ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

RESOURCES FOR

"SSC-I CHEMISTRY"

ZUEB EXAMINATIONS 2021

PREFACE:

The ZUEB examination board acknowledges the serious problems encountered by the schools and colleges in smooth execution of the teaching and learning processes due to sudden and prolonged school closures during the covid-19 spread. The board also recognizes the health, psychological and financial issues encountered by students due to the spread of covid-19.

Considering all these problems and issues the ZUEB Board has developed these resources based on the condensed syllabus 2021 to facilitate students in learning the content through quality resource materials.

The schools and students could download these materials from www.zueb.pk to prepare their students for the high quality and standardized ZUEB examinations 2021.

The materials consist of examination syllabus with specific students learning outcomes per topic, Multiple Choice Questions (MCQs) to assess different thinking levels, Constructed Response Questions (CRQs) with possible answers, Extended Response Questions (ERQs) with possible answers and learning materials.

ACADEMIC UNIT ZUEB:

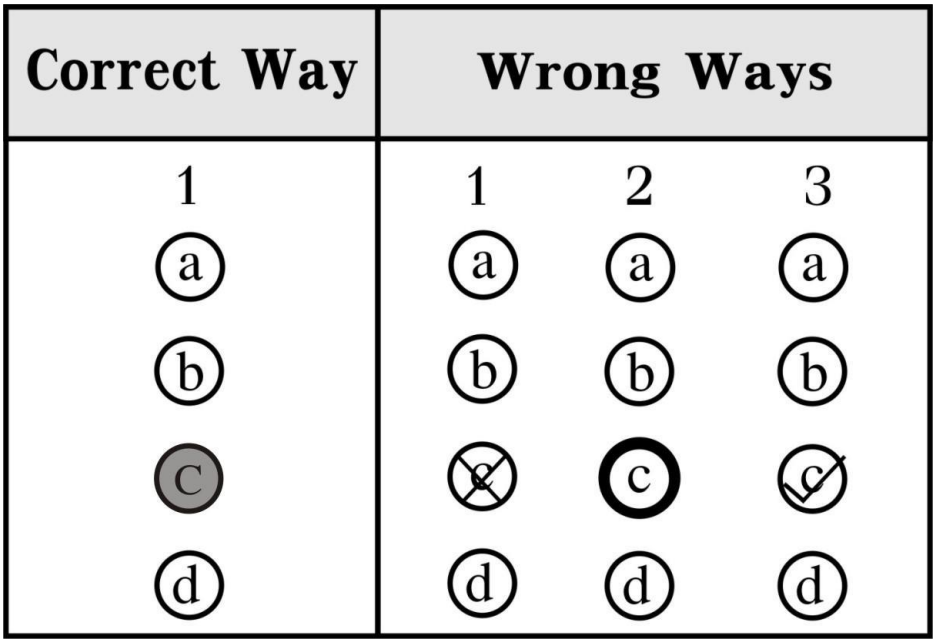
1: Multiple Choice Questions:

The Multiple-Choice Questions with a stem, correct answer and 3 distractors or plausible wrong answers format is designed to assess the content and thinking of students from; R (Remembering); U(Understanding) and A (Applying, Analyzing, Evaluating, Creating). The questions are also classified into three difficulty levels accordingly; D (DIFFICULT), M (MODERATE), E (EASY)

HOW TO ATTEMPT AN MCQ:

MCQ:

- **EACH MCQ HAS FOUR OPTIONS, A, B, C AND D. SELECT ONE OPTION AS THE BEST ANSWER AND FILL IN THE CIRCLE OF THAT OPTION, FOLLOWING THE INSTRUCTIONS GIVEN BY THE INVIGILATOR.**
- **USE BLACK PEN/PENCIL TO FILL IN THE CIRCLE.**



