SMART EXAM RESOURCES
SUBJECT:COORDINATED SCIENCES [PHYSICS]
PAPER 4
F=ma
SET 3 QP-MS

1 A block of metal has a mass of 720 g and a volume of 80 cm^3.

(iii) A force of 100 N acts on this block.

Calculate the acceleration of the block.

State the formula that you use and show your working.

formula

working

..... [2]

MARK SCHEME:

force = mass × acceleration ;
acceleration = 100/0.72 = 139 m/s^2 ;

2 **(a)** Fig. 4.1 shows a graph of the motion of a truck over 40 seconds.

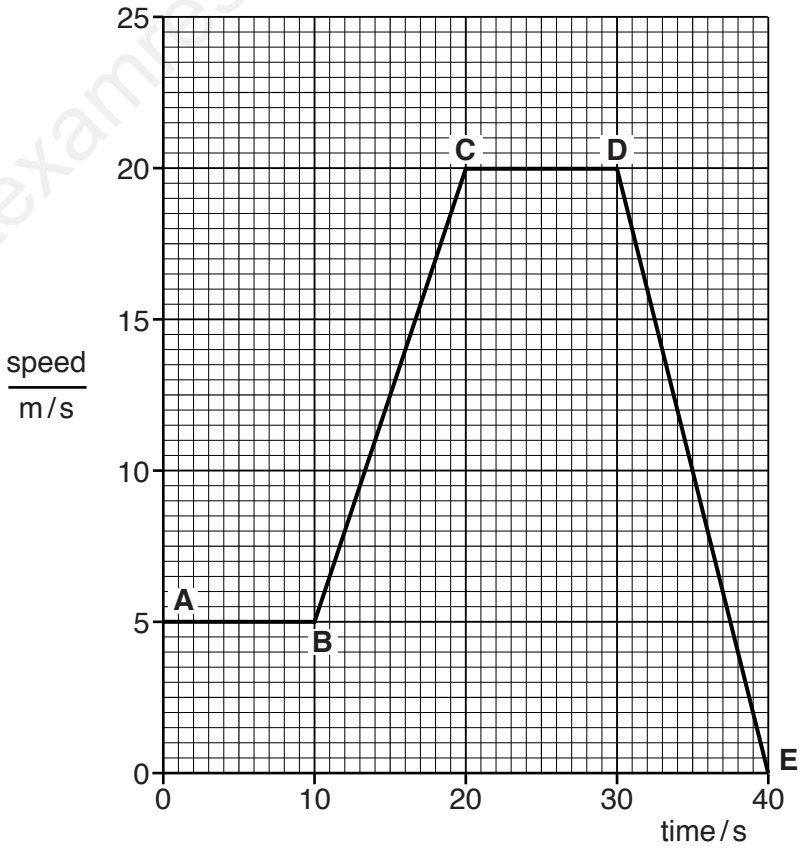

Fig. 4.1

(i) Calculate the acceleration of the truck between **B** and **C**.

Show your working.

acceleration = ... m/s^2 [2]

(ii) The mass of the truck is 2000 kg. Calculate the size of the force needed for the acceleration between **B** and **C**.

State the formula you use and show your working. State the units.

formula

working

force = ... unit = ... [3]

MARK SCHEME:

(a) (i) (acceleration =) change in speed / time or
(acceleration =) 15 / 10 ;
= 15 (m / s^2) ; [2]

(ii) (force =) mass × acceleration or
(force) = 2000 × 1.5 ;
= 3000 ;
N ; [3]