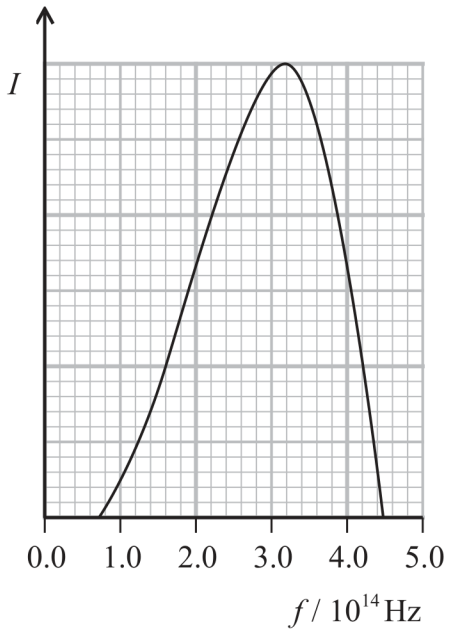
16 Gliese-876 is a main sequence star in the constellation Aquarius.

The graph shows how the intensity I of radiation emitted from Gliese-876 depends upon frequency f.



(a) Show that the surface temperature of Gliese-876 is about 3000 K.

(4)

(b) As a red dwarf star, the luminosity of Gliese-876 should be less than 10% of the luminosity of the Sun.

Evaluate whether the surface temperature of Gliese-876 supports this statement.

radius of Gliese-876 = 2.62×10^{8} m
luminosity of Sun = 3.83×10^{26} W

(4)

(Total for Question 16 = 8 marks)

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