S#	MCQ'S MATERIAL
	1) The branch of chemistry which deals with the emission of radiation from nuclei is called (a) Organic chemistry (b) Inorganic (c) Nuclear chemistry (d) Physical **2) Molten iron on cooling changes into solid iron. It is an example of** (a) Sublimation (b) Melting (c) Boiling (d) Freezing **3) It is the study of hydrocarbon and their derivatives** (a) Physical chemistry(b) Inorganic chemistry (b) (c) Organic chemistry (d) Environmental **4) Neither definite shape nor definite volume is the property of** (a) Solid (b) Liquid (c) Gas (d) None of them **5) The state of matter having definite shape and volume is known as:** (a) Solid (b) Liquid (c) Gas (d) Plasma **6) This reaction is called acid base reactions.** (a) Exothermic (b) Endothermic(c) neutralization (d) none of them **7) The process in which a solid directly change to vapour is known as:** (a) Sublimation (b) Evaporation (c) Boiling (d) Melting

8) By which process does the smell of the cooked food spread out in the surrounding?

(a) Distillation (b) Diffusion (c) Decomposition (d) Condensation

9) Ice cubes slowly vanish from their try while remove from a freezer. This an example of

(a) Evaporation (b) Condensation (c) Melting (d) Sublimation

10) When carbon burns in air, this gas is produced

(a) SO_2 (b) H_2S (c) NH_3 (d) CO_2

11) The temperature at which the vapour pressure of a liquid becomes equal to its externalpressure is called:

(a) Melting point (b) Boiling point (c) Freezing point (d) Triple point

12) The theory that gases consists of molecules, which are in rapid option is known as:

(a) Dalton theory (b) Bohr's theory (c) Kinetic theory (d) None of these

13) Graham law refers to:

(a) B.P. of water (b) gaseous diffusion (c) gas comparison (d) volume change of gases

14) Which is not true about the solid state?

(a) have definite shape and volume (b) have high density and low compressibility

(c) have high attractive forces among molecules (d) have high vapour pressure

15) The branch of science that deals with the properties, composition & structure of matterrefers to:

(a) Chemistry (b) Biochemistry (c) Biology (d) Physics

16) Chemistry deals with:

(a) The changes involved in the matter (b) Principles governing the changes

(c) Composition & structure of matter (d) All of the above

17) Which of the following is false in case of gases?

(a) diffuse easily (b) have mass

(c) don not mix well (d) highly compressible

18) All gases have:

(a) definite shape (b) definite volume

(c) definite shape but no definite volume (d) no definite shape or volume

19) The state of matter that possesses a definite arrangement of particles is called:

(a) gases (b) liquids (c) solids (d) none

20) Which of the followings deals with the matter and the changes occurring in it:

(a) Biology (b) Chemical combination (c) Chemistry (d) Industrial chemistry

21) Some empirical laws known as laws of chemical combinations are:

(a) Law of conservation of mass (b) Law of constant composition

(c) Law of multiple proportion (d) All of these

22) Practical verification of law of conservation of mass studied by:

(a) Landolt's experiment (b) Rutherford experiment

(c) Avogadro's experiment (d) None of the above

23) $AgNO_3 + HCl \rightarrow AgCl + HNO_3$ in the above reaction after the chemical reaction:

(a) Mass of reactants > mass of products (b) Mass of Products > Mass of reactants (c) Mass of reactants = mass of products (d) All of the above

24) In nuclear reaction, parent nucleus break up into smaller nuclei, so that:

(a) Total mass of products is less than total mass of reactant
(b) Total mass of product is greater than total mass of product.
(c) Total mass of product and reactant are equal
(d) None of the above

25) Nuclear reactions are:

(a) Endothermic reactions (b) Exothermic reaction
(c) Ordinary chemical reaction (d) All are correct

26) The relationship between mass that is lost and the energy that is released is given by theequation:

(a) E = hv (b) E = hf (c) $E = mc^2$ (d) $E = m^2{}_C$

27) The relationship between mass and energy was proposed by:

