1. **Explain why the 12 $M_\odot$ star loses mass according to Figure 1.**

   The mass falls sharply when the outer layers of the star become convective, and the star begins to shed mass.

2. **Why would stellar cores increase their spin rate as they move into evolved stages?**

   As stars evolve off the main sequence, their outer envelope expands, while their cores contract. This would cause the core rotation rate to speed up as a result of conservation of angular momentum.

3. **How much (by what factor) does Figure 5 predict that the spin rates of the inner core would increase from H burning to C burning?**

   The period drops from $\sim 10^5$ seconds for H-burning to ~ 10 seconds for C-burning. This gives an increase in the spin rate by a factor of around 10^4.

4. **From the same figure, by what factor do gravity waves halt such spinning up?**

   Gravity waves halt this by a factor of 10^2.