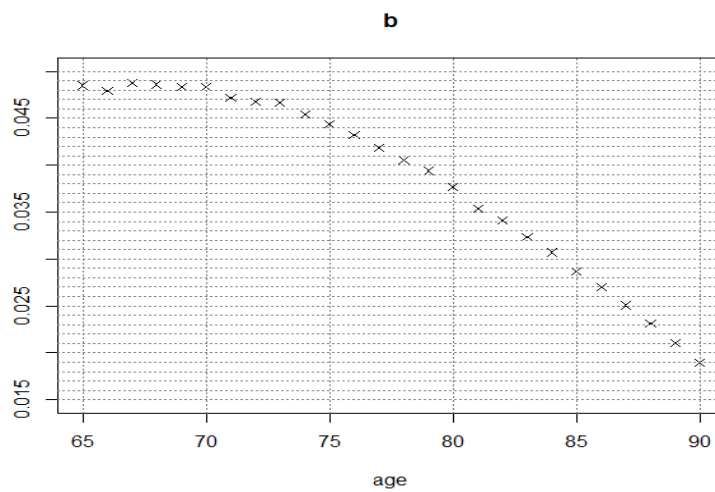
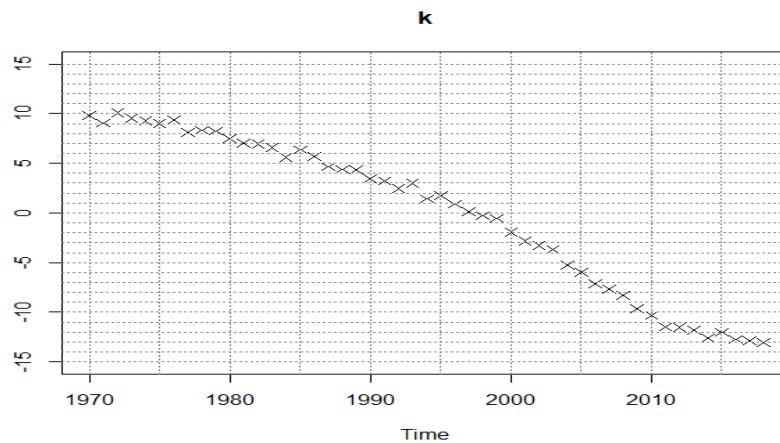
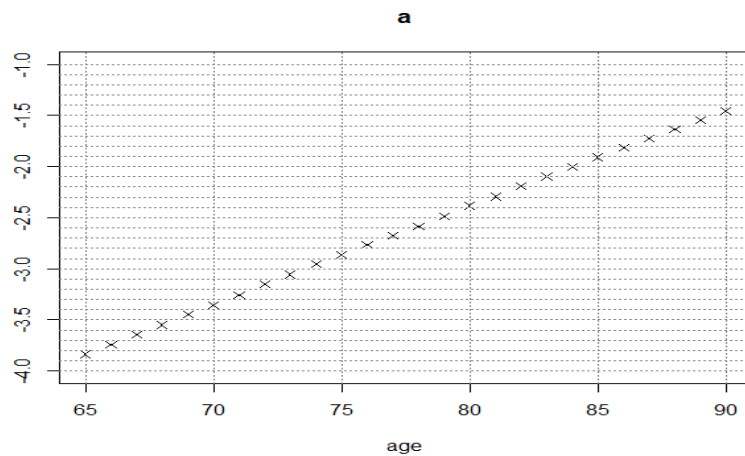


**Tutorial Question on interpretation of the Lee-Carter model**

- 1** The three graphs below show three vectors  $a_x$ ,  $b_x$  and  $k_t$ , which were obtained by applying the two-factor Lee-Carter model to mortality data derived from the period 1970 to 2018 for the age range 65 to 90 years.



- (i) State the Lee-Carter model for the logarithm of the central rate of mortality at age  $x$  and period  $t$ . [1]
- (ii) Discuss what each of these three vectors suggests about the characteristics of the mortality rates in the data. [12]
- (iii) Suggest two possible socio-economic reasons for your conclusion about vector  $b$  in part (i) above. [2]

[Total 15]