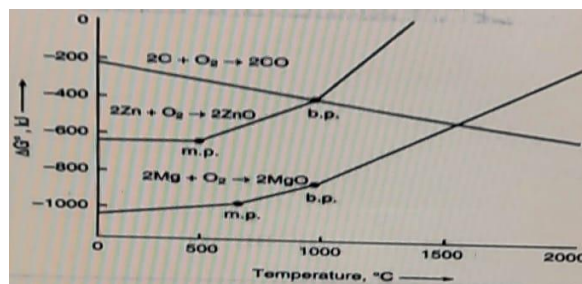


Answer any five questions:

5 X 2 = 10

Q1.: Considering the Ellingham diagram and answer the following questions:



(i) At what temperature zinc and carbon have equal affinity for oxygen ?

(ii) Which of the following reactions will be spontaneous in maximum extent at 1100^oC ?

(a) $\text{MgO} + \text{C} \rightarrow \text{Mg} + \text{CO}$

(b) $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$

(c) $\text{MgO} + \text{Zn} \rightarrow \text{Mg} + \text{ZnO}$

(d) $\text{ZnO} + \text{Mg} \rightarrow \text{MgO} + \text{Zn}$

Q2.: What are silicon, silicones, silanes and silicates ?

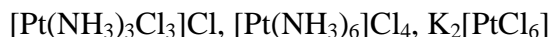
Q3.: How many five and six member rings are there in C_{60} and C_{70} ?

Q4.: Why helium is often found in beryl ?

Q5.: "Interhalogen compounds have even number of halogen atoms, but polyhalides have odd number of halogen atoms"-comment.

Q6.: One red coloured complex(A) slowly transforms into another yellow coloured complex(B) on long standing. The analysis shows both A and B have the composition- $\text{Co}:\text{NH}_3:\text{Cl}:\text{NO}_2 = 1:5:2:1$. One equivalent of each complex produces two equivalent of AgCl on treatment with AgNO_3 . Write the possible formula of A and B (no explanation needed). What type of isomerisms exists between A and B ?

Q7.: Arrange the following complexes in order of their molar conductivities with brief explanation:



Send your answer script in .pdf format within 12.30 pm mentioning your University Roll No. in the subject line to gtn.icbu@gmail.com