**Exemplar exam question**

1. Part of a bus journey is represented by the velocity - time graph below.

**v**  10

0 2 4 6 8 10 12 14 16 18 20 22 **time ( s )**

**( ms-1 )** 8

6

4

2

Using the graph:

(*a*) **Show** that the acceleration in the first 4 seconds is 2 ms-2 (3)

(b) **Explain** what causes this acceleration (2)

(*c*) **Determine** the distance travelled in the first 12 seconds (4)

(d) **State** the relationship between engine force and friction at 9 seconds. (1)

(e) **Predict** the time at which the bus comes to a halt. (1)

(f) Is the magnitude of deceleration at the end of the journey greater, equal to, or less than the acceleration at the start?

You must **justify** your answer. (2)