(a) Jabir –bin- Hayyan (b) Robert Boyle (c) Bohr (d) Albert Einstein

28) In Einstein equation, energy is measured unit:

(a) Joule (b) Calorie (c) Ergs (d) Coulomb

29) C is the velocity of light which is:

(a) 3×10^{10} cm / sec (b) 3×10^{9} cm / sec (c) 3×10^{10} m / sec (d) 3×10^{-10} cm / sec

30) Law of constant composition is also known as:

(a) Law of definite proportion (b) Law of fixed proportion
(c) Law of conservation of mass (d) Both a and b are correct

31) Law of fixed proportion was summarized by:

(a) Albert Einstein (b) Louis Proust (c) J.J. Thomson (d) M. Faraday

32) Berzelliu's experiment illustrating the law of:

(a) Conservation of mass (b) Chemical combination
(c) definite proportion (d) All of these

33) The different of oxygen 16 and 32 combine with the fixed mass of C (12g) in CO and CO_2respectively in the ratio of:

(a) 2 : 1 (b) 1 : 2 (c) 1 : 4 (d) 4 : 2

34) Law of reciprocal was proposed by:

(a) Ritcher (b) Rutherford (c) Robert Boyle (d) Avogadro

35) The proportion of two different elements combine with one another shall be either in thesome ratio or simple multiple of it. "This is the statement of _____."

(a) Avogadro's Law (b) Graham's Law (c) Gay lussac's law (d) Reciprocal proportion

36) The mass of single hydrogen atom is:

(a) 1 gm (b) 1.008g (c) 1.6×10^{-24}g (d) none

37) 1 a.m.u. is define as the mass exactly equal:

(a) One twelfth of the mass of C – atom (b) One fifth of the mass of C – atom
(c) One twelfth of the mass of O – atom (d) One fifth of the mass of O – atom

38) In 1785, the French chemist Lavoisier presented the law of:

(a) Law of Conservation of mass (b) Law of Constant composition
(c) Law of Multiple proportion (d) Law of Reciprocal proportion

39) Molecular mass expressed in gram is called

(a) Atomic mass (b) Molar mass (c) Formula mass (d) Equivalent mass

40) 44 a.m.u of CO_2 is equal to it's:

(a) Molar mass number (b) Atomic mass (c) Molecular mass (d) Mass

41) 5 moles of H_2O are equal to:

(a) 80gm (b) 90 g (c) 100g (d) 90a.m.u

42) The formula $KAl(SO_4)_2$ represent the total number of_____elements.

(a) 6 (b) 7 (c) 11 (d) 12

43) The atomic mass of chlorine is 35.5. What is the mass of the two moles of chlorine gas?

(a) 142gm (b) 71gm (c) 35.5gm (d) 2gm

44) The formula for a molecule of chlorine is:

(a) Cl (b) Cl^- (c) Cl^+ (d) Cl_2

45) The formula $Al_2(SO_4)_3$ represent the total number of_____elements.

(a) 7 (b) 13 (c) 17 (d) 19

46) The reactant must undergo a_____change to form new products.

(a) Chemical (b) Physical (c) Nuclear (d) none

Chapter 03 Atomic Structure

47) Neutron Possesses:

(a) Positive charge (b) No charge

(c) negative charge (d) None of the above

48) Though the three fundamental particles are present in almost all elements, one elementsdoes not possess:

(a) Proton (b) Electron (c) Neutron (d) Nucleons

49) Neutron was discovered by:

(a) Thomson (b) Chadwick (c) Bohr (d) Rutherford

50) Mass number of an element represents number of:

(a) Proton and neutrons (b) Proton and electrons

(c) electron and neutrons (d) None of the above

51) Atomic number of atoms represents:

(a) Protons and neutrons (b) Protons only

(c) Protons or electrons in a neutral atom

(d) Electrons and neutrons

52) Neutron is a fundamental Particle carrying:

(a) a charge of +1 unit and a mass of 1 unit (b) no charge and mass of 1 unit

(c) no charge and no mass

(d) a charge of -1 unit and no mass

53) The charge of electron as established by Mullikan in Coulombs?

