**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)