Question 6 (11 marks)
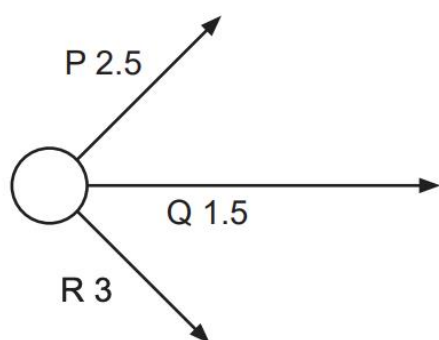
Yana has booked three gardeners to landscape her garden. The table below shows the required activities, together with the times taken (in hours) and the immediate predecessors for each activity.

Activity	P	Q	R	S	T	U	V	W	X
Time (hours)	2.5	1.5	3	1.5	1.5	2	2.5	2	2.5
Immediate Predecessors	–	–	–	P	S, Q, U	R	T, X	P	R

(a) Complete the network diagram below, showing all tasks and durations. (3 marks)

P 2.5

Q 1.5

R 3

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

(c)   Calculate the float time for

    (i)   Activity W.   (1 mark)

    (ii)   Activity U.   (1 mark)

(d)   The gardeners start work at 6.30 am. They take only a half-hour break, at 12.30 pm.

(i)   Determine the latest starting time for Activity P.   (1 mark)

(ii)   Determine the earliest starting time for Activity V.   (1 mark)

(e)   One of the gardeners becomes ill and is unable to work on Yana's landscaping job.
        How, if at all, will this affect the minimum completion time for this project (excluding the
        gardeners' break)? Explain your answer.   (2 marks)