(a) 6.02×10^{-23} coulombs (b) 1.602×10^{-23} coulombs

(c) 1.602×10^{-19} coulombs (d) 6.02×10^{23} coulombs

54) In an atom, electrons:

(a) move around the nucleus in circular orbits

(b) move around the nucleus in elliptical orbits

(c) from diffused cloud around the nucleus

(d) none of the above

55) Mass of the neutron is:

(a) same as proton (b) much less than that of proton

(c) slightly less than that of proton (d) slightly more than that of proton

56) The energy levels of hydrogen atom in Bohr model are called:

(a) orbits (b) Orbitals (c) ground states (d) none

57) Positive ions are formed from the neutrons atom by the loss of:

(a) Positrons (b) protons (c) electrons (d) neutrons

58) A-Z indicates the number of_____in the nucleus of an atom.

(a) Electron (b) Proton (c) Neutron (d) Alpha particles

59) An atom of sodium has_____protons in it.

(a) 10 (b) 11 (c) 12 (d) 14

60) A hydride ion H^- and helium atom have the same number of

(a) Proton (b) Electron (c) Neutron (d) Valency

61) The electronic configuration of_____is K=2, L =8, M=1:

(a) Lithium (b) Sodium (c) Potassium (d) Rubidium

62) Which of the following element has its electronic configuration K^2 L^8 M^2?

(a) Calcium (C(a) (b) Magnesium (Mg) (c) Neon (Ne) (d) Sodium (N(a)

63) Which particles is the heaviest in the following:

(a) Electron (b) Proton (c) Neutron (d) Alpha particles

64) The nucleus of an atom consists of:

(a) Electrons and protons (b) Protons and neutrons

(c) Electrons and neutrons (d) Only protons

65) Which particles is the lightest in the following:

(a) Electron (b) Proton (c) Neutron (d) Alpha particles

66) The mass of electron is

(a) $9.11x10^{-26}g$ (b) $9.11x10^{-27}g$ (c) $9.11x10^{-28}g$ (d) $9.11x10^{-30}g$

67) The mass of proton is:

(a) $1.67\ x10^{-22}g$ (b) $1.67\ x10^{-23}g$ (c) $1.67\ x10^{-24}g$ (d) $1.67\ x10^{-25}g$

68) Which rays deflected towards negative plate in electric or magnetic field.

(a) alpha rays (b) beta rays (c) gamma rays (d) cathode rays

69) The e/m ratio of the rays_____varies with the nature of gas in the discharged tube.

(a) anode rays (b) beta rays (c) gamma rays (d) cathode rays

70) In Rutherford's Experiment very few alpha particles are:

(a) un-deflected (b) bounced (c) deflected (d) none

71) Atomic Number of Oxygen is

(a) 6 (b) 7 (c) 8 (d) 9

72) Chemical properties of an element depend on the_____in the shells

(a) neutrons (b) electrons (c) protons (d) none of these

73) A proton is how many times heavier than electron

(a) 1636 (b) 1836 (c) 1936 (d) 1736

74) Radioactive rays are of:

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

75) Who put forward atomic model in 1911?

(a) Rutherford (b) Bohr (c) James Chadwick (d) Goldstein

76) The mass of an atom is concentrated in the

(a) shell (b) orbit (c) Nucleus (d) Energy levels

77) The maximum number of electrons in the shell is found out by the formula of:

(a) n^2 (b) $2n^2$ (c) n (d) 2n

78) Which of the following ions has the same number of electron as an argon atom of atomicnumber 18?

