purest water from the following is [ ]

a) Sea water b) River water

c) Spring water d) Rain water

ECET-2010

33. The amount of lime required for the removal of 50 ppm 0 calcium temporary hardness in terms of $CaCO_3$ equivalent is [ ]

a) 37 mg/*l* b) 18.5 mg/*l*

c) 3.7 mg/*l* d) 370 mg/*l*

ECET-2010

34. Zeolites are basically [ ]

a) Cation exchangers

b) Anion exchangers

c) Radical exchangers

d) Chloride exchangers

ECET-2010

35. The process of allowing water to stand undisturbed in big tanks for setting of the suspended particles due to force of gravity is known as [ ]

a) Coagulation Filtration

b) Filtration

c) Sedimentation d) Disinfection

ECET-2010

36. Which of the following can be used for sterilization of drinking water? [ ]

a) Sodium chloride

b) Potassium chloride

c) Sodium hypochlorite

d) Calcium chloride

ECET-2009

37. Harness of water is caused by the soluble salts of [ ]

a) Sodium chloride b) Potassium nitrate

c) Calcium chloride d) Sodium nitrate

ECET-2009

38. One degree French (°Fr) of hardness of water is equivalent to [ ]

a) 1 ppm b) 10 ppm

c) 100 ppm d) 0.1 ppm

ECET-2009

39. The exhausted zeolite (permutit) is regenerated by percolating it with the solution of [ ]

a) $CaCl2$ b) $MgCl2$

c) $NaCl$ d) $AlCl3$

ECET-2009

40. The amount of lime required to remove 60 ppm $MgSO_4$ hardness of 5000 litres of water is [ ]

a) 18.5 g b) 185 g
c) 22.2 g d) 222 g

ECET-2009

41. A sample of water contains magnesium chloride 19 mg/litre, then the hardness of water, in terms of $CaCO_3$ equivalent, is [ ]

a) 10 PPM b) 19 PPM
c) 20 PPM d) 1.9 PPM

ECET-2008

42. EDTA used for determination of hardness of water, is, chemically: [ ]

a) Ethylene diamine tetra-acetic acid
b) Ethylene diaminie tetra-acetic acid disodium salt
c) Ethylene diaminie tetra-acetic acid dehydrate
d) Ethylene diamine tetra-acetic tetra-sodium salt

ECET-2008

43. The chemical used for sterilization of drinking water is: [ ]

a) Washing soda b) Baking soda
c) Bleaching powder
d) Calcium chloride

ECET-2008

44. Soap is the sodium or potassium salt of: [ ]

a) Glycerol b) Oils and fats
c) Higher fatty acids
d) Higher fatty alcohols

ECET-2008

45. Calgon is the trade name given to: [ ]

a) Zeolite
b) Sodium hexametaphosphate
c) Sodium silicate
d) Calcium phosphate

ECET-2008

46. The purest form of water is: [ ]

a) Sea water b) River water
c) Rain water d) Lake water

ECET-2008

47. Temporary hardness of water is due to the presence of the dissolved salts of: [ ]

a) $Ca(NO_3)_2$ b) $CaCl_2$
c) $MgSO_4$ d) $Ca(HCO_3)_2$

ECET-2002

48. EDTA method of analysis of water is used to determine the: [ ]

a) Hardness b) Alkalinity
c) Turbidity
d) Dissolved oxygen

ECET-2002

49. The indicator used in the determination of hardness of water by EDTA is [ ]

a) Methyl orange b) Phenolphtalein
c) Erichrome Black T
d) Xylenol orange

ECET-2001

50. Pathogenic bacteria present in water is removed by [ ]

a) Lime-soda process
b) Zeolite process
c) Ion exchange process
d) Chlorination

ECET-2001

51. Hardness of water is due to [ ]

a) Dissolved organic matter

b) Dissolved Ca and Mg salts

c) Suspended solids

d) Dissolved Na and K salts

ECET-2001

52. A sample of water contains 58.5 ppm of NaC*l* and 5.6 ppm of KOH. The hardness of the water sample is: [ ]

a) 58.5 ppm b) 5.6 ppm

c) Zero d) 64.1 ppm

ECET-2000

53. Simple setting of heavier particles in water by gravity is known is: [ ]

a) Filtration b) Sterilization

c) Disinfection d) Sedimentation

ECET-2000

54. Indicator used in the estimation of hardness of water by EDTA is: [ ]

a) Eriochrome Black-T

b) Potassium chromate

c) Phenolphthalein d) Methyl red

ECET-2000

55. Temporary hardness in water is due to: [ ]

a) Chlorides of Ca and Mg

b) Bicarbonates of Ca and Mg

c) Sulphates of Ca and Mg

d) Carbonates of Ca and Mg

ECET-1999

56. The gas that is used for sterilization of water is: [ ]

a) O_3 b) SO_2

c) CO_2 d) NO_2

ECET-1999

57. Indicator used in the estimation of hardness of water by EDTA is: [ ]

a) Methyl orange b) Methyl red

c) Eriochrome Black-T

d) Phenolphthalein

ECET-1999

58. Which one of the following is not a water softener? [ ]

a) Calgon b) Permutit

c) Na_2CO_3 d) Na_2SO_4

ECET-1998

59. The exhausted permutit is generally regenerated by percolating through it a solution of [ ]

a) NaC*l* b) $CaCl_2$

c) $MgCl_2$ d) KC*l*

ECET-1998

60. The temporary hardness of water can be removed by adding [ ]

a) $CaCO_3$ b) $CaCl_2$

c) $CaSO_4$ d) $Ca(OH)_2$

ECET-1998

KEY

1. **b**	2. **d**	3. **c**	4. **d**	5. **a**
6. **a**	7. **c**	8. **a**	9. **c**	10. **c**
11. **c**	12. **d**	13. **a**	14. **a**	15. **c**
16. **c**	17. **c**	18. **d**	19. **c**	20. **d**
21. **c**	22. **b**	23. **b**	24. **b**	25. **c**
26. **c**	27. **a**	28. **c**	29. **d**	30. **b**
31. **b**	32. **d**	33. **c**	34. **a**	35. **c**
36. **c**	37. **c**	38. **d**	39. **c**	40. **c**
41. **c**	42. **b**	43. **c**	44. **c**	45. **b**
46. **c**	47. **d**	48. **a**	49. **c**	50. **d**
51. **b**	52. **c**	53. **d**	54. **a**	55. **b**

56. **a**	57. **c**	58. **d**	59. **a**	60. **d**

2019 – AP ECET

1. Which chemical is responsible for permanent hardness of water? [ ]
   a) KCl b) $MgCl_2$ c) NaCl d) AgCl
2. Permutit is chemically [ ]
   a) sodium silicate
   b) aluminium silicate
   c) hydrated sodium alumino silicate
   d) calcium silicate
3. The cation exchange resin possesses [ ]
   a) acidic group b) basic group
   c) amphoteric group d) benzo group

2019 – TS ECET

4. 1 ppm of hardness of water is equal to _____ [ ]
   a) 1 part of $CaCO_3$ hardness in 10^6 parts of water
   b) 1 part of $CaCO_3$ hardness in 10^8 parts of water
   c) 1 part of $CaCO_3$ hardness in 10^7 parts of water
   d) 1 part of $CaCO_3$ hardness in 10^5 parts of water
5. The temporary hardness of water is due to the presence of _____ [ ]
   a) $MgCl_2$ and $CaCl_2$
   b) $Ca(NO_3)_2$ and $Mg(NO_3)_2$
   c) $CaSO_4$ and $MgSO_4$
   d) $Ca(HCO_3)_2$ and $Mg(HCO_3)_2$

2020 – AP ECET

6. Hardness of water is expressed in terms of _____ equivalents [ ]
   a) $MgCO_3$ b) $CaCO_3$
   c) Na_2CO_3 d) K_2CO_3
7. Which of the following is a powerful disinfectant? [ ]
   a) O_2 b) Cl_2 c) $CaOCl_2$ d) N_2
8. The process of killing pathogenic bacteria in water is called [ ]
   a) softening b) osmosis
   c) sterilization d) reverse osmosis

2020 – TS ECET

9. Permanent Harness of water is due to[ ]
   a) Hydroxides b) Bicarbonates
   c) Chlorides d) Carbonates
10. Which of the following is Unit of harness of water [ ]
    a) mg b) ppm
    c) cm d) Siemens

2021 – AP ECET

11. Which of the following is correct relation used to measures the hardness of water? [ ]
    a) 1mg/L = 1 ppm = 0.07°Cl = 0.1°Fr
    b) 1mg/L = 0.1 ppm = 0.7°Cl = 0.1°Fr
    c) 1mg/L = 1 ppm = 0.7°Cl = 0.01°Fr
    d) 1mg/L = 1 ppm = 0.7°Cl = 1°Fr
12. Which of the following is used as effective coagulant in the municipal water treatment to remove fine suspended and colloidal impurities? [ ]
    a) $Fe_2SO_4(NH_4)_2SO_47H_2O$
    b) $K_2SO_4.Al_2(SO_4)_3.24H_2O$
    c) $CuSO_4.5H_2O$
    d) $Na_2SO_4.6H_2O$

