ALL QUESTIONS ARE COMPULSORY

TIME ALLOTTED: ONE HOUR 15 MINS (INCLUSIVE OF READING TIME)

SELECT THE CORRECT OPTION FOR EACH OF THE FOLLOWING QUESTIONS

THE MARKS INTENDED FOR QUESTIONS ARE GIVEN IN BRACKETS ()

1. Elements with same number of valence shell in a periodic table are placed in **(1)**

a) different group b) same period c) different period d) same group

Answer: _____

2. Ionic bonding is seen in Answer: _____ **(1)**

a) Methane b) Hydrogen c) Ammonia d) Sodium oxide

3. The colour of the precipitate formed when ferrous ions reacts with ammonium hydroxide solution **(1)**

a) Blue b) Reddish brown c) Dirty Green d) White

Answer: _____

4. Hydronium ion is formed when a molecule of water combines with **(1)**

a) Hydrogen atom b) Proton c) Hydrogen molecule d) Oxygen atom

Answer: _____

5. Cathode is a reducing electrode because **(1)**

a) It has less number of electrons. b) It has deficiency of electrons.

c) Cations gains electrons from cathode. d) Anions lose electrons to cathode.

Answer: _____

6. Which one of the following statements is not correct? **(1)**

a) Pure water does not allow a current to flow through it.

b) The electrolyte only conducts when in molten state.

c) Electrode that react with the electrolytes are said to be active.

d) Ions must be present in the electrolyte in order to conduct electricity.

Answer: _____

7. Arrange the following in increasing order of metallic character Ca, Na, Li, K, Pb **(1)**

a) Li < Na < K <Rb< Cs b) Li < Na < Cs < K <Rb c) K <Rb< Cs < Li < Na d) Ca< Li < Na < K <Rb

Answer: _____

8. The element with highest ionization potential is Answer: _____ **(1)**

a) Hydrogen b) Chlorine c) Radon d) Magnesium

9. Higher the pH value of a solution, the more _____ it is. Answer: _____ **(1)**

a) Atomic b) Acidic c) Basic d) Neutral

10. A metal oxide that is not a base Answer: _____ **(1)**

a) CaO b) PbO c) PbO_2 d) CuO

11. Sodium hydroxide is a monoacidic base. Why? **(1)**

a) It combines with only one hydrogen ion. b) Because it has single electron at its valence shell.

c) Because it has double electron at its valence shell. d) Because it has sodium ion.

Answer: _____

12. Which gas is evolved when HCl reacts with calcium carbonate? Answer: _____ **(1)**

a) H_2 b) CO_2 c) SO_2 d) H_2S

13. Covalent bond is formed between Answer: _____ **(1)**

a) Metal and Non-metal b) Metals c) Two nonmetals d) Non-metal and an ion

14. Elements which gain electrons is known as Answer: _____ **(1)**

a) Electropositive elements b) Electronegative elements c) Covalent atom d) Anion

15. The type of bonding in HCl molecule is Answer: _____ **(1)**

a) Polar covalent bond b) Pure covalent bond c) Non-polar covalent bond d) Hydrogen bond

16. Which of the following is not a typical property of an ionic compound? **(1)**

a) High melting point b) Conducts electricity in the molten and aqueous state

c) They are insoluble d) They exist as oppositely charged ions even in solid state

Answer: _____

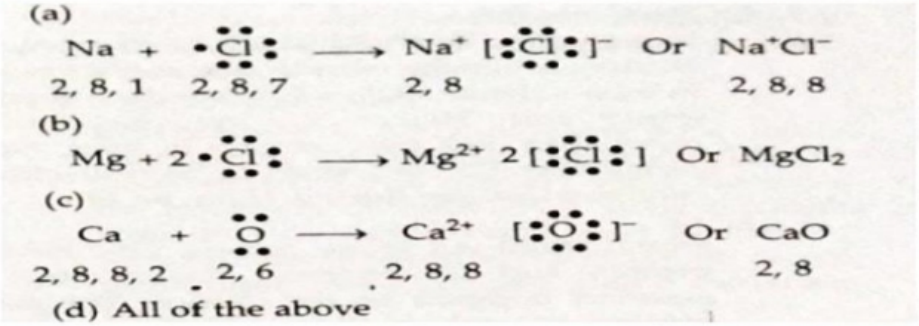
17. How many pairs of bond pair and lone pair electrons are there in methane? **(1)**

