

GOVERNMENT POLYTECHNIC, CHAPRA

ASSIGNMENT QUESTIONS

SUBJECT: BASIC CHEMISTRY

SEMESTER :- 1ST and 2ND

BRANCH:- Civil Engg./Electronics Engg. /Automobile Engg./Mechanical Engg./
Electrical Engg./Computer Sc.Engg.

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Type -1 (Each question carries 4 marks)

1. Explain Pauli's exclusion principle.
2. Explain Hund's Rule of spin multiplicity.
3. Write electronic configuration of the following
(a) Cr (b) Cu (c) Cu^+ (d) Fe^{++} (e) Fe^{+++} (f) Mn^{++}
4. Explain vulcanization of rubber.
5. What do you mean by equivalent conductivity and molar conductivity.
6. What is the difference between potential difference and electromotive force ?
7. Explain electron affinity of chlorine is higher than that of fluorine.
8. Explain Bohr's model of an atom.
9. What is the function of salt bridge in electrochemical cell ?
10. What do you mean by co-ordinate covalent bond.
11. Write down the name of four region of atmosphere.
12. What is the difference between natural rubber & synthetic rubber ?
13. Explain Arrhenius theory of ionization.
14. Find all the quantum number of last electron of the following
(a) K (b) N (c) Cl (d) O (e) Rb
15. Explain Bio chemical oxygen demand.
16. What do you mean by water pollution.
17. What is the difference between thermoplastic & Thermosetting.
18. An element with mass number 81 contain 31.7% more neutrons than proton.
What is the symbol and atomic number?
19. What is role of Cryolite in the metallurgy of Al
20. Write the monomers of the following polymers
(a) Orlon (b) terylene (c) Neoprene (d) Nylon-6,6 (e) Nylon-6
(f) Buna-S (g) Teflon (h) Natural Rubber

Part-2 (Each question carries 6 marks)

1. Write down names and formula of important ores of Copper. How copper is extracted from copper pyrites ore ?
2. Write down names and formula of important ores of Iron. How Iron is extracted from Red haematite ore ?
3. Write down names and formula of important ores of Al. How Al is extracted from Bauxite ore by means of Hall process ?
4. State and explain Faraday's law of electrolysis. Explain electro chemical equivalent of substance.
5. What do you mean by secondary cell. Write down cell reaction of discharging and charging of lead storage battery.
6. The resistance of a wire is 10 ohm it is stretched to double its length calculate new resistance.
7. The resistance of conductivity cell filled with 0.1M KCl solution is 100ohm. Calculate molar conductivity if cell constant is 1.29cm^{-1}
8. Write cell reaction $Zn/Zn^{++} \parallel Cu^{++}/Cu$
9. Write cell reaction $Fe/Fe^{++} \parallel Ag^+/Ag$
10. Write cell reaction $Cr/Cr^{+++} \parallel Pb^{++}/Pb$
11. Write cell reaction $Zn/Zn^{++} \parallel \frac{1}{2}Cl_2/Cl^-$
12. Write cell reaction $Zn/Zn^{++} \parallel H^+/\frac{1}{2}H_2$
13. Write cell reaction $Zn/Zn^{++} \parallel MnO_4^-/Mn^{++}$
14. An electric current is passed through $CuSO_4$ and $AgNO_3$ solution connected in series. If any time 0.7gm copper is deposited, then how much Ag will be deposited ? $[Cu = 63.5$
15. Explain ionization energy, electron affinity and electro negativity. How are these related.
16. Explain dipole moment of NH_3 is higher than that of NF_3
17. Calculate the emf of the cell reaction
 $Cu + 2Ag^+ \rightarrow Cu^{++} + 2Ag$
When $[Cu^{++}] = 0.01M$ and $[Ag^{++}] = 0.01M$.
The value of E° of the cell is 0.46 volt.
18. How much copper was deposited by passing electric current of 0.5ampere for 30 minutes through solution of $CuSO_4$
19. Define electrolyte and non electrolyte. What is the difference between metallic conduction and electrolytic conduction.
20. Write short notes of the following
(a) Depletion of ozone layer (b) Global Warming (c) Green house effect
(e) Acid rain (f) Ohm's law (g) Alloy (h) Electrochemical series
(i) Salt bridge (j) Air Pollution