Scheme - G

Sample Question Paper

Course Name : All Branches of Diploma in Engineering and Technology. **17103**

Course Code : AE/CE/CH/CM/CO/CR/CS/CW/DE/EE/EP/IF/EJ/EN/ET/EV/EX/IC/ IE/IS/ME/MU/PG/PT/PS/CD/CV/ED/EI/FE/IU/MH/MI/DC/TC/TX

Semester : First

Subject Title : Basic Science (Chemistry)

Marks : 50 **Time: 2Hrs.**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q1. Attempt any NINE of the following: **18 Marks**

a) Write isotopes of carbon. Give application of any one of them.

b) State Hund's rule of maximum multiplicity.

c) Why sodium is electropositive? Explain with electronic configuration.

d) Define ionization and electrolysis.

e) Distinguish between strong and weak electrolyte.

f) State Faraday's first law of electrolysis.

g) Calculate the pH value of a solution having hydrogen ion concentration $1x10^{-5}$gm ions per liter.

h) Define the term mineral and ore.

i) Classify alloys. Give one example of each class.

j) Write composition of Babbit metal.

k) Name any four synthetic rubber.

l) Give the constituents of plastic?

Q2. Attempt any FOUR of the following: 16 Marks

a) State Aufbau principle. Write electronic configuration of $11^{Na^{23}}$, $24^{Cr^{52}}$

b) Describe formation of $CaCl_2$ and predict valency of calcium and chlorine atoms in $CaCl_2$.

c) Differentiate between Isotopes and Isobars.

d) Describe electrolysis of $CuSO_4$ solution using copper electrodes.

e) Define degree of ionisation. Explain the factors affecting degree of ionisation.

f) When the same amount of current is passed through the solution of $CuSO_4$ and $ZnSO_4$, then 0.7 and 0.7164 gms of Cu and Zn get deposited on respective electrodes. Calculate equivalent weight of Zn(atomic wt. Of Cu= 63.5).

Q3. Attempt any FOUR of the following: 16 Marks

a) Name the physical method used for concentration of sulphide ore. Explain it with diagram.

b) Define ductility, tensile strength, weldability, and machinability.

c) Write four purposes of making alloys.

d) Differentiate between thermosoftening and thermosetting plastics.

e) Describe vulcanisation of rubber.

f) Give the characteristics of insulating materials.