a) 4 bond pair and zero lone pair b) 8 bond pair and zero lone pair

c) 6 bond pair and zero lone pair d) 4 bond pair and 4 lone pair

Answer: _____

18. Which of the following electron dot structure is correct? **(1)**



Answer: _____

19. Zinc chloride solution reacts with ammonium hydroxide solution to give a ____ coloured precipitate **(1)**

a) Blue b) Green c) Yellow d) White

Answer: _____

20. A chloride which forms a precipitate that is soluble in excess of ammonium hydroxide **(1)**

a) Calcium chloride b) Ferric chloride c) Ferrous chloride d) Copper chloride

Answer: _____

21. The metal oxide which can react with acid as well as alkali is Answer: _____ **(1)**

a) Silver oxide b) Copper (II) oxide c) Aluminium oxide d) Calcium oxide

22. An acid which is not a hydracids is Answer: _____ **(1)**

a) H_2S b) H_2SO_3 c) HBr d) HCl

23. The duplet or octet structure of valence shell makes an _____ of an element chemically _____. **(1)**

a) atom, active b) atom, inactive c) ions, active d) ions, inactive

Answer: _____

24. Caustic soda reacts with zinc oxide to form **(1)**

a) $ZnO + 2NaOH$ -------> $Na_2ZnO + H_2O$ b) $ZnO + 2NaOH$ -------> $Na_2ZnO_2 + H_2$

c) $ZnO + 2NaOH$ -------> $Na_2ZnO_2 + H_2O_2$ d) $ZnO + 2NaOH$ -------> $Na_2ZnO_2 + H_2O$

Answer: _____

25. In a voltaic cell, the salt bridge **(1)**

a) is not necessary in order for the cell to work.

b) acts as a mechanism to allow mechanical mixing of the solutions.

c) allow charge balance to be maintained in the cell.

d) is tightly plugged with firm agar gel through which ions cannot pass.

Answer: _____

26. During electrolysis of NaCl, the gas discharged at the anode is Answer: _____ **(1)**

a) Chlorine b) Oxygen c) Hydrogen d) Natrium

27. During silver plating of an article using potassium argentocyanide as an electrolyte, the anode material should be Answer : _____ **(1)**

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

28. The half reaction that occurs at the anode during the electrolysis of molten sodium bromide is **(1)**

a) $2\,Br^- \longrightarrow Br_2 + 2e^-$ b) $Br_2 + 2e^- \longrightarrow 2Br^-$ c) $Na^+ + e^- \longrightarrow Na$ d) $Na \longrightarrow Na^+ + e^-$

Answer: _____

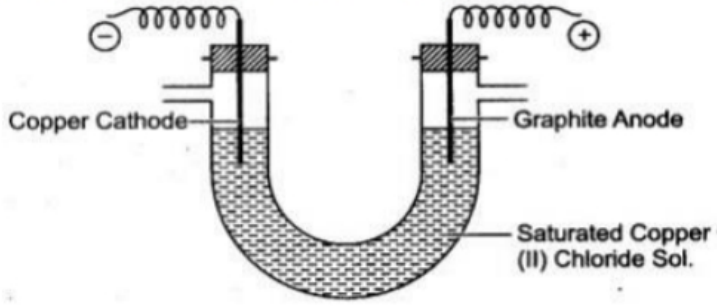
29. Mercury is a liquid and allows the flow of electricity though it, is not an electrolyte because **(1)**

a) Breaks up into cations and anions. b) Due to the presence of free electrons in its penultimate shell.

c) New substance is formed. d) Mercury is shining.