(a) Na^+ (b) O^{-2} (c) K^+ (d) N^{-3}

79) A sub atomic particle which has one unit mass and one unit positive charge is known as

(a) hydrogen atom (b) neutron (c) electron (d) proton

Chapter 04 Periodicity of Elements

80) It is the longest period of the modern periodic table:
(a) Third period (b) Fourth period (c) Fifth period (d) *Sixth period

81) It is the highest value of electro negativity
(a) *Flourine (b) Chlorine (c) Bromine (d) Iodine

82) The vertical column of the periodic table are called
(a) Periods (b) Series (c) *Groups (d) Rows

83) The most reactive metal is
(a) *Na (b) Cu (c) Fe (d) Ca

84) Iodine belongs to this family
(a) Boron (b) Carbon (c) Nitrogen (d) *Halogen

85) Which pair of element is chemically similar?
(a) K,Cr (b) Cu, ca (c) *F, Cl (d) N, O

86) Group I-A element are called
(a) Halogens (b) *Alkali metal (c) Alkaline earth metal (d) Noble gases

87) In the periodic table, the element have been arranged in the order of increasing
(a) *Atomic number (b) Mass number (c) Chemical reactivity (d) Density

88) Which of the following is a good conductor of heat and electricity?
(a) Carbon (b) Hydrogen (c) Chlorine (d) *Copper

89) How many elements are there in the third period of the periodic table?
(a) 2 (b) *8 (c) 18 (d) 28

90) There are_____elements in the sixth period of the periodic table.
(a) 2 (b) 8 (c) 16 (d) *32

91) There are_____elements in the third period of the periodic table.
(a) 2 (b) *8 (c) 18 (d) 20

92) The symbol Mg represents the element
(a) Manganese (b) *Magnesium (c) Mercury (d) Molybdenum

93) Element differ from one another according to the number of
(a) *Protons (b) Neutrons (c) Isotopes (d) a.m.u

94) __have seven electrons in their outer most shells.
(a) Alkali metal (b) transition element (c) Noble gases (d) *Halogens

95) There are_____elements in the first period of the periodic table.
(a) *2 (b) 8 (c) 18 (d) 32

96) All halogens have_____electrons in their outer most shells.
(a) 6 (b) *7 (c) 8 (d) 5

97) __is a noble gas.
(a) Hydrogen (b) *Helium (c) Nitrogen (d) Oxygen

98) The incomplete period in the periodic table is:
(a) *7 (b) 6 (c) 3 (d) 1

99) Which of the following is a radioactivity element
(a) *Ra (b) Ba (c) Mg (d) Bi

Chapter 05 Chemical Bonding

100) It is an ionic compound

(a) H_2O (b) CO_2 (c) NH_3 (d) NaCl

101) The force which hold atom together in a form of compound or molecules is called

(a) Ionic bond (b) Covalent bond (c) Co-ordinate (d) Chemical bond

102) It is the highest value of electro negativity

(a) Flourine (b) Chlorine (c) Bromine (d) Iodine

103) This bond is also called electrovalent bond

(a) Covalent bond (b) Ionic bond (c) Polar bond (d) Hydrogen bond

104) Which one of the following substance contains covalent bond but also conduct electricity

(a) Sodium (b) Iron (c) Copper (d) Graphite

105) Which of the following compounds contains all the three chemical bond i.e. ionic, covalentand co-ordinate covalent bond?

(a) CO_2 (b) NaCl (c) CH_3COOH (d) NH_4Cl

106) Which of the following molecule contains triple covalent bond?

(a) H_2 (b) O_2 (c) Cl_2 (d) N_2

107) What type of bonding is found in CH_4 molecule?

(a) Covalent bond (b) Hydrogen bond (c) Ionic bond (d) Metallic bond

108) Which of the following molecule contains double covalent bond?

