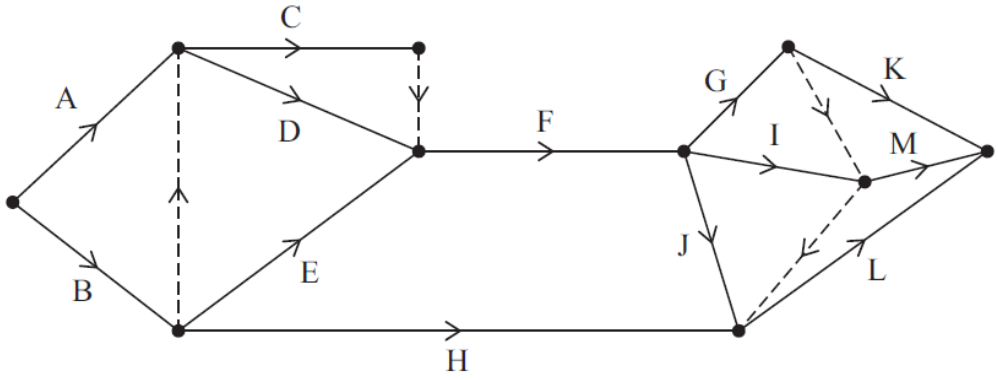
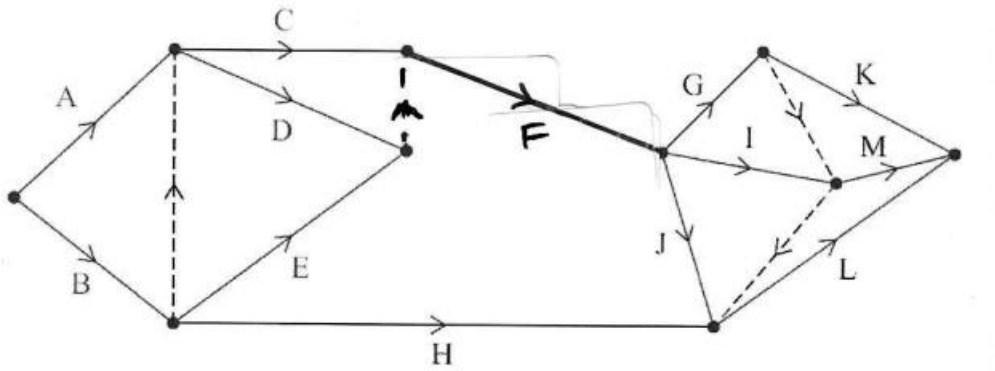
4.(a)	 oe (see below)	M1 A1 A1 A1 A1 **(5)**
(b)(i)	Activities A, C, D and H cannot be critical	B1
(b)(ii)	Activities B and F must be criticial	B1 **(2)**
		7 marks
	Notes for Question 4	
	Condone lack of, or incorrect, numbered events throughout. 'Dealt with correctly' means that the activity starts from the correct event but need not necessarily finish at the correct event, e.g. 'L dealt with correctly' requires the correct precedences for this activity, i.e. H and J labelled correctly and leading into the same node and L starting from that node but do not consider the end event for L. **Activity on node is M0**	
	If an arc is not labelled, for example, if the arc for activity E is not labelled (but the arc is present) then this will lose the first A mark and the final (CSO) A mark – they can still earn the second A mark on the bod. If two or more arcs are not labelled then mark according to the scheme. Assume that a solid line is an activity which has not been labelled rather than a dummy (even if in the correct place for where a dummy should be). **Ignore incorrect or lack of arrows on the activities for the first four marks only**	
a1M1	Nine activities (labelled on arc), one start and at least two dummies placed	
a1A1	Activities A, B, 1st dummy (including correct arrow), C, D, E and H dealt with correctly	
a2A1	2nd dummy (including correct arrow), activities F, G, I and J dealt with correctly	
a3A1	Activities K, L and M dealt with correctly (so third and fourth dummies required + arrows)	
4A1	CSO – all arrows correctly placed for each activity with one finish and at most four dummies.	
	Please check all arcs carefully for arrows – if there are no arrows on any dummies then M1 only. **Note that additional (but unnecessary) 'correct' dummies that still maintain precedence for the network should only be penalised with the final A mark if earned**	
b1B1	CAO (A, C, D and H and no others)	
b2B1	CAO (B and F and no others – accept though if E mentioned)	



Alternative equivalent graph
Activities C and D may be interchanged on either version