13. The general chemical formula of zeolite is [ ]

a) $Na_2O.Al_2O_3 \times SiO_2.yH_2O$

b) $Al_2O_3.H_2O$

c) $CaSO_4 2H_2O$

d) $MgSO_4 5H_2O$

2021 – TS ECET

14. The hardness of water is caused by [ ]

a) Undissolved salts of Ca^{+2} and Mg^{+2}

b) Undissolved salts of Cu^{+2} and Mg^{+2}

c) Dissolved salts of Ca^{+2} and Mg^{+2}

d) Undissolved $CaCO_3$

15. A water sample contains 204 mg of $CaSO_4$ per litre. Its harness in terms of $CaCO_3$ equivalent is [ ]

a) 150 ppm b) 136 ppm

c) 204 ppm d) 100 ppm

16. Hard water can block radiators due to the formation of? [ ]

a) insoluble calcium and magnesium salts

b) insoluble sodium salts

c) insoluble phosphate salts

d) insoluble potassium salts

2022 – AP ECET

17. The hard water sample contains the following ions/salts. Which water sample is more in hardness? [ ]

a) 100 grams of $CaCO_3$ per litre

b) 50 equivalents of Ca^{2+} ions per litre

c) 20 moles of $CaCO_3$ per litre

d) 20 moles of $MgCO_3$ per litre

18. 20 ml of hard water required 10 ml of EDTA solution. The hardness of water sample is 1000 ppm. What is the molarity of EDTA? [ ]

a) 0.02 M b) 0.03 M

c) 0.005 M d) 0.05 M

19. The hardness of water sample is 500 ppm. What is the weight of $MgSO_4$ present in it assume that the hardness is only due to the presence of magnesium sulphate. [ ]

a) 0.3 g b) 1.2 g c) 0.6 g d) 0.01 g

2022 – TS ECET

20. Exhausted permutit is regenerated by using [ ]

a) $CaCl_2$ b) HCl c) $NaCl$ d) $MgSO_4$

21. Temporary hardness of water containing 16.2 mg of $Ca(HCO_3)_2$ and 7.3 mg of $Mg(HCO_3)_2$ per litre [ ]

a) 10 mg/lit b) 5 mg/lit

c) 15 mg/lit d) 20 mg/lit

KEY

1) **b**	2) **c**	3) **a**	4) **a**	5) **d**
6) **b**	7) **b**	8) **c**	9) **c**	10) **b**
11) **a**	12) **b**	13) **a**	14) **c**	15) **a**
16) **a**	17) **c**	18) **a**	19) **c**	20) **c**
21) **c**				

6. FUELS

1. The highest ranking coal is ..... [ ]
   a) Anthracite b) Lignite
   c) Bituminous d) Peat

ECET-2018(TS)

2. Which one of the following statement is not true about ideal fuel? [ ]
   a) High calorific value
   b) High moisture content
   c) Low cost
   d) Moderate ignition temperature

ECET-2018(AP)

3. Which one of the chemical substance is maximum in natural gas [ ]
   a) CH_4 b) C_2H_6
   c) H_2 d) $CO + CO_2$

ECET-2017(TS)

4. Water gas is a mixture of [ ]
   a) $H_2 + CO$ b) $N_2 + CO$
   c) $H_2 + CO_2$ d) $H_2 + CH_4$

ECET-202+(TS)

5. Which one of the following is present in maximum amount in natural gas? [ ]
   a) CH_4 b) C_2H_6
   c) C_3H_8 d) C_2H_4

ECET-2016(TS)

6. Bio gas is generated when an organic compound is subjected to [ ]
   a) Esterification
   b) Aerobic decomposition
   c) Anaerobic decomposition
   d) Distillation

ECET-2016(AP)

7. What are the constituents of coal gas? [ ]
   a) Methane and carbon dioxide
   b) Methane and Hydrogen
   c) Methane, Hydrogen and Carbon monoxide
   d) Methane and Butane

ECET-2015

8. Which one among the following is NOT a green house gas? [ ]
   a) CH_4 b) CO_2
   c) CO d) NO

ECET-2015

9. Water gas constitutes mainly of [ ]
   a) CO and H_2 b) CO and N_2
   c) CO_2 and H_2 d) CH_4 and H_2

ECET-2014

10. Natural gas is [ ]
    a) A mixture of $C_1 - C_4$ hydrocarbons
    b) Made by cracking of gasoline
    c) A mixture of $C_4 - C_6$ hydrocarbons
    d) Made from bio-gas by compression followed by distillation

ECET-2013

11. Petrol largely contains [ ]
    a) A mixture of unsaturated hydrocarbons $C_5 - C_0$
    b) A mixture of benzene, toluene and xylene
    c) A mixture of saturated hydrocarbons $C_{12} - C_{14}$
    d) A mixture of saturated hydrocarbons $C_6 - C_8$

ECET-2012

12. Water gas constitutes mainly of [ ]
a) CO_2 & H_2 b) CO & H_2
c) CH_4 & H_2 d) CO & N_2

ECET-2011

13. Octane number of 2,2, –4 trimethyl pentane is [ ]
a) 0 b) 100
c) 1000 d) 500

ECET-2011

14. Main constituents of LPG are [ ]
a) Methane & Hydrogen
b) Propane & Butane
c) Acetylene & Methane
d) Co and H_2

ECET-2011

15. Which of the following coal sample contains the highest percentage of volatile matter? [ ]
a) Peat b) Lignite
c) Bituminous d) Anturacite

ECET-2010

16. Bergins method of synthetic petrol preparation involves [ ]
a) Water gas passing over coke powder
b) Catalytic hydrogenation of coal
c) Heating and cooling of coal
d) Cracking of heavy oil

ECET-2010

17. A fuel gas is also used as the source of hydrogen for reduction reactions is [ ]
a) Coal gas b) Producer gas
c) Water gas d) Natural gas

ECET-2010

18. Acetylene can be industrially prepared by the hydrolysis of [ ]
a) CaC_2 b) Al_4C_3
c) Be_2C d) $CaCO_3$

ECET-2010

19. Orsat apparatus is used for the [ ]
a) Determination of fuel value of petrol
b) Volumetric analysis of flue-gases
c) Measurement of heat-capacities of fuels
d) Estimation of calorific value of diesel fuels

ECET-2009

20. Which one of the following is best as petrol fuel? [ ]
a) n-octane b) Hexane
c) Iso-octane d) Heptane

ECET-2009

21. Which one if the following is used as raw material in the Fischer Tropsch process? [ ]
a) Water gas b) Natural gas
c) Acetylene d) Bio-gas

ECET-2009

22. Reaction of 2-bromopentane with ethanolic KOH yields: [ ]
a) 1-pentene b) n-pentene
c) 2-pentene
d) Iso-pentane as the major product

ECET-2008

23. Which of the following gives acetylene on hydrolysis? [ ]
a) SiC b) Na_4C
c) CaC_2 d) Al_4C_3

ECET-1999

24. Ethyl alcohol on heating with H_2SO_4 acid gives: [ ]

a) Acetylene b) Ethylene

c) Methane d) Acetaldehyde

ECET-1999

25. Ethyl alcohol is heated with conc. H_2SO_4. The product formed is [ ]

a) CH_3COOCH_3 b) C_2H_6

c) C_2H_4 d) CH_4

ECET-1998

KEY

1. a	2. b	3. a	4. a	5. a
6. c	7. c	8. c	9. a	10. a
11. a	12. b	13. b	14. b	15. d
16. a	17. c	18. a	19. d	20. c
21. a	22. c	23. c	24. d	25. c

2019 – AP ECET

1. Main constituent of natural gas is [ ]

a) ethane b) methane

c) butane d) carbon monoxide

2019 – TS ECET

2. The composition of water gas is _____ [ ]

a) CO and HO are combustible gases and CO_2 and N_2 are non-combustible gases

b) $CO + CO_2$ are combustible gases and H_2O and N_2 are non-combustible gases

c) $CO + N_2$ are combustible gases and H_2O and H_2 are non-combustible gases

d) $N_2 + H_2$ are combustible gases and $CO + H_2O$ are non-combustible gases

2020 – AP ECET

3. The coal having the highest ranking is[ ]

1) anthracite 2) peat

3) lignite 4) bituminous

2020 – TS ECET

4. Match the following

1. Water gas	A. Consists N_2 52 to 55%
2. Producer gas	B. Consist of 5% non-combustible gases
3. Coal gas	C. used in industrial and domestic purposes
4. Natural gas	D. A mixture of CO 41% and Hydrogen 51%

Choose the correct option from the following: [ ]

a) 1-D, 2-A, 3-B, 4-C

b) 1-D, 2-A, 3-C, 4-B

c) 1-B, 2-A, 3-D, 4-C

d) 1-C, 2-A, 3-D, 4-B

2021 – AP ECET

5. The boiling range of petrol fraction is found to be [ ]

a) 120°C – 180°C b) 250°C – 320°C

c) 40°C – 120°C d) 180°C – 250°C

2021 – TS ECET

6. Which of the following a characteristic feature is of a good fuel? [ ]

a) High moisture content

b) Should undergo spontaneous combustion

c) Low calorific value

d) High calorific value

7. Producer gas is primarily a mixture of [ ]

a) $CO + N_2$ b) $CO + H_2$

c) $CO + CH_4$ d) $N_2 + H_2$

2022 – AP ECET

8. Which of the following is not a renewable source of energy? [ ]

a) Solar energy b) Wind energy

c) Petrol d) Hydro energy

2022 – TS ECET

9. Main gases present in producer gas [ ]

a) CO & H_2 b) CH_4 & CO_2

c) CO & N_2 d) H_2 & CH_4

10. Number of moles of oxygen required for combustion of 30 grams of ethane is [ ]

a) 7 b) 2 c) 2.5 d) 3.5

KEY

1) **b**	2) **a**	3) **a**	4) **a**	5) **c**
6) **d**	7) **a**	8) **c**	9) **c**	10) **d**

7. ENVIRONMENTAL CHEMISTRY

33. The basic component of the smog may be ..... [ ]

a) O_3 b) $O_3 + PAN$

c) $PAN + SO_2$ d) $O_3 + PAN + SO_3$

ECET-2018(TS)

