

**Answer ALL questions.**

1 This question is about astrophysics.

(a) The table lists some statements about the universe.

Place ticks (✓) in the table to show which statements support the Big Bang theory.

(2)

Statement	Supports the Big Bang theory
black holes are formed from extremely massive stars	
cosmic microwave background radiation is detected in all directions	
cosmic rays from space are detected at the Earth's surface	
each galaxy contains billions of stars	
most galaxies show a red-shift in the light detected from them	

(b) The Sun will become a red giant star when it leaves the main sequence.

Which row correctly describes how the surface temperature and brightness of the Sun will change when it becomes a red giant?

(1)

	Surface temperature	Brightness
<input type="checkbox"/> A	decreases	decreases
<input type="checkbox"/> B	decreases	increases
<input type="checkbox"/> C	increases	decreases
<input type="checkbox"/> D	increases	increases

(c) Astronomical objects can be classified by their absolute magnitude.

State what is meant by the term **absolute magnitude**.

(2)

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**(Total for Question 1 = 5 marks)**

