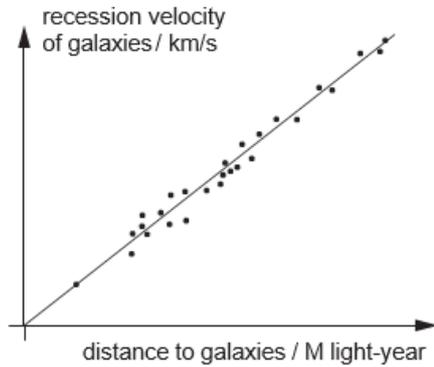


## **A level Physics B**

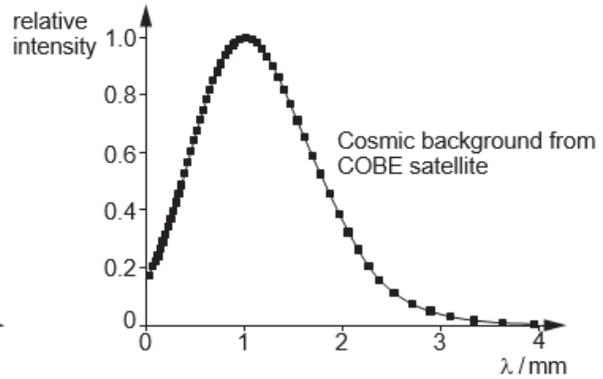
**H557/01** Fundamentals of physics

### **Question Set 21**

- (a) This question considers some of the evidence for a Hot Big Bang start to our expanding universe.



**Fig.1.1**



**Fig.1.2**

- (i) Explain how the graph(s) show evidence that the universe started from a big bang explosion. [2]
- (ii) Explain how the graph(s) show evidence that the universe started from a hot state. [2]

- (b) The intensity spectrum of thermal radiation depends on temperature  $T$ . Photons at the **peak** of intensity have energy  $\epsilon \approx 5kT$ .

Use this approximation and data from **Fig. 1.2** to estimate the temperature of the cosmicmicrowave background radiation (CMBR).

temperature = .....K **[4]**

**Total Marks for Question Set: 8**

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