34. In Antarctica, Ozone depletion s due to the formation of the following compound(s) ..... [ ]

a) Chlorine nitrate b) PAN

c) Acrolein d) SO_2 and SO_3

ECET-2018(TS)

35. The pollutant responsible for smog formation and acid rain is..... [ ]

a) SO_2 b) CH_4

c) He d) SO_2Cl_2

ECET-2018(AP)

36. Environmental pollution affects [ ]

a) Human only b) Plants only

c) Biotic components

d) Both abiotic and biotic components

ECET-2018(AP)

37. Layer of atmosphere in which ozone layer lies is [ ]

a) Troposphere b) Stratosphere

c) Exosphere d) Mesosphere

ECET-2018(AP)

38. Which one of the following is a primary pollutant [ ]

a) CO b) PAN

c) Aldehyde d) H_2SO_4

ECET-2017(TS)

39. Ozone layer of upper atmosphere is being destroyed by [ ]

a) Photochemical oxidants like O_2 and CO_2

b) Chloro fluorocarbon

c) Smog d) SO_2

ECET-2017(TS)

40. Eutrophication causes reduction in [ ]

a) Dissolved salts

b) Dissolved hydrogen

c) Dissolved oxygen

d) Dissolved solids

ECET-2017(TS)

41. Which of the following is not a greenhouse gas? [ ]

a) CO b) CO_2

c) Water vapour d) CH_4

ECET-2017(AP)

42. Burning of fossil fuels causes [ ]

a) Global warming b) Ozone depletion

c) Acid rain d) Eutrophication

ECET-2017(AP)

43. The chief pollutants which are responsible for ozone depletion [ ]

a) SO_2 and CO_2 b) CO_2 and SO_2

c) CO and CO_2

d) Oxides of nitrogen and CFC's

ECET-2016(TS)

44. Which one of the following is secondary pollutant [ ]

a) CO b) SO_2

c) PAN d) Aerosol

ECET-2016(TS)

45. The BOD value in clean water is [ ]

a) Less than 5 ppm

b) More than 5 ppm

c) Less than 10 ppm

d) More than 10 ppm

ECET-2016(TS)

46. The effect of using chlorofluorocarbons on environment is [ ]

a) Acid rain b) Ozone depletion

c) BOD d) Sound pollution

ECET-2016(AP)

47. Dissolved oxygen content in water is expressed in [ ]

a) kg b) mg

c) ppm d) L

ECET-2016(AP)

48. Which one among the following causes depletion of ozone? [ ]

a) CF_2Cl_2 b) CH_2F_2

c) CF_4 d) C_2H_3F

ECET-2015

49. Which part of the atmosphere contains highest temperature? [ ]

a) Troposphere b) Mesosphere

c) Stratosphere d) Thermosphere

ECET-2015

50. BOD of raw municipal sewage may be about [ ]

a) 2-5 mg/lit b) 5-10 mg/lit

c) 150-300 mg/lit

d) 2000-3000 mg/lit

ECET-2011

51. Desecration of high pressure boiler feed water is done to reduce [ ]

a) Foaming from boilers

b) Its dissolved oxygen content

c) Its silica content

d) Caustic embrittlement

ECET-2014

52. Presence of non-biodegradable substances like alkyl benzene sulphonate from detergents in polluted water steam causes[ ]

a) Fire hazards

b) Explosion hazards

c) Persistent foam

d) Depletion of dissolved oxygen

ECET-2014

53. Presence of soluble organics in polluted water causes [ ]

a) Undesirable plants growth

b) Depletion of oxygen

c) Fire hazards

d) Explosion hazards

ECET-2014

54. Which of the following is responsible for global-warming? [ ]

a) Nitrogen b) Water-vapour

c) Oxygen d) CO_2

ECET-2013

55. Which of the following is a carcinogen? [ ]

a) SO_2 b) Benzene

c) NO_2 d) Toluene

ECET-2013

56. Which of the following gases is largely responsible for acid-rain? [ ]

a) SO_2 & NO_2

b) CO_2 & Water vapour

c) CO_2 & N_2 d) N_2 & CO_2

ECET-2012

57. BOD stands for [ ]

a) Biogenetic Oxygen Demand

b) Biometric Oxygen Demand

c) Biological Oxygen Demand

d) Biospecific Oxygen Demand

ECET-2012

58. $CFCL_2$ responsible for the decomposition of ozone to oxygen. Which of the following reacts with ozone to form oxygen [ ]

a) Cl2 b) Cl0

c) F0 d) Cl1

ECET-2011

59. Gases responsible for acid rain are [ ]

a) NO and NO_2 b) SO_2 only

c) NO_2 and SO_2 d) CO and CO_2

ECET-2011

60. Which of the following is responsible for Bhopal gas tragedy [ ]

a) CO_2 b) SO_2

c) CH_3NCO(MIC) d) O_3

ECET-2011

61. Which of the following mechanism is involved in the biochemical treatment of sewave effluents? [ ]

a) Oxidation b) Reduction

c) Dehydration d) Fermentation

ECET-2011

62. Photochemical smog is formed by the interactions of [ ]

a) PAN and O_2 b) PAN and O_3

c) O_3 and O_2 d) PAN and CO_2

ECET-2010

63. The secondary pollutant in the following is [ ]

a) SO_2 b) CO

c) NO

d) Peroxy acetyl nitrate

ECET-2010

64. The amount of oxygen required to oxidize organic matter present in the polluted water is [ ]

a) DO b) TLV

c) COD d) BOD

ECET-2010

65. In the atmosphere surrounding the earth's surface, which of the following is closet? [ ]

a) Ionosphere b) Ozonosphere

c) Stratosphere d) Troposphere

ECET-2009

66. Which of the following gases is responsible for depletion of zone in the atmosphere? [ ]

a) CO_2 b) Nitrogen

c) Reactive chlorine d) Ammonia

ECET-2009

67. Which of the following is non-bio-degradable? [ ]

a) Jute bags b) Polythene bag

c) Cloth bags d) Leather bags

ECET-2009

68. A sample of air in Vishakhapatnam city contains 5 PPM of CO, 10 PPM of CO_2, 5 PPM of SO_2, 5 PPM of NO_2, 15 PPM of water vapour and 40 PPM of N_2. Assuming the absence of any other pollutant, the air pollution load in Vishakhapatnam city is: [ ]

a) 80 PPM b) 40 PPM

c) 25 PPM d) 65 PPM

ECET-2008

69. Which of the following gases, present in the upper layers of earth's atmosphere, is responsible for absorbing harmful UV radiations from the sun? [ ]

a) SO_2 b) CO_2

c) N_2 d) O_3

ECET-2008

70. Measurement of the following parameter is the key test for determining pollution in water [ ]

a) COD

b) Permanent hardness

c) Temporary hardness

d) BOD

ECET-2008

71. Growing more trees helps to: [ ]

a) Increase CO_2 and increase O_2 in the atmosphere

b) Reduce CO_2 and increase O_2 in the atmosphere

c) Decrease CO_2 and decrease O_2 in the atmosphere

d) Increase CO_2 and decrease O_2 in the atmosphere

ECET-2008

72. When air contaminated with mercury is inhaled, it affects [ ]

a) Nervous system

b) Blood circulation system

c) Skin d) Hair

ECET-2001

73. Ozone depletion in the stratosphere is mainly caused by [ ]

a) CO_2 b) NO_2

c) NO

d) Chlorofluoro carbon

ECET-2001

74. BOD is [ ]
   a) Biological Oxygen Demand
   b) Basic Oxygen Decline
   c) Building Oxygen Depot
   d) Bacterial Oxygen Depletion

ECET-2001

75. Silent killer gas which combines with haemoglobin of the blood is [ ]
   a) NO b) NO_2
   c) CO_2 d) CO

ECET-2001

76. The radiation absorbed in the ozone layer in the upper reaches of the atmosphere from the sun is: [ ]
   a) I.R. radiations
   b) Visible radiations
   c) U.V. radiations
   d) Far infra-red radiations

ECET-2000

77. A sample of air in Hyderabad city contains 10 ppm of CO; 20 ppm of CO_2; 15 ppm of SO_2; 5 ppm of NO_2 and 40 ppm of N_2. The amount of air pollution load in Hyderabad city is: [ ]
   a) 50 ppm b) 90 ppm
   c) 10 ppm d) 30 ppm

ECET-2000

78. Greenhouse effect is caused due to increase in the content of: [ ]
   a) CO gas b) SO_2 gas
   c) CO_2 gas d) Water vapour

ECET-2000

79. The acid rain possesses [ ]
   a) H_2SO_4 b) H_2SO_3
   c) HNO_3 d) All of the above

ECET-1998

80. Which one is not the water pollution? [ ]
   a) Plant nutrients
   b) Automobile exhaust
   c) Oxygen demanding wastes
   d) Disease causing agents

ECET-1998

81. Photochemical oxidants such as PAN are formed [ ]
   a) By action of nitrogen oxides on hydrocarbons in presence of sunlight
   b) By action of carbon dioxide on hydrocarbons in presence of sunlight
   c) By action of hydrogen sulphide on hydrocarbons in presence of sunlight
   d) By action of sulphur dioxide on hydrocarbons in presence of sunlight

ECET-1998

82. Earth is protected from UV radiations by [ ]
   a) Ozone layer b) Nitrogen layer
   c) Carbondioxide layer
   d) Oxygen layer

ECET-1998

83. Lung diseases are four times more in urban areas than rural areas. This is due to presence of [ ]
   a) N_2 b) CO_2
   c) Water vapour d) SO_2

