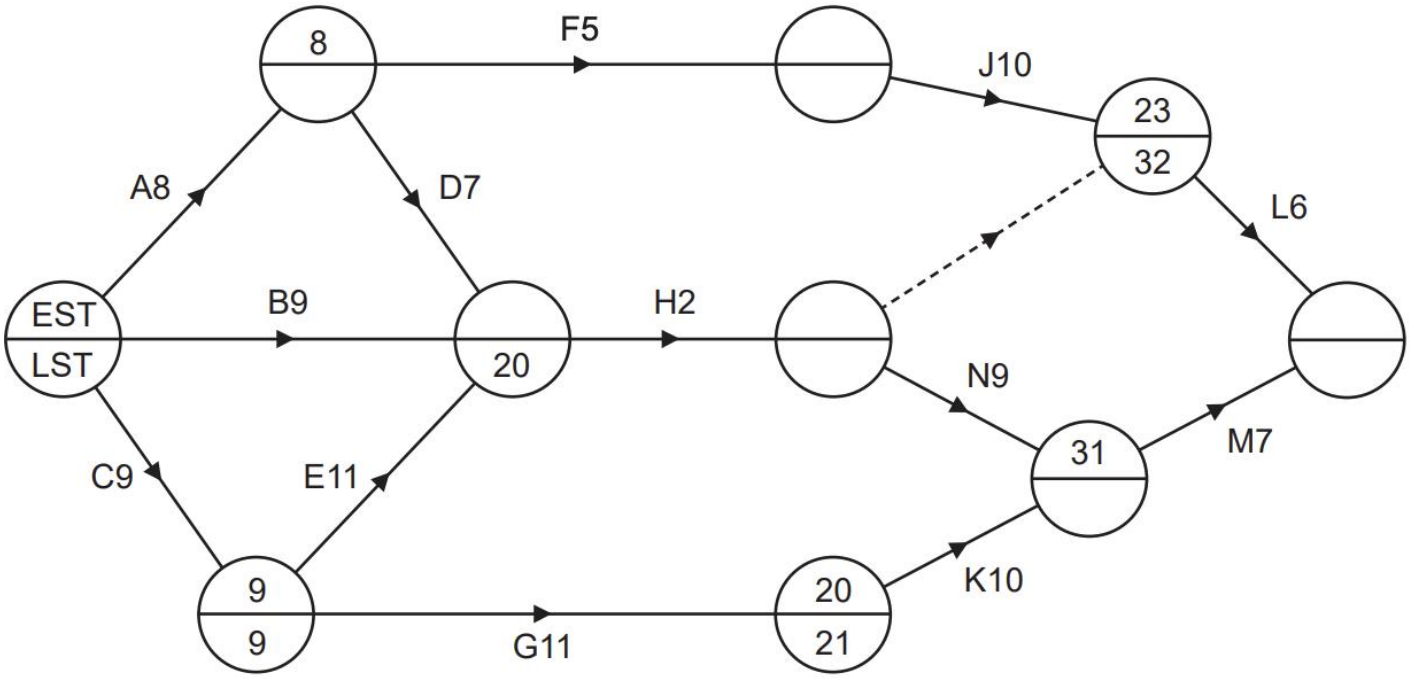
Question 5 **(11 marks)**

The network below represents a construction project. The number on each edge gives the time, in hours, to complete the activity. Each activity requires one worker.



(a) Complete the precedence table below. (2 marks)

Activity	A	B	C	D	E	F	G	H	J	K	L	M	N
Time (hours)	8	9	9	7	11	5	11	2	10	10	6	7	9
Immediate predecessor	-	-	-	A	C	A	C	B,D,E					

(b) Complete the network showing the earliest starting time (EST) and latest starting time (LST) for each node. (Note: the first node indicates which is the EST and the LST.)
(2 marks)

(c) Determine the critical path and the minimum completion time for the project. (2 marks)

(d) Calculate the float times for Activities D and F. (2 marks)

(e) Given that the sum of all the times of the activities is 104 hours, calculate the minimum number of workers required to complete the project in the minimum completion time. (1 mark)

(f) What is the latest time into the project that Activity F could start without affecting the minimum completion time? (1 mark)

(g) Explain the purpose of the dotted line on the network. (1 mark)