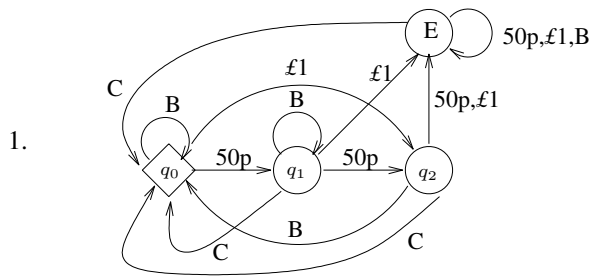
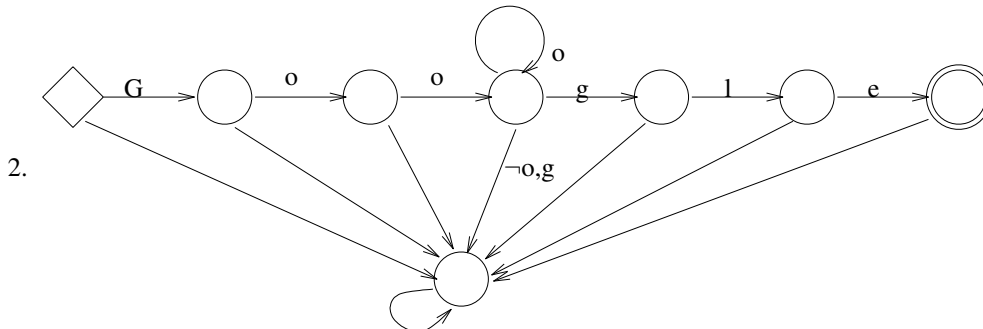


Exercise Sheet 1 - Model Answers

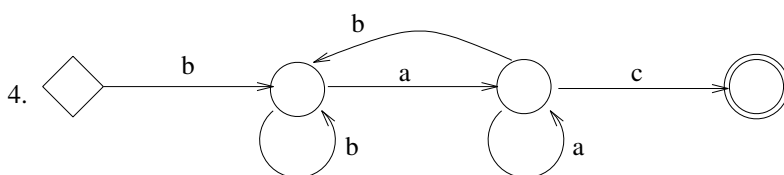
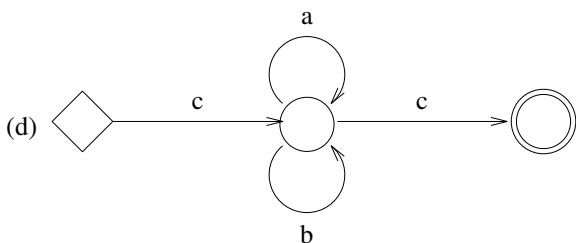
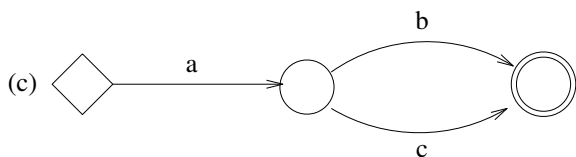
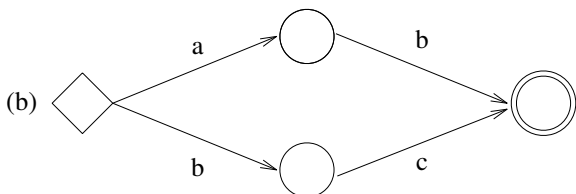
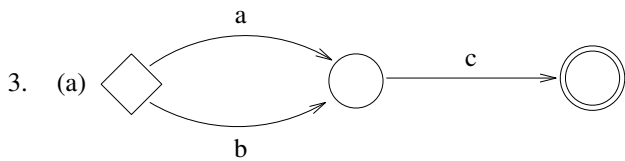


	50p	£1	B	C
q ₀	q ₁	q ₂	q ₀	q ₀
q ₁	q ₂	E	q ₁	q ₀
q ₂	q ₂	E	q ₀	q ₀
E	E	E	E	q ₀



I have included the

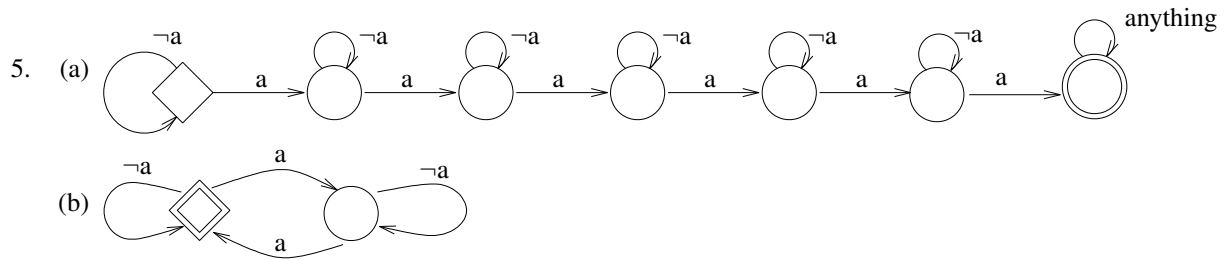
error state in this answer, to make it absolutely plain what the transition is when an error letter is input. In practice, however, we don't draw the error state. The convention is that if the transition is not shown for some given input, then the transition is to an implicit error state.



It is matched by *bababac* and *bbbbbbac*. In each there is an initial *b* and a final *ac* to match those parts of the pattern, and the remaining middle part is *abab* or *bbbbbb* and matches $(a|b)^*$.

The other three do not match, since any matching string has to start with *b* and finish *ac*.

In the machine, both matched strings take you through from the initial state to the accepting state. ϵ is not accepted because the initial state is not accepting. bc is not accepted because after b there is no transition for c . $ababababc$ is not accepted because there is no transition for the first a .



6. You need to remember that in 2012 January, March, May, July, August, October, and December have 31 days; February has 29 and all the others have 30 days.

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' ( 0[1-9] | [1-2][0-9] | 3[0-1] ) \. ( 0(1|3|5|7|8) | 1(0|2) ) \.2012 |
( 0[1-9] | 1[0-9] | 2[0-9] ) \.02\.2012 |
( 0[1-9] | [1-2][0-9] | 30 ) \. ( 0(4|6|9) | 11 ) \.2012'
```