1999

LEAVING CERTIFICATE 1999

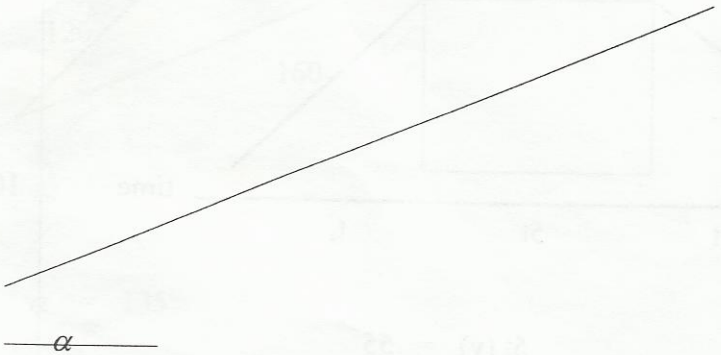
APPLIED MATHS - HIGHER LEVEL

MARKING SCHEME

1 (a) A car of mass 1500 kg travels up a slope of gradient $\sin^{-1}\left(\frac{1}{50}\right)$ against a constant resistance of 0.2 N per kilogram. Find

(i) the constant force required to produce an acceleration of 0.1 ms^{-2}

(ii) the power which is developed when the speed is 20 ms^{-1}.



(i) Force = mass x acceleration

$T - F - mg\sin\alpha = m\ f$ 5

$F = 1500(0.2)$ 5

$T - 1500(0.2) - 1500(9.8)\left(\frac{1}{50}\right) = 150$

$T = 744\ N$ 5

(ii) Power = T v

$= 744\ (20)$

$= 14880\ W$ 5