(a) NH_3 (b) CO_2 (c) HCl (d) CH_4

109) Elements whose electronegativites are 1.2 and 3.0 form:

(a) covalent bond (b) ionic bond (c) co – ordinate bond (d) metallic bond

110) Polar Compounds are soluble in:

(a) Organic solvent (b) non polar solvents (c) polar solvents (d) acids

111) Cation is produced when:

(a) electrons is lost by the atom (b) electron is gained by the atom

(c) proton is lost by the atom (d) proton is gained by the atom

112) In covalent bonding:

(a) Transference of electrons takes place (b) Sharing of electrons takes place

(c) Electrons are shared by one atom only (d) None

113) Covalent compounds are soluble in:

(a) inorganic solvents (b) organic solvents (c) concentrated acid (d) dilute acids

114) In a double bond connecting tow atomic there is a sharing of:

(a) 1 electrons (b) 2 electrons (c) 4 electrons (d) 6 electrons

115) In a crystal, cation and anions are held together by:

(a) electrons (b) nuclear forces (c) electrostatic force (d) covalent bonds

116) If the bond has negligible ionic character, the nature of bond is:

(a) Pure covalent (b) partial ionic (c) partial covalent (d) co – ordinate covalent

117) The bond in MgO is

(a) Ionic bond (b) Covalent bond (c) Chemical bond (d) Co-ordinate covalent bond covalent bond

118) Double covalent bond is denoted by:

(a) Single short line (b) two short line (c) three short line (d) all of the above

119) The atom which supplies the pair of elections for bond formation is known as

(a) acceptor (b) receiver (c) donor (d) none of these

120) Co-ordinate covalent bond is always formed between the two:

(a) like atom (b) unlike atom (c) similar atom (d) like and unlike atom

121) The shared pair of electrons in a dative bond is denoted by:

(a) A Single Line (b) double short line (c) An equal sign (d) An Arrow

122) Electronegativity value of H is

(a) 3.0 (b) 2.1 (c) 2.5 (d) 3.5

123) Mg atom has

(a) 1-Valence Electrons (b) 8 Valence Electrons

(c) 2 Valence Electrons (d) 6 Valence Electrons

124) The reactions of _____ compounds are usually very fast.

(a) Ionic (b) Covalent (c) Polar (d) Non-polar

125) Which of the following is true of ionic compounds?

(a) the conduct electrically in the solid state

(b) they are generally more soluble in polar solvents than in non-polar solvents

(c) they are non-electrolytes in the molten states (d) all are correct statements

Chapter 07 Solution & Suspension

126) Homogenous mixture of solute and solvent is called a _____

(a) Suspension (b) Solution (c) Solute (d) Solvent

127) Brass of a solution of:

(a) Copper and lead (b) Copper and Tin (c) Copper and Silver (d) Copper and Zinc

128) The Solution that contains 1 mole of solute in 1 dm^3 of solution is called a __ solution

(a) Normal (b) Saturated (c) Molal (d) Molar

129) A substances formed by mixing only two substance is called a __solution,

(a) Binary (b) Unified (c) Colloidal (d) Saturated

130) The Solibility of _____ in liquid increases with rise in temperature,

(a) Solids (b) Liquids (c) Gases (d) Metals

131) The no of moles of solute dissolved in 1 dm^3 of a solvent is _____ called :

(a) Molarity (b) Normality (c) Mole fraction (d) Molality

132) The number of moles of a solute dissolved in 1 kg of solvent is called __

(a) Molarity (b) Normality (c) Mole fraction (d) Molality

133) The _____ of a substance is the amount of substance that dissolved as a giventemperature.

(a) Crystallization (b) Solubility (c) Distillation (d) Filtration

134) Solubility is usually expressed in grams of solute per _____ gram of solvent

(a) 10 (b) 100 (c) 1000 (d) 10000

135) Suspensions are _____ because at least two substance can be clearly identified

(a) Homogenous (b) heterogeneous (c) uniform (d) solution

136) If 0.4 is the mole fraction of solute the mole fraction of solvent would be:

(a) 0.1 (b) 0.6 (c) 0.9 (d) 1.0

137) It is define as the number of moles of solute dissolves in one litre of solution.