ECET-1998

84. If BOD of river is high, it means that the river is [ ]

a) Not polluted

b) Polluted with inorganic chemicals

c) Very polluted wit organic chemicals which are decomposed by micro organisms

d) Polluted with dust particles

ECET-1998

85. Fluorosis, the bone disease is caused by the presence of [ ]

a) Pesticides in water

b) Flourides in water

c) CO in air

d) Sulphur dioxide in air

ECET-1998

KEY

1. b	2. a	3. a	4. d	5. b
6. a	7. b	8. c	9. a	10. c
11. d	12. c	13. a	14. b	15. c
16. a	17. d	18. c	19. b	20. c
21. b	22. d	23. b	24. a	25. c
26. a	27. c	28. c	29. d	30. d
31. d	32. c	33. c	34. c	35. b
36. c	37. d	38. a	39. b	40. a
41. d	42. a	43. d	44. c	45. a
46. c	47. d	48. b	49. a	50. a
51. d	52. c	53. b		

2019 – AP ECET

1. Ozone layer is present at [ ]

a) stratosphere b) ionosphere

c) thermosphere d) atmosphere

2. The amount of DO required to aerobically decompose biodegradable organic matter of a given volume of water is [ ]

a) biochemical oxygen demand

b) biological oxygen demand

c) chemical oxygen demand

d) biomagnification

2019 – TS ECET

3. Earth is protected from UV radiation by _____ [ ]

a) Nitrogen layer b) Ozone layer

c) Carbon dioxide layer

d) Oxygen layer

4. Which of following statements is not correct? [ ]

a) CO is the main air pollutant

b) All pollutants are not wastes

c) Water is polluted by dissolved oxygen

d) Lichens are pollution indicators

5. Minamata disease is caused due to the presence of _____ [ ]

a) Cd b) Pb c) As d) Hg

2020 – AP ECET

6. Which of the following causes Minamata disease [ ]

a) argan b) sulphur

c) mercury d) nitrogen

7. Which of the following is not a green house gas? [ ]

a) carbon dioxide b) methane gas

c) water vapour d) nitrogen gas

2020 – TS ECET

8. The air pollution caused during the Bhopal gas tragedy was by the release of ___[ ]
   a) Methyl cyanide
   b) Ethyl Isocyanate
   c) Hydrogen Cyanide
   d) Methyl Isocyanate

9. Which of the following gases is not a greenhouse gas? [ ]
   a) Carbon monoxide b) Ozone
   c) Methane d) Water vapour

10. Match the following

i. Aerosols	A. Vinyl Chloride
ii. Pesticides	B. Consist of fine particles of organic and inorganic
iii. Carcinogens	C. Causes chronic cellular damage in man and animals
iv. Radio active pollutants	D. Absorbed by plants through soil and effects on living organisms

Choose the correct option from the following: [ ]
   a) i-B, ii-D, iii-A, iv-C
   b) i-D, ii-B, iii-A, iv-C
   c) i-D, ii-A, iii-B, iv-C
   d) i-B, ii-C, iii-D, iv-A

2021 – AP ECET

11. Which of the following is not a common component of photochemical smog? [ ]
   a) Ozone
   b) Acrolein
   c) Peroxyacetyl nitrate
   d) Chlorofluorocarbons

12. White lung cancer is caused by [ ]
   a) Asbestos b) Textiles
   c) Paper d) Silica

2021 – TS ECET

13. The measurement of dissolved oxygen used by microorganisms during the biochemical oxidation of organic matter in 5 days at 20°C is said to be [ ]
   a) Biological Oxygen Demand
   b) Chemical Oxygen Demand
   c) Biological Dissolved Oxygen
   d) Threshold Oxygen Demand

14. Which of the following is a greenhouse gas? [ ]
   a) H_2 b) N_2 c) CO d) CO_2

2022 – AP ECET

15. Which one among the following is not a greenhouse gas? [ ]
   a) CH_4
   b) Water vapour
   c) Chlorofluoro carbons
   d) SO_2

16. Which one is responsible for the depletion of ozone layer? [ ]
   a) Carbon free radical
   b) Oxygen free radical
   c) Chlorine free radical
   d) Fluorine free radical

2022 – TS ECET

17. Which layer of the atmosphere contains the ozone layer that absorbs of UV light? [ ]

a) Stratosphere b) Troposphere
c) Mesosphere d) Ionosphere

18. The contaminant among the following [ ]

a) SO_2 b) MIC c) CO_2 d) CH_4

19. Gases responsible for depletion of Ozone layer are [ ]

a) CO_2, CFC, CH_4 b) SO_2, NO_2, CH_4
c) CFC, N 가, Cl_2 d) CO, SO_2, CH_4

20. The most harmful air pollutant produced by automobiles is [ ]

a) SO_2 b) NO c) CO d) Cl_2

KEY

1) a	2) b	3) b	4) c	5) d
6) c	7) d	8) d	9) a	10) a
11) d	12) b	13) a	14) d	15) d
16) c	17) a	18) b	19) c	20) c

8. PLASTICS AND RUBBER

1. Which one of the following is not an example of addition polymer? [ ]

a) Polythene b) Terylene
c) Neoprene d) Polystyrene

ECET-2018(TS)

2. Which of the following is an example of fibre polymer? [ ]

a) Rubber b) PVC
c) Bakelite d) Nylon-66

ECET-2018(TS)

3. Which of the following can enhance the physical properties of rubber? [ ]

a) ZnO b) Zn stearate
c) Sulphur d) SiO_2

ECET-2018(TS)

4. Which one of the following statement is not true? [ ]

a) Natural rubber has the trans-configuration at every double bond
b) Buna-S is a copolymer of butadiene and styrene
c) Natural rubber is a 1,4-polymer of isoprene
d) In vulcanization, the formation of sulphur bridges between different chains makes rubber harder and stronger

ECET-2018(AP)

5. The monomers of Buna-S rubber are [ ]

a) Styrene and butadiene
b) Styrene and 2-propene
c) Isoprene and butadiene
d) Styrene and sulphur

ECET-2018(AP)

6. The plastics which soften when heat is applied with or without pressure, but require cooling to set them to shape are called as [ ]

a) Thermosofting materials
b) Thermosetting materials
c) Thermoplastic materials
d) Thermostatting materials

ECET-2018(AP)

7. The monomer used in PVC preparation is [ ]

a) Ethene b) Chloroethene
c) Dichloroethene
d) Tetrachloroethene

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ECET-2017(TS)

8. The chemical used for accelerating vulcanization is [ ]
   a) ZnO b) SiO_2
   c) Sulphur d) Zinc sterate

ECET-2017(TS)

9. Which one of the following type of forces are present in Nylon-6,6 [ ]
   a) Electrostatic forces of attraction
   b) Hydrogen bonding
   c) Three dimensional network of bonds
   d) Metallic bonding

ECET-2017(TS)

10. What rubber was invented when Dr. Joseph C. Patrick tried to make antifreeze? [ ]
   a) Methyl rubber b) Chloroprene
   c) Bruna N d) Tiokol

ECET-2017(AP)

11. The first plastic ever synthesized was called ….. [ ]
   a) Bakelite b) Nylon
   c) Dacron d) Cellulose

ECET-2017(AP)

12. ……. Is a brand of polyester textile fiber that is wrinkle resistant and strong [ ]
   a) Cellulose b) Dacron
   c) Bakelite d) Nylon

ECET-2017(AP)

13. The monomer of Teflon is [ ]
   a) $FClC = CClF$ b) $Cl_2C = CCl_2$
   c) $F_2C = CF_2$ d) $FClC = CF_2$

ECET-2016(TS)

14. Which one of the following is a thermosetting polymer? [ ]
   a) Nylon b) Terylene
   c) Bakelite d) Polyethane

ECET-2016(TS)

15. The monomers of Buna – S polymer are [ ]
   a) Vinyl chloride and vinylidene
   b) Styrene and butadiene
   c) Acrylonitrile and butadiene
   d) Isobutylene andisoprene

ECET-2016(TS)

16. The type of polymerization reaction while forming polyvinyl chloride form vinyl chloride is [ ]
   a) Addition polymerization
   b) Condensation polymerization
   c) Ionization d) Decomposition

ECET-2016(AP)

17. Which among the below is an example of thermosetting polymer? [ ]
   a) Bakelite b) Polyethylene
   c) Teflon
   d) Polyvinyl chloride

ECET-2016(AP)

18. The chemical used in vulcanization process to make rubber hard is [ ]
   a) Salt b) Chloride
   c) Sulphur d) Ethyl acetate

ECET-2016(AP)

19. The synthetic polymer which resembles natural rubber is [ ]
   a) Neoprene b) Chloroprene
   c) Nylon d) Poly-phenol

ECET-2015

20. What is meant by mastification of rubber? [ ]

a) Its softening
b) Depression of its freezing point
c) A treatment to retard its deterioration due to acids
d) Improving its curing rate

ECET-2015

21. What is the monomer used to make Teflon? [ ]

a) Tetra fluoro ethane
b) Tetra fluoro ethylene
c) Di fluoro ethylene
d) Tetra fluoro acetylene

ECET-2015

22. The monomer of polyvinyl chloride is[ ]

a) Chloro ethene dichloride
b) Ethylene
c) Ethyl chloride
d) Chloroform

ECET-2014

23. Polythene is [ ]

a) An addition polymerization product
b) A condensation polymerization product
c) Thermosetting
d) Polymer of amylopectin

ECET-2014

24. Teflon is [ ]

a) Phenol formaldehyde
b) An inorganic polymer
c) Poly tetra fluoroethylne
d) A monomer

ECET-2014

25. Formaldehyde is manufactured by [ ]

a) Dehydrogenation of methanol over a catalyst a thigh temperature
b) Hydrolysis of urea followed by addition of H_2
c) Dehydrogenation of formic acid
d) Decarboxylation of acetic acid

