

(ii) Using Hubble's Law or otherwise explain how Olbers' paradox can be resolved.

[3]

[Total: 8]

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(a) Describe the events which occurred after the Big Bang up to the formation of the first atoms.

[5]

- (b) The Universe is assumed to be *isotropic* and *homogenous*. Explain the meaning of these two terms.

isotropic

.....

homogenous

..... [2]

- (c) One possible value for the critical density of the Universe is $3.8 \times 10^{23} \text{ kg pc}^{-3}$.

- (i) Assuming this density, what average volume of space would be required to contain a mass of $2 \times 10^{30} \text{ kg}$, the mass of the Sun?

volume = pc^3 [2]

- (ii) Describe and explain how the Universe may evolve.

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..... [5]

[Total: 14]