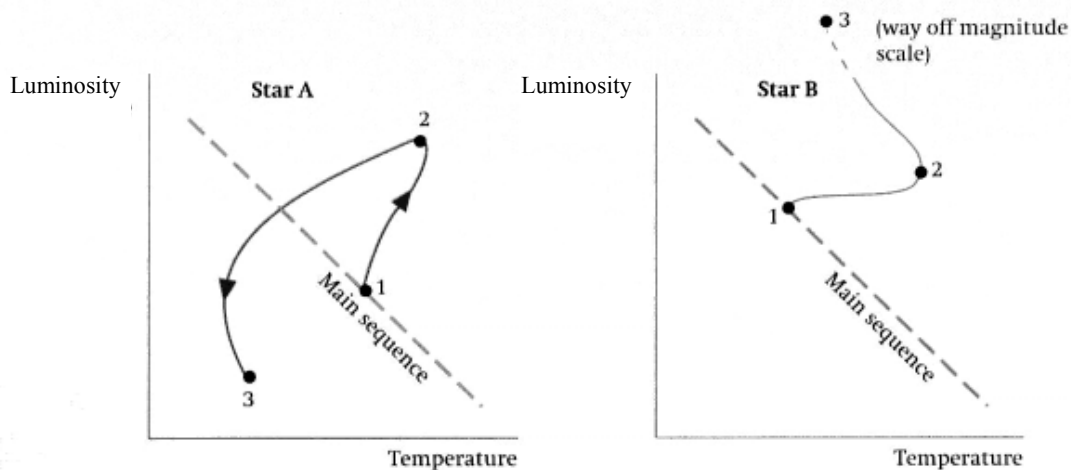
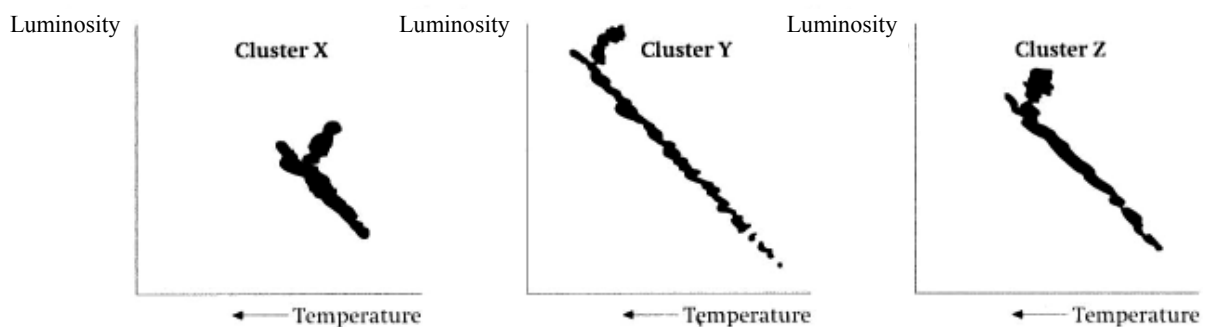


## The Life-histories of stars - Problem Questions

1. The HR diagrams in *figure 4.10* show the life-histories of two stars A and B. Describe the life-histories of the two stars and suggest an explanation of the differences between them.  
(note - the HR diagrams do not of course indicate how long the stars spend at various stages of their life history.)
2. Stars tend to occur in clusters, all the stars in the same cluster being approximately the same age. The HR diagram for the stars in a cluster often gives an indication of its age (*figure 4.11*). Put the clusters X, Y and Z in order of age, from the youngest to the oldest. Give reasons for your answer.
3. Astronomers can use spectroscopy to determine the chemical composition of stars. The spectral lines in the stars from young clusters show that they are metal-rich. These stars are known as Population I stars. Stars from older clusters have spectra with only very weak absorption lines for metal elements. These Population II stars are metal-poor. Suggest an explanation for these differences.



● **Figure 4.10** H-R diagrams showing life-histories of two stars.



● **Figure 4.11** H-R diagrams for three star clusters.