ECET-2013

26. Math the following and indicate the best combination: [ ]

a) Bakelite	i) Made from ethyl benzene
b) PVC	ii) Thermoset polymer
c) Natural rubber	iii) Made from 1-chloroethylene
d) Styrene	iv) Polymer of isoprene unit

a) a-iii, b-iv, c-i, d-ii
b) a-ii, b-iii, c-iv, d-i
c) a-i, b-iv, c-iii, d-ii
d) a-iv, b-ii, c-i, d-iii

ECET-2013

27. Phenol is manufactured by [ ]

a) Heating benzene with NaOH
b) Hydrolysis of chloro benzene with KOH
c) Oxidation of cumene to its hydro peroxide followed by hydrolysis
d) Reduction of benzoic acid with hydrogen over a catalyst

ECET-2013

28. Which of the following is a thermoset [ ]

a) Polystyrene
b) PVC
c) Polythene
d) Urea-formaldehyde resin

ECET-2012

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29. Chemically, neoprene is [ ]
   a) Polyvinyl benzene
   b) Polyacetylene
   c) Polychloroprene
   d) Poly-1 3-butadiene

ECET-2012

30. Vulcanization involves heating of raw rubber with [ ]
   a) Selenium element
   b) Elemental sulphur
   c) A mixture of Se and elemental sulphur
   d) A mixture of selenium and sulphur dioxide

ECET-2012

31. Diphenylamine is added rubber to [ ]
   a) Valcanise it
   b) Protect it from deterioration on exposure to air
   c) Make it non-inflammable
   d) Make it thermosetting

ECET-2011

32. Which of the following rubbers has the widest service temperature range from –75° to +275°C [ ]
   a) Butyl rubber b) Nitrile rubber
   c) Polythene d) Silicone rubber

ECET-2011

33. Which of the following additives are added to plastics to make it impervious to x-rays: [ ]
   a) Asbestos b) Barium salt
   c) Carborundum d) Phthalic acid

ECET-2011

34. Ion exchange resins are made of [ ]
   a) Incite
   b) Sulphonated back elite
   c) Polystyrene d) Teflon

ECET-2011

35. Natural rubber is a polymers of [ ]
   a) Isoprene b) Propylene
   c) Propane d) Ethylene

ECET-2010

36. Which of the following is the synthetic polymer? [ ]
   a) Cellulose b) Bakelite
   c) Protein d) Nucleic acid

ECET-2010

37. The monomer of PVC polymer is [ ]
   a) Ethylene b) Styrene
   c) Propylene d) Vinylchloride

ECET-2010

38. The elastomers are the following polymers [ ]
   a) Natural rubbers
   b) Synthetic rubbers
   c) Thermoplastics d) Thermosets

ECET-2010

39. GR-S is the alternative name for [ ]
   a) Butyl rubber
   b) Neoprene rubber
   c) Buna-S rubber
   d) Urea-formaldehyde resin

ECET-2009

40. Which of the following cannot be used as monomer to bring about addition polymerization? [ ]
   a) Ethyl chloride b) Butadiene
   c) Propylene d) 2-Butene

ECET-2009

41. Free-radical Polymerization can be initiated by using [ ]
a) Benzoic acid
b) Dibenzoyl peroxide
c) Nitroethane d) Benzolphenone

ECET-2009

42. Styrene is commercially prepared by the [ ]
a) Reduction of acetophenone
b) Dehydrogenation of ethyl benzene
c) Dehydration of benzyl alcohol
d) Decarboxylation of benzoic acid

ECET-2009

43. Alkenes do not undergo: [ ]
a) Substitution reactions
b) Oxidation reactions
c) Addition reactions
d) Polymerization reactions

ECET-2008

44. Which of the following is not an addition polymer [ ]
a) P.V.C b) Bakelite
c) Polythene d) Polystyrene

ECET-2008

45. Nylon [6,6] is an example of: [ ]
a) Plastic material b) Elastic polymer
c) Thermoplastic polymer
d) Thermoset polymer

ECET-2008

46. Saturated hydrocarbons mainly undergo [ ]
a) Addition b) Substitution
c) Elimination d) Polymerization

ECET-2002

47. The total number of bonds present in propylene ($CH_3CH = CH_2$) is: [ ]
a) Eight sigma and two pi bonds
b) Nine sigma and two pi bonds
c) Six sigma and four pi bonds
d) Eight sigma and one pi bond

ECET-2002

48. The plastic which can be softened on heating, and hardened on cooling is called:[ ]
a) Thermoset b) Thermo-elastic
c) Thermoplastic d) Thermite

ECET-2002

49. Bakelite is synthesized by the co-polymerization of: [ ]
a) Urea-formaldehyde
b) Phenol-acetaldehyde
c) Phenol-formaldehyde
d) Benzene-formaldehyde

ECET-2002

50. PVC is prepared by the addition polymerization of: [ ]
a) Ethylene b) Vinyl chloride
c) Vaniline chloride d) Styrene

ECET-2002

51. Polystyrene is a [ ]
a) Thermoplastic
b) Thermosetting plastic
c) Side chain plastic
d) Crystalline polymer

ECET-2001

52. The repeating unit in natural rubber is [ ]
a) Ethylene b) 1, 3- Butadiene
c) Isoprene d) Propylene

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ECET-2001

53. Nylon 6,6 is made from hexamethylene diamine and [ ]
a) Oxalalic acid b) Adipic acid
c) Phthalic acid d) Succinic acid

ECET-2001

54. Natural polymer among the following is [ ]
a) PVC b) PVA
c) Cellulose d) Polyester

ECET-2001

55. Bakelite is formed by poly-condensation of phenol and [ ]
a) Acetaldehyde b) Adipic acid
c) Formaldehyde d) Acrylic acid

ECET-2001

56. The process involving the union of two or more molecules to form a new molecule is known as: [ ]
a) Polarization b) Polymerization
c) Photosensitization d) Pasteurization

ECET-2000

57. Alkyl halides undergo reduction with nascent hydrogen to form: [ ]
a) Alkene b) Alkane
c) Alkyne d) Alcohol

ECET-2000

58. Phenol and formaldehyde react to form: [ ]
a) Perspex b) Silicon
c) Nylon d) Bakelite

ECET-2000

59. Which of the following is termed thermoplastic in nature? [ ]
a) Polyurethane b) Polyethylene
c) Polyester d) Phenolic resins

ECET-2000

60. The number of possible isomers with C_4H_{10} is: [ ]
a) 3 b) 1
c) 2 d) 4

ECET-2000

61. Alkynes do not undergo: [ ]
a) Addition reactions
b) Oxidation reactions
c) Polymerization reactions
d) Substitution reactions

ECET-2000

62. An alcohol on heating in the presence of sulphuric acid gives: [ ]
a) Aldehyde b) Alkane
c) Alkyne d) Alkene

ECET-2000

63. Freon-11 is: [ ]
a) Fluorochloromethane
b) Trichlorofluoromethane
c) Dichlorofluoromethane
d) Tetrafluoromethane

ECET-2000

64. The process involving the addition of two or more molecules to form a new molecule is known as: [ ]
a) Polymerization b) Polarization
c) Photo sensitization
d) Pasteurization

ECET-1999

65. Terylene is a condensation polymer of ethylene glycol and: [ ]
a) Arcylic acid b) Phthalic acid

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c) Terephthalic acid d) Benzoic acid

ECET-1999

66. When Grignard reagent CH_3 MgBr is treated with water, we get [ ]

a) Ethane b) Ethyl alcohol

c) Methyl alcohol d) Methane

ECET-1998

67. In the following sequence of reactions B is

$$C_2H_4 + O_3 \rightarrow A \xrightarrow[Zn]{H_2O} B$$ [ ]

a) Formaldehyde b) Glyoxal

c) Glycol d) Acetaldehyde

ECET-1998

68. Buna – S is a polymer of [ ]

a) Butadiene

b) Butadiene and styrene

c) Styrene d) Acetaldehyde

ECET-1998

69. The widely used plastic PVC is a polymer of [ ]

a) $CH_2 = CH_2$ b) $CH_2 = CCl_2$

c) $CHCl = CHCl$ d) $CH_2 = CHCl$

ECET-1998

70. The monomers used in the manufacture of Nylon – 6, 10 are [ ]

a) Sebasic acid and hexamethylene diamine

b) Adipic acid and butadiene

c) Sebasic acid and butadiene

d) Adipic acid and hexamethylene diamine

ECET-1998

71. Which one of the following is a thermosetting plastic? [ ]

a) PVC b) Perspex

c) Bakelite d) Nylon

ECET-1998

KEY

1. b	2. d	3. c	4. a	5. a
6. c	7. b	8. c	9. b	10. d
11. a	12. b	13. c	14. c	15. b
16. a	17. a	18. c	19. a	20. c
21. b	22. a	23. a	24. c	25. a
26. b	27. c	28. d	29. c	30. b
31. b	32. d	33. d	34. b	35. a
36. b	37. d	38. b	39. c	40. c
41. b	42. b	43. a	44. b	45. b
46. b	47. d	48. c	49. c	50. b
51. a	52. c	53. b	54. c	55. c
56. b	57. b	58. d	59. b	60. c
61. d	62. d	63. a	64. a	65. c
66. d	67. a	68. b	69. d	70. d
71. c				