(a) Molarity (b) Molality (c) Normality (d) Mole fraction

138) The suspend particles in suspension are generally of the size

(a) 10nm (b) 100nm (c) 1200nm (d) 1 nm

139) The sum of the mole fraction of solute and solvent is equal to

(a) 3 (b) 2 (c) 1 (d) 0

140) A suspension of droplets of one liquid in to another in which it is not soluble is called

(a) Smoke (b) Mud (c) Foam (d) Emulsion

141) A suspension of the particles of carbon in air is called

(a) Smoke (b) Mud (c) Foam (d) Emulsion

142) Solubility is defined as the amount of solute in solvent at a given temperature, dissolved in _____of the solvent.

(a) 20g (b) 100g (c) 10g (d) 2000g

143) The solubility of a gas in a liquid_____with the rise in temperature.

(a) increase (b) decrease (c) normal (d) none of these

144) When the water is solvent the solution is called_____solution

(a) Saturated (b) unsaturated (c) Aqueous (d) super saturated

145) Which type of mixture is cloud ?

(a) gas in gas (b) gas in liquid (c) solid in gas (d) liquid in gas

146) Which type of mixture in air?

(a) gas in gas (b) gas in solid (c) gas in liquid (d) liquid in solid

147) How many types of solution are produced on mixing, solid, liquid and gas?

(a) 8 (b) 9 (c) 7 (d) 6

148) The solubility of sugar in water at 100^0C is

(a) 179g / 100 ml (b) 487g / 100 ml (c) 189g/100 ml (d) 478g /100ml

149) It is heterogeneous mixture:

(a) solution (b) suspension (c) solute (d) none of these

150) There are how many ways of representing percent concentration.

(a) two (b) four (c) one (d) three

151) One lite is equal to

(a) $100cm^3$ (b) $500cm^3$ (c) $10cm^3$ (d) $1000cm^3$

Chapter 08
Electrochemistry

152) Which of the following aqueous solution will conduct electric current quite well?

(a) Sugar (b) Glycerol (c) Pure Water (d) HCl

153) The electric charge for electrode deposition of 1 g equivalent of a substance is:

(a) 1 ampere / sec (b) 1 ampere / hr

(c) 96500 C / sec (d) Charge on 1 mole of substance

154) Solid NaCl is a bad conductor of electricity because:

(a) in solid state, there are no electrons (b) In solid state, there are no ions (c) In solid NaCl, there is no migration (d) solid NaCl is covalent

155) HCl solution conduct electricity because

(a) it is ionic bond (b) its covalent bond (c) its form dative bond (d) It forms I- I bonds

156) The substances that conduct electricity in molten states are

(a) electrolysis (b) non-electrolysis (c) Fused salt (d) Bad conductor

157) Water and non – electrolyte both conduct electricity on dissolving a small amount of:

(a) NaCl (b) Sugar (c) Oxygen (d) Hydrogen

158) Unit of Faraday is:

(a) $C\ mol^{-1}$ (b) $C\ Sec^{-1}$ (c) Columb (d) Ampere

159) One Faraday is equal to:

(a) 96.5 $Cmol^{-1}$ (b) 96500 $Cmol^{-1}$ (c) $6.02 \times 10^{23}\ mol^{-1}$ (d) 96.5×10^{23} $Cmol^{-1}$

160) Which one of the following is an electrolyte?

(a) Petrol (b) Ethyl alcohol (c) Benzene (d) Sodium chloride

161) It is the unit of electric current

(a) Volt (b) Coulomb (c) Faraday (d) Ampere

162) How many coulombs are there in one faraday?

(a) 96600 (b) 96500 (c) 96650 (d) 96800

163) The S.I unit of time in _____

(a) Hour (b) minute (c) Second (d) none of these

164) The branch of chemistry that deals with the study of relationship between electrical andchemical energy is called

(a) Thermochemistry (b) Physical chemistry (c) Electrochemistry (d) Analytical chemistry

165) The quantity of charge which deposits or liberates exactly one-gram equivalent of asubstance

(a) Volt (b) Coulomb (c) Faraday (d) Ampere