Answer: _____

30. Study the given figure and answer the questions that following: **(1)**



i) Write the equation representing the reaction that occurs

a) At the cathode $Cu - 2e^- \longrightarrow Cu^{2+}$
At the anode $Cu^{2-} - 2e^- \longrightarrow Cu^{2+}$

b) At the cathode $Cu^+ + 2e^- \longrightarrow Cu$
At the anode $Cu^{2+} + 2e^- \longrightarrow Cu$

c) At the cathode $Cu^{2+} + 2e^- \longrightarrow Cu$
At the anode $Cu - 2e^- \longrightarrow Cu^{2+}$

d) Both a and b

Answer: _____

_____

31. During the electrolysis of molten lead bromide which of the following takes place. **(1)**

a) Bromine is released at the cathode b) Lead is deposited at the anode

c) Bromine ions gain electrons d) Lead is deposited at the cathode

Answer: _____

32. The metallic electrode which does not take part in an electrolytic reaction? (Inert electrode) **(1)**

a) Cu b) Ag c) Pt d) Ni

Answer: _____

33. In terms of acidic strength, which one of the following is in the correct increasing order? **(1)**

a) Water < Acetic acid < Hydrochloric acid b) Water < Hydrochloric acid < Acetic acid

c) Acetic acid < Water < Hydrochloric acid d) Hydrochloric acid < Water < Acetic acid

Answer: _____

34. Methyl orange is **(1)**

a) Red in acidic medium, yellow in basic medium

b) Yellow in acidic medium, red in basic medium

c) Colourless in acidic medium, pink in basic medium

d) Pink in acidic medium, colourless in basic medium

Answer: _____

35. Study the given figure and answer the questions that follow **(2)**

(i) Name the ions which will migrate to cathode

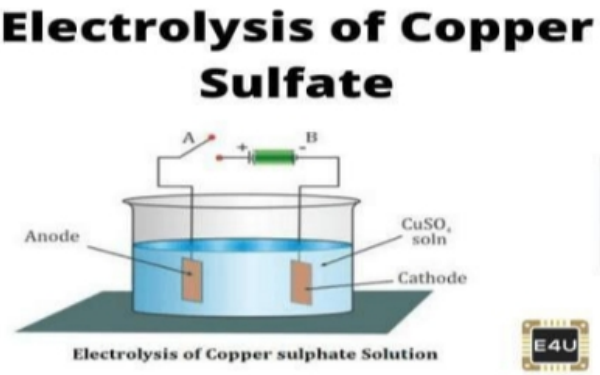
a) Hydrogen ions (H^+)

b) Copper ions (Cu^{2+})

c) Chloride ions (Cl^-)

d) Both a and b

Answer: _____



(ii) Name the ions which will migrate to anode

a) Hydroxyl ions (OH^-)

b) Chloride ions (Cl^-)

c) Both a and b

d) Hydrogen ions (H^+)

Answer: _____

36. M is a metal above hydrogen in metal activity series. The oxide of M has a formula M_2O. The oxide when dissolved in water forms a corresponding hydroxide, which is a good conductor of electricity. In the above context answer the following questions by choosing the correct option. **(4)**

i) The kind of chemical bond between M and O is Answer: _____

a) ionic b) covalent c) co-ordinate d) molecular

ii) The number of electrons in the valence shell of M are: Answer: _____

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

iii) The M belongs to group: Answer: _____

a) two b) one c) thirteen d) sixteen

iv) The reaction taking place at cathode on the passage of electric current is: Answer : _____

a) $M - 2e^- \rightarrow M^{2+}$ b) $M - e^- \rightarrow M^+$ c. $M^+ + e^- \rightarrow M$ d. $M^{2+} + 2e^- \rightarrow M$