2019 – AP ECET

1. Which of the following is not a thermoplastic? [ ]

a) bakelite b) polystyrene

c) polythene d) nylon

2. Isoprene is a monomer of [ ]

a) starch b) cellulose

c) natural rubber d) lignin

3. Buna-S is a copolymer of [ ]

a) butadiene and styrene

b) butadiene and acrylonitrile

c) butadiene and isoprene

d) formaldehyde and styrene

2019 – TS ECET

4. Which of the following polymers has amide linkage? [ ]
   a) Terylene b) Bakelite
   c) Nylon d) PVC
5. The monomer of natural rubber is _____ [ ]
   a) Butadiene b) Chloroprene
   c) 2-methyl 1.2 butadiene
   d) 2-methyl 1.3 butadiene
6. Which of the following is a thermo setting? [ ]
   a) Bakelite b) Polyethylene
   c) Nylon-6 d) Natural rubber

2020 – AP ECET

7. Which of the following is thermosetting plastic? [ ]
   a) PVC b) bakelite
   c) polystyrene d) teflon
8. Natural rubber is polymer of : [ ]
   a) isoprene b) ethylene
   c) vinyl chloride d) styrene
9. Ebonite is a: [ ]
   a) PVC
   b) synthetic rubber
   c) highly vulcanized rubber
   d) polystyrene

2020 – TS ECET

10. The monomers in the preparation of Nylon 6:6 are [ ]
    a) Vinyl chloride and Hexamethylene diamine
    b) Styrene and Adipic acid
    c) Phenol and Formaldehyde
    d) Adipic acid and Hexamethylene diamine
11. Natural rubber is composed of _____ monomer units [ ]
    a) Isobutylene b) Isopropylene
    c) Isoprene d) Butadiene
12. Polychloroprene is also known as [ ]
    a) Neoprene b) Butyl rubber
    c) Buna-S d) PVC

2021 – AP ECET

13. The number of repeating units in a polymer is called [ ]
    a) Functionality b) Tacticity
    c) degree of polymerization
    d) Specificity
14. The process of vulcanisation makes rubber _____ [ ]
    a) Soft b) Hard
    c) Elastic d) Swells oils
15. Which of the following s thermosetting plastic [ ]
    a) PVC b) Polystyrene
    c) Teflon d) Bakelite

2021 – TS ECET

16. Choose the incorrect statement from the following options [ ]
    a) The molecular weight of the polymer steadily rises throughout the reaction in condensation polymerisation
    b) In addition polymerization, growth of chain is at one active centre
    c) No by product will be formed in the addition polymerisation

d) The molecular weight of the polymer steadily increases throughout the reaction in addition polymerisation

17. Which of the following is a thermoplastic? [ ]

a) Teflon b) Natural rubber

c) Neoprene d) Buna-S

2022 – AP ECET

18. Which of the following is not a thermosetting plastic? [ ]

a) Bakelite b) Melamine

c) Epoxy resins d) Teflon

19. Which one of the following molecule contains the functionality TWO? [ ]

a) 1.2 – Dihydroxy benzene

b) Benzene

c) Phenol d) Ethylene

20. Which of the following is not a synthetic rubber? [ ]

a) Buna-S b) Buna-N

c) Neoprene d) 1.4 – Polyisoprene

2022 – TS ECET

21. Bakelite is an example of [ ]

a) thermosetting plastic

b) fibre

c) thermoplastic d) elastomer

22. Which of the following are monomers of butyl rubber [ ]

a) Butadiene and styrene

b) Chlorprene

c) Phenol and fomaldehyde

d) Isobutylene and isoprene

KEY

1) a	2) c	3) a	4) c	5) d
6) a	7) b	8) a	9) c	10) d
11) c	12) a	13) c	14) b	15) d
16) d	17) a	18) d	19) d	20) d
21) a	22) d			

9. ATOMIC STRUCTURE

1. The set of quantum number for the 19th electron is chromium is .... [ ]

a) $n=4, l=0, m=0, S=+\frac{1}{2}$ or $-\frac{1}{2}$

b) $n=3, l=2, m=1, S=+\frac{1}{2}$ or $-\frac{1}{2}$

c) $n=3, l=2, m=-1, S=+\frac{1}{2}$ or $-\frac{1}{2}$

d) $n=4, l=1, m=0, S=+\frac{1}{2}$ or $-\frac{1}{2}$

ECET-2018(TS)

2. Pauli's Exclusion principle states that two electrons in same orbital have [ ]

a) Same spins b) Different spins

c) Opposite spins d) Vertical spins

ECET-2018(AP)

3. Orbits in which electrons move according to Bohr are [ ]

a) Elliptical b) Cylindrical

c) Circular d) Oval

ECET-2018(AP)

4. Phosphorous has an atomic number of 15. A stable phosphorous atom has an electronic configuration of [ ]

a) $1s^2 2s^2 2p^6 3p^5$

b) $1s^2 2s^2 2p^6 3s^2 3p^3$

c) $1s^2 2s^2 2p^6 3s^2 3p^1 4s^2$

d) $1s^2 1p^6 1d^7$

ECET-2018(AP)

5. For an f-orbital, the values of 'm' are [ ]

a) $-1,0,+1$

b) $-3,-2,-1,0,+1,+2,+3$

c) $0,+1,+2,+3$ d) $-2,-1,0,+1,+2$

ECET-2017(TS)

6. The Pauli exclusion principle is concerned with [ ]

a) Energy of orbital b) Spin of electron

c) Energy of electron

d) Angular momentum of electron

ECET-2017(AP)

7. According to Bohr's model of hydrogen atom, the following is quantized [ ]

a) Linear momentum

b) Linear velocity

c) Angular momentum

d) Angular velocity

ECET-2017(AP)

8. How many 'd' – orbitals have two perpendicular nodal planes [ ]

a) Two b) Three

c) Four d) Five

ECET-2017(AP)

9. Which one of the following pairs of atoms or ions will have same configuration? [ ]

a) F^+ and Ne b) Li^+ and He^-

c) Cl^- and Ar d) Na and K

ECET-2016(TS)

10. Which one of the following sets of quantum number represents an impossible arrangements? [ ]

a) $n=3, l=2, m_l=-2, m_s=\frac{1}{2}$

b) $n=3, l=2, m_l=-3, m_s=\frac{1}{2}$

c) $n=4, l=0, m_l=0, m_s=\frac{1}{2}$

d) $n=5, l=3, m_l=0, m_s=-\frac{1}{2}$

ECET-2016(TS)

11. The maximum number of electrons which can occupy 2s orbital is [ ]

a) 1 b) 2

c) 3 d) 4

ECET-2016(AP)

12. The electronic configuration of carbon is [ ]

a) $1s^2 2s^2 2p^1$ b) $1s^2 2s^2 2p^2$

c) $1s^2 2s^2 2p^3$ d) $1s^2 2s^2 2p^4$

ECET-2016(AP)

13. The shape of s orbital is [ ]

a) Dumb-bells b) Triangle

c) Spherical

d) Double dumb-bell

ECET-2016(AP)

14. Which one of the following set of quantum numbers is not possible for 'p' electron? [ ]

a) $n=4, l=1, m=+1$ and $m_s=+\frac{1}{2}$

b) $n=4, l=1, m=0$ and $m_s=+\frac{1}{2}$

c) $n=4, l=1, m=+2$ and $m_s=+\frac{1}{2}$

d) $n=4, l=1, m=-1$ and $m_s=-\frac{1}{2}$

ECET-2015

15. The first emission line of hydrogen atomic spectrum in Balmer series appears at (R = Rydberg constant) [ ]

a) $5R/36\ cm^{-1}$ b) $3R/4\ cm^{-1}$

c) $R/144\ cm^{-1}$ d) $9R/400\ cm^{-1}$

ECET-2015

16. Which ion is iso electronic with 'CO'? [ ]

a) N_2^+ b) O_2^+

c) O_2^- d) CN^-

ECET-2015

17. The lightest particle is [ ]

a) Positron b) Neutron

c) Proton d) α – particle

ECET-2015

18. If an electron has spin quantum number of $+\frac{1}{2}$ and magnetic quantum number of -1, it cannot be present in [ ]

a) d orbital b) f orbital

c) p orbital d) s orbital

ECET-2015

19. The ion that is iso electronic with CO is [ ]

a) NO^+ b) O_2^+

c) O_2^- d) N_2^+

ECET-2015

20. The theory that no two electrons in an atom can have identical values of the four quantum numbers is known as ..... [ ]

a) Hund's rule b) Bohr's theory

c) Aufbau's principle

d) Pauli's principle

ECET-2013

21. The angular momentum of an electron revolving round the nucleus in K shell is given by ..... [ ]

a) $\frac{h}{2\pi}$ b) $\frac{h^2}{2\pi}$

c) $\frac{2\pi}{h}$ d) $\frac{h}{2\pi^2}$

ECET-2013

22. The valency electronic configuration of chlorine atom (At. No: 17) is ..... [ ]

a) $3s^2 3p^3 4s^2$ b) $3s^2 3p^5$

c) $3s^1 3p^6$ d) $3s^1 3p^3 3d^3$

ECET-2013

23. Sodium metal and sodium ions have ..... [ ]

a) The same number of electrons

b) The same reactivity with water

c) The same number of neutrons

d) Different number of protons

ECET-2013

24. The valency electronic configuration of Phosphorous atom is [ ]

a) $3s^2 3p^3$ b) $3s^1 3p^3 3d^1$

c) $3s^2 3p^2 3d^1$ d) $3s^1 3p^2 3d^2$

ECET-2012

25. The number of neutrons present in the atom of ${}_{56}Ba^{137}$ is [ ]

a) 56 b) 137
c) 193 d) 81

ECET-2012

26. Potassium metal and potassium Ions [ ]
a) Both react with water
b) Have the same number of protons
c) Both react with chlorine gas
d) Have the same electronic configuration

ECET-2012

27. The electronic configuration of $_{17}Cl^{35}$ is [ ]
a) $[Ne]3s^1 3p^6$ b) $[Ne]3s^2 3p^5$
c) $[He]3s^2 3p^5$ d) $[He]3s^1 3p^6$

