Note: Section I is compulsory. Attempt any three (3) questions from Section II.

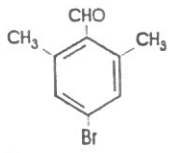
(SECTION – I)

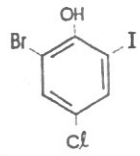
2. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i. Why diamond is a non-conductor and graphite is fairly a good conductor?
ii. How the classification of elements in different blocks helps in understanding their chemistry?
iii. Why is the aqueous solution of Na_2CO_3 alkaline in nature?
iv. Write borax-bead test.
v. Write the reaction of Aℓ with
   a) H_2SO_4 b) NaOH
vi. What is chemical garden?
vii. What is the effect of dil HNO_3 on
   a) M_g b) Cu
viii. HNO_2 acts as reducing agent, show it with two examples.
ix. How does H_2SO_4 react with
   a) HN_3 b) H_2S
x. What is lithosphere?
xi. How O_3 layer is destroyed by CCl_2F_2 ?
xii. What is catalytic cracking?

3. Write short answers to any EIGHT questions. **(2 x 8 = 16)**

i. What is Zwritten ion draw its structure?
ii. What is difference between essential and non-essential amino acids?
iii. Justify that Tollen's test is called as silver mirror test.
iv. Give reaction of aldehyde with alcohol to produce hemi acetal and acetal.
v. Draw structures of
   a) Methoxy benzene b) n-Propyl ether
vi. Write reactions of phenol with
   a) Bromine water b) Conc HNO_3
vii. Convert C_2H_5Br to T.E.L .
viii. Write names of the following compounds by I.U.P.A.C. system





ix. How C_2H_2 reacts with
   a) $\frac{10\%H_2SO_4}{HgSO_4}$ b) HBr
x. Write names of the following compounds by I.U.P.A.C. system
   a) $(CH_3)_2\ C{=}CH_2$ b) $CH \equiv C - CH = CH - C \equiv CH$
xi. Define Alloy with one example.
xii. Give reason that M.P and B.P show maximum value in the middle of 1^{st} transition series.

(TURN OVER)

4. Write short answers to any SIX questions. **(2 x 6 = 12)**

i. Why does iodine show metallic luster?
ii. Write any two applications of noble gases
iii. Write reactions of bleaching powder with
a) dil. H_2SO_4 b) NH_3
iv. What are polyamide resins? Give an example.
v. What is meant by iodine number and acid number of a fat or an oil?
vi. Write structure formula of cholesterol.
vii. Write any two essential qualities of a good fertilizer.
viii. What is the role of phosphorus in proper growth of plants?
ix. What are micronutrients required for proper growth of plants?

(SECTION - II)

5. (a) Define ionization energy, give an example. Also discuss its trend in the periodic table. 4
(b) Explain the peculiar behavior of Lithium, give eight points. 4
6. (a) Describe the Bessemer process for the manufacture of steel. 4
(b) What is acid rain? How does it affect our environment? 4
7. (a) Write a brief note on reforming of petroleum. 4
(b) Write down any two reactions in which benzene behaves as unsaturated 4
and two reactions in which benzene behaves as saturated hydrocarbon.
8. (a) Describe the preparation of ethane (CH_3-CH_3) by each of the following methods: 4
i) by decarboxylation of monocarboxylic acids ii) by Kolbes electrolytic method
(b) How is methyl alcohol obtained on large scale? How is it distinguished from ethyl alcohol? 4
9. (a) How will you make the following conversions? 4
i) Acetic acid into propanoic acid ii) Acetone into tertiary butyl alcohol
(b) Explain the mechanism of addition of sodiumbisulphite to acetone? 4
What is the utility of this reaction?