1 (a) Fig. 1.1 shows the velocity-time graph of a small particle as it passes a point O.

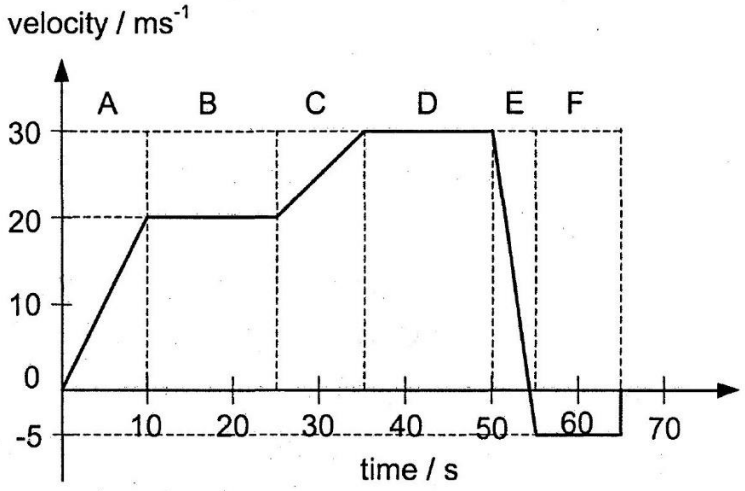

Fig. 1.1

(i) Describe qualitatively what happens in sections E and F of the journey.

.....

.....

.....

..... [2]

(ii) Without doing any calculation, sketch the shape of the corresponding displacement-time graph in Fig. 1.2.

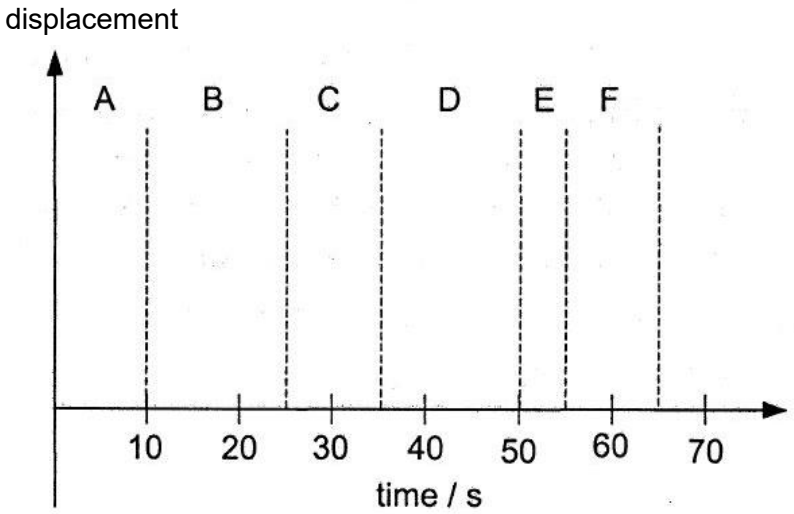

Fig. 1.2

[3]

(b) The small particle is placed at height *h* on a frictionless 30° ramp, as shown in Fig. 1.3. When released at point **A**, the block slides down the ramp to point **B** and then falls 1 m to the floor. It lands in the small hole **C** which is located 1 m from the end of the ramp.

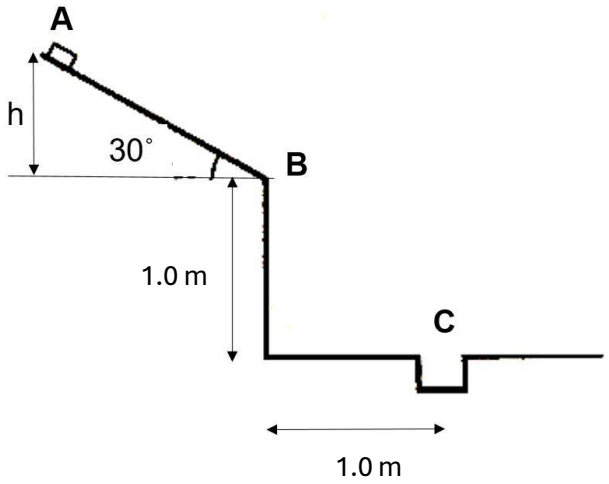

Fig. 1.3

(i) Show that the velocity at **B** is 3.9 m s^{-1}.

[3]

(ii) At what height *h* should the small particle be released in order to land in the hole **C**?

h = ... m [2]

[Total: 10]