ECET-2008

28. The number of neutrons present in the atom of $_{55}Cs^{133}$ is: [ ]
a) 55 b) 133
c) 188 d) 78

ECET-2008

29. Sodium metal and sodium ions: [ ]
a) Have the same electronic configuration
b) Have the same number of protons
c) Both react with water
d) Both do not react with water

ECET-2008

30. In a periodic table, the element with atomic number 6 will be in: [ ]
a) IV period b) II period
c) VI period d) VII period

ECET-2002

31. The number of unpaired electrons present in the electronic configuration of $1s^2, 2s^2, 2p^4$ is: [ ]
a) 2 b) 3
c) 4 d) 6

ECET-2002

32. The magnetic quantum number specifies the: [ ]
a) Size of the orbital
b) Shape of the orbital
c) Orientation of orbitals in space
d) Nuclear stability

ECET-2002

33. Electronic configuration of $Ni(28)$ is[ ]
a) $[Ar]3d^6 4s^2 4p^2$ b) $[Ar]3d^7 4s^2 4p^1$
c) $[Ar]3d^8 4s^2$ d) $[Ar]3d^5 4s^2 4p^3$

ECET-2001

34. The shape of an orbital is governed by [ ]
a) Spin quantum number
b) Azimuthal quantum number
c) Magnetic quantum number
d) Principal quantum number

ECET-2001

35. Mass of an electron is [ ]
a) 9.1×10^{-28} gm b) 9.1×10^{-25} gm
c) 9.1×10^{-14} gm d) 9.1×10^{-18} gm

ECET-2001

36. When 3 orbital is complete, the newly entering electron goes to [ ]
a) 4 – p orbital b) 4 – s orbital
c) 5 – s orbital d) 4 – d orbital

ECET-2001

37. Sodium atoms and sodium ions: [ ]
a) Are chemically identical

b) Both react with water vigorously

c) Have the same number of protons

d) Have the same number of electrons

ECET-2000

38. The number of neutrons present in an atom of $_{17}Cl^{35}$ is: [ ]

a) 18 b) 35

c) 17 d) 52

ECET-2000

39. The shape of the '*s*' orbitals is: [ ]

a) Dumb bell

b) Double dumb bell

c) Spherical d) Elliptical

ECET-2000

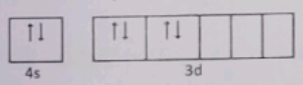
40. The electronic configuration of chromium (24) is : [ ]

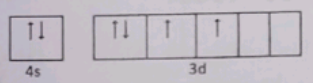
a) $[Ar]3d^4 4s^2$ b) $[Ar]3d^5 4s^1$

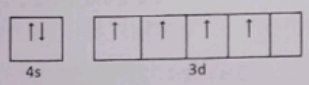
c) $[Ar]3d^6 4s^0$ d) None of these

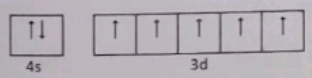
ECET-1999

41. The outer electronic configuration of chromium $(Z = 24)$ is [ ]

a) 

b) 

c) 

d) 

ECET-1998

KEY

1. **a**	2. **c**	3. **c**	4. **b**	5. **b**
6. **b**	7. **c**	8. **c**	9. **c**	10. **b**
11. **b**	12. **b**	13. **c**	14. **c**	15. **a**
16. **d**	17. **a**	18. **d**	19. **a**	20. **d**
21. **a**	22. **b**	23. **c**	24. **a**	25. **d**
26. **b**	27. **b**	28. **d**	29. **b**	30. **a**
31. **a**	32. **c**	33. **c**	34. **b**	35. **a**
36. **a**	37. **c**	38. **a**	39. **c**	40. **b**
41. **d**				

2019 – TS ECET

1. The splitting of spectral lines in a strong magnetic field is called [ ]

a) Stark effect

b) Pauli exclusion principle

c) Zeeman effect

d) Aufbau principle

2. Bohr's model can explain [ ]

a) the spectrum of hydrogen atom only

b) the spectrum of hydrogen molecule

c) the solar spectrum

d) spectrum of an atom or ion containing one electron only

3. The maximum number of electrons that a d-orbital can accommodate is [ ]

a) 2 b) 6 c) 10 d) 14

4. Magnesium Atomic number is 12, which of the following is the electronic configuration [ ]

a) 1S2 2S1 2P6 3S2

b) 1S2 2S2 2P5 3S2

c) 1S2 2S2 2P6 $3S^2$

d) $1S^2\ 2S^2\ 2P^6\ 3S^1\ 3d^1$

2019 – TS ECET

5. Which of the following energy orders is correct? [ ]

a) 6s<4f<5d<6p b) 4f<5d<6s<6p

c) 4f<6s<6p<5d d) 6s<6p<5d<4f

6. The elements A, B, C and D have the following electronic configurations:

A: $1S^2, 2S^2, 2P^1$

B: $1S^2, 2S^2, 2P^6, 3S^2, 3P^1$

C: $1S^2, 2S^2, 2P^6, 3S^2, 3P^3$

D: $1S^2, 2S^2, 2P^6, 3S^2, 3P^5$

The elements that belong to same group are _____ [ ]

a) A and C b) C and D

c) A and D d) A and B

2020 – AP ECET

7. The atomic weight and atomic number of an element are A and Z respectively. The number of neutrons in the atom of that element is [ ]

a) A b) Z c) $Z+A$ d) $A-Z$

8. The two electrons present in an orbital are distinguished by: [ ]

a) principle quantum number

b) spin quantum number

c) magnetic quantum number

d) azimuthal quantum number

9. The order of increasing energies of the orbitals follows: [ ]

a) 3s, 3p, 3d, 4s, 4p

b) 3sm 3om 4s, 4p, 3d

c) 3s, 3p, 4s, 3d, 4p

d) 3s, 3p, 3d, 4p, 4s

2020 – TS ECET

10. Match the following

A. Principle quantum number	1. The electron spin may be either in clock wise or anticlockwise direction
B. Azimuthal quantum number	2. Gives the number of orbitals in each sublevel
C. Magnetic quantum number	3. Determines shape of the electrons orbital
D. Spin quantum number	4. Indicates the size of the orbit

Choose the correct option from the following: [ ]

a) A-2, B-1, C-4, D-3

b) A-4, B-3, C-2, D-1

c) A-4, B-3, C-1, D-2

d) A-3, B-2, C-4, D-1

11. Select the incorrect statement from the following options. [ ]

a) Atomic number is equal to no of electrons

b) Mass number is equal to number of protons plus number of electrons

c) Number of neutrons is the difference between mass number and atomic number

d) Nucleus of an atom consist protons and neutrons

2021 – AP ECET

12. The nucleus of tritium consists of _____ [ ]

a) 1 proton + 1 neutron

b) 1 proton + 3 neutrons

c) 1 proton + zero neutron

d) 1 proton + 2 neutrons

13. Which of the following electronic configuration is not possible? [ ]

a) $1s^2 2s^2 2p^6$ b) $1s^2 2s^2 2p^7$

c) $1s^2 2s^2$ d) $1s^2 2s^2 2p^5$

14. Radius of 3rd Bohr orbit of hydrogen atom is _____ [ ]

a) 6.529A° b) 4.761A°

c) 2.116A° d) 8.464A°

2021 – TS ECET

15. According to Paulis exclusion principle, two electrons in the same orbital contains [ ]

a) Vertical spins b) Angular spins

c) Same spins d) Opposite spins

2022 – AP ECET

16. Which of the following is not a characteristic of Plank's theory radiation? [ ]

a) Energy is always associated with radiations

b) The absorption and emission of energy occur continuously and not in small packets of energy called quanta

c) The energy associated with a quantum of radiation is directly proportional to its frequency

d) The emission and absorption of energy takes place in small packets called quanta

17. The atomic number of calcium is 20 and mass number is 40, it contains [ ]

a) 20 protons, 20 electrons and 20 neutrons

b) 20 protons, 20 electrons and 22 neutrons

c) 20 protons, 20 electrons and 40 neutrons

d) 40 protons, 20 electrons and 20 neutrons

18. Which ion is isoelectronic with CO? [ ]

a) CN^- b) O_2^+ c) O_2^- d) N_2^+

2022 – TS ECET

19. Number of electrons present in outermost shell of copper atom is [ ]

a) 2 b) 1 c) 18 d) 11

KEY

1) **c**	2) **d**	3) **c**	4) **c**	5) **a**
6) **d**	7) **d**	8) **b**	9) c	10) **b**
11) **b**	12) **d**	13) **b**	14) **b**	15) **d**
16) **b**	17) **a**	18) **a**	19) **b**	

10. CHEMICAL BONDING

1. In which of the following compounds, is coordinate covalent bond present? [ ]
   a) PH_3 b) H_2O
   c) NH_4OH d) HBr

ECET-2018(TS)

2. Variable valency is shown by ..... [ ]
   a) N and O b) P and S
   c) F and Cl d) N and S

ECET-2018(TS)

3. NaC*l* is classified as having what kind of bonds in the solid phase? [ ]
   a) Covalent b) Ionic
   c) Polar d) Vander waals

ECET-2018(AP)

4. The Bond formed due to sharing of electrons is [ ]
   a) Iconic bond b) Metallic bond
   c) Polar bond d) Covalent bond

ECET-2018(AP)

5. Among $LiCl$, $BeCl_2$, BCl_3 and CCl_4, the covalent character follows the order: [ ]
   a) $LiCl > BeCl_2 > BCl_3 > CCl_4$
   b) $LiCl < BeCl_2 < BCl_3 < CCl_4$
   c) $LiCl > BeCl_2 < BCl_3 > CCl_4$
   d) $LiCl < BeCl_2 < BCl_3 > CCl_4$

