

9 The Sun is one of many billions of stars in the Milky Way. The Sun emits a very large quantity of energy as electromagnetic radiation.

(a) State the **three** regions of the electromagnetic spectrum in which the Sun emits the most energy.

- 1 .....
- 2 .....
- 3 .....

[2]

(b) Electromagnetic radiation from the Sun travels at a speed of  $3.0 \times 10^8$  m/s. The radiation takes 500 s to reach the Earth.

Calculate the distance from the Sun to the Earth.

distance = ..... [2]

(c) Approximately 4.6 billion years ago, the Sun formed from an interstellar cloud of gas and became a stable star.

(i) Describe and explain what happens as an interstellar cloud of gas forms a protostar.

- .....
- .....
- ..... [2]

(ii) Describe and explain what happens as a protostar becomes a stable star.

- .....
- .....
- .....
- ..... [3]

[Total: 9]