

**MARKS**

6  
(4, 2)

3. The two (identical and independent) channels of my stereo amplifier have lifetimes that can each be modelled by an exponential distribution with mean  $\theta = 2,500$  hours. If I play my stereo for 2 hours every day, find the probability that:
- (a) the channel operating the *right*-hand loud speaker lasts longer than five (365-day) years;
  - (b) the channels *both* last longer than five (365-day) years.

(a)

 (a)  
Probability

(b)

 (b)  
Probability