ECET-2017(TS)

6. Lowest oxidation state in its compound is exhibited by [ ]
   a) N b) O
   c) C d) F

ECET-2017(TS)

7. Which of the following contains ionic, covalent and coordinate covalent bond [ ]
   a) NH_4Cl b) $K_3\left[Fe(CN)_6\right]$
   c) $CuSO_4$
   d) $NH_4Cl, CuSO_4$ and $K_3\left[Fe(CN)_6\right]$

ECET-2017(TS)

8. In sodium chloride crystal, each Na^+ ion is surrounded by [ ]
   a) Two Cl^- ions b) Four Cl^- ions
   c) Six Cl^- ions d) Eight Cl^- ions

ECET-2017(AP)

9. Which among the following molecule contains a $\pi-$bond [ ]
   a) H_2 b) O_2
   c) F_2 d) HC*l*

ECET-2017(AP)

10. Which among the following is insoluble in water? [ ]
    a) Alcohol b) Ammonia
    c) Benzene d) Acetone

ECET-2017(AP)

11. Which of the following is most covalent in nature? [ ]
    a) $NaCl$ b) $MgCl_2$
    c) $CaCl_2$ d) $AlCl_3$

ECET-2016(TS)

12. The oxidation number of 'S' in H_2SO_5 [ ]
    a) 5 b) 6
    c) 7 d) 8

ECET-2016(TS)

13. The type of chemical bond present in sodium chloride is [ ]
   a) Covalent bond
   b) Polar covalent bond
   c) Polar bond d) Ionic bond

ECET-2016(AP)

14. Which of the following compound has covalent bond? [ ]
   a) $NaCl$ b) HCl
   c) H_2O d) H_2

ECET-2016(AP)

15. Why sodium chloride is more soluble in water? [ ]
   a) Sodium chloride is a covalent compound and water is a polar solvent
   b) Sodium chloride is a ionic compound and water is a polar solvent
   c) Sodium chloride is a covalent compound and water is a non-polar solvent
   d) Sodium chloride is ionic compound and water is a non-polar solvent

ECET-2015

16. The hydrogen bond is strongest in [ ]
   a) O – H – – – – S b) S – H – – – O
   c) F – H – – – F d) F – H – – – O

ECET-2014

17. The molecule having pyramidal shape[ ]
   a) PCI_3 b) SO_3
   c) CO_3^{-2} d) NO_3

ECET-2014

18. Crystals of a sodium chloride belong to the system [ ]
   a) Orthorhombic b) Cubic
   c) Trigonal d) Monoclinic

19. Crystals of a sodium chloride belong to the system [ ]
   a) 2 b) 10^{-3}
   c) 11 d) 3

ECET-2014

20. Which one of the following molecule has the highest bond strength? [ ]
   a) O_2 b) HCl
   c) N_2 d) H_2

ECET-2013

21. Cesium chloride is readily soluble in …….. [ ]
   a) Ethanol at 0°C
   b) Water at room temperature
   c) Xylene at 100°C
   d) Chloroform at 65°C

ECET-2013

22. An element 'A' of At. No.12 combines with an element 'B' of At. No.17. The compound formed is [ ]
   a) Covalent AB b) Ionic AB2
   c) Covalent AB3 d) Ionic AB

ECET-2012

23. Hydrogen bonding in water molecule is responsible for [ ]
   a) Decrease in its freezing point
   b) Increase in its degree of ionization
   c) Increase in its boiling point
   d) Decrease in its boiling point

ECET-2012

24. In the HCl molecule, the bonding between hydrogen and chloride is [ ]
   a) Purely covalent b) Purely ionic

c) Polar covalent

d) Complex coordinate

ECET-2012

25. The inert gas that is found in maximum amount in atmosphere is [ ]

a) Xe b) Kr

c) Rn d) Ar

ECET-2010

26. Sugar dissolves in water due to the formation of [ ]

a) Covalent bonds b) Ionic bonds

c) Coordinate bonds d) Hydrogen bonds

ECET-2009

27. Which of the following compounds h as the smallest carbon-carbon bond distance? [ ]

a) Acetylene b) Ethylene

c) Ethane d) Benzene

ECET-2008

28. An ionic bond is formed by: [ ]

a) Equal sharing of electrons

b) One-way sharing of electrons

c) Complete transfer of electrons

d) Incomplete transfer of electrons

ECET-2008

29. Hydrogen bonding in water molecules is responsible for: [ ]

a) Increase in its boiling point

b) Decrease in its boiling point

c) Increase in its degree of ionization

d) Decrease in its freezing point

ECET-2008

30. Which of the following compounds has an electrovalent linkage? [ ]

a) $MgCl_2$ b) CH_4

c) $SiCl_4$ d) HCl

ECET-2002

31. Hybridization in methane molecule is [ ]

a) sp b) sp^2

c) sp^3 d) sp^3d

ECET-2001

32. Which of the following molecule contains both covalent and ionic bonds? [ ]

a) CCl_4 b) NH_4Cl

c) HCl d) H_2O

ECET-2001

33. According to Fajan, polarization is high with [ ]

a) Smaller cation and smaller anion

b) Larger cation and large anion

c) Larger cation and smaller anion

d) Smaller cation and larger anion

ECET-2001

34. The bond angle in water is [ ]

a) 104°27 b) 90°

c) 107° d) 120°

ECET-2001

35. Number of covalent bonds in water molecule is: [ ]

a) One b) Three

c) Four d) Two

ECET-2000

36. The high boiling point of water is due to: [ ]

a) Ionic bonding

b) Vander waal's forces

c) Hydrogen bonding

d) Covalent bonding

ECET-2000

37. In the formation of methane, carbon makes use of: [ ]

a) *sp* hybridized orbitals

b) sp^3 hybridized orbitals

c) sp^2 hybridized orbitals

d) *spd* orbitals

ECET-2000

38. Angle of *sp* hybridization is: [ ]

a) 120° b) 109.4°

c) 180° d) 104°

ECET-2000

39. Chlorine molecule is formed by overlapping of: [ ]

a) s and p-orbitals b) s-orbitals

c) p-orbitals d) d and s-orbitals

ECET-1999

40. The structure of methane is: [ ]

a) Tetrahedral

b) Square pyramidal

c) Octahedral d) Trigonal

ECET-1999

41. The oxidation state of chromium in $K_2Cr_2O_7$ is [ ]

a) +6 b) +4

c) +5 d) +7

ECET-1999

42. The electronegativity of cesium is 0.7 and that of fluorine is 4.0. The bond formed between the two is [ ]

a) Covalent bond b) Ionic bond

c) Metallic bond d) Hydrogen bond

ECET-1998

43. The high boiling point of water is due to [ ]

a) Its high specific heat

b) Hydrogen bonding between water molecules

c) Weak dissociation of H_2O molecules

d) Its high dielectric constant

ECET-1998

44. The compound which contains both ionic and covalent bonds is [ ]

a) CH_4 b) H_2

c) KCN d) KCL

ECET-1998

45. Which of the following is a good conductor of electricity? [ ]

a) Diamond

b) Solid Sodium Chloride

c) Molten Sodium Chloride

d) Solid Potassium Chloride

ECET-1998

KEY

1. **c**	2. **b**	3. **b**	4. **d**	5. **b**
6. **d**	7. **d**	8. **c**	9. **b**	10. **c**
11. **d**	12. **d**	13. **d**	14. **d**	15. **b**
16. **c**	17. **a**	18. **b**	19. **d**	20. **c**
21. **b**	22. **b**	23. **c**	24. **c**	25. **d**
26. **d**	27. **a**	28. **c**	29. **a**	30. **a**
31. **c**	32. **b**	33. **c**	34. **a**	35. **d**
36. **c**	37. **b**	38. **c**	39. **c**	40. **a**
41. **a**	42. **b**	43. **b**	44. **c**	45. **c**

2019- AP ECET

1. N_2 molecule contains [ ]

   1) covalent bond 2) ionic bond

   3) hydrogen bond 4) metallic bond

2019- TS ECET

2. An element A of atomic number 11 combines with an element B of atomic number 17. The compound formed is _____ [ ]

   a) Covalent AB b) Ionic AB

   c) Covalent AB_2 d) Ionic AB_2

2020 – AP ECET

3. Ionic bond is formed by [ ]

   1) sharing of electrons

   2) donating of electron

   3) transfer of electrons

   4) donating of electron pair

4. The total number of electrons that take part in forming bonds in N_2 is [ ]

   1) 2 2) 4 3) 10 4) 6

2021 – AP ECET

5. Covalent compounds are generally soluble in _____ [ ]

   a) Non-polar solvents

   b) Polar solvents

   c) Concentrated acids

   d) All solvents

6. Six electrons are mutually shared in _____ [ ]

   a) F_2 b) Cl_2 c) O_2 d) N_2

2021 – TS ECET

7. In the formation of nitrogen molecule, the number of electron pairs shared between the two nitrogen atoms is [ ]

   a) Two b) Three c) One d) Four

2022 – AP ECET

8. Which molecule among the following obeys the octet rule? [ ]

   a) PF_5 b) NO c) ClO_2 d) O_2

9. Which one among the following has higher ionic radius? [ ]

   a) C^{4-} b) N^{3-} c) O^{2-} d) Na^+

2022 – TS ECET

10. The bond exists between NH_3 and H^+ in NH_4^+ is [ ]

    a) Ionic b) Covalent

    c) Coordinate covalent

    d) Metallic

KEY

1) **a**	2) **b**	3) **c**	4) **d**	5) **a**
6) **d**	7) **b**	8) **d**	9) **a**	10) **c**