Q1
Forward recursion:

day	observation	?--->	sunny	Cloudy	Rainy
		v0(?)	0.33	0.33	0.33
1	walk	P(W|?)	1	0.67	0.33
		V1(?) = V0(?)*P(W|?)	0.333	0.223	0.11
2		V1(S)*P(?|S)	0.11	0.223	0
		V1(C)*P(?|C)	0.074	0	0.149
		V1(R)*P(?|R)	0.363	0.0363	0.036
	Umbrella	P(U|?)	0	0.33	0.67
		V2(?) = max(?)*P(U|?)	0	0.072	0.09
3		V2(S)*P(?|S)	0	0	0
		V2(C)*P(?|C)	0.023	0	0.048
		V2(R)*P(?|R)	0.0297	0.0297	0.0297
	walk	P(W|?)	1	0.67	0.33
		V3(?) = max(?)*P(W|?)	0.029	0.019	0.0158

Back tracking :

We can see in day 3 sunny has the highest probability with 0.029 after that we need to find best before state which we can get by V2R * P(S|R) that gives probability 0.029 then we check which led to rainy , by calculating V1C * P (R|C) WE GET 0.1 which is higher than rest of the probabilities which is cloduy

So the sequence is cloudy to rainy to sunny

Q2 , AFTER FIRST ITERATION WITH V's as initial value set to 0

iteration	state	V	Q(state,C)	Q(state,C)	policy
1	L	-1	-1.18	-0.46	A
	M	3	6.24	6.6	A
	H	5	9.32	8.96	C
2	L	-0.46	-0.14	1.13	A
	M	6.6	9.67	10.16	A
	H	9.32	13.14	12.65	C
3	L	1.13	1.64	3.27	A
	M	10.16	12.95	13.49	A
	H	13.14	16.56	16.02	C

Analysis : Analysis: we have computed three policy evolution over three iterations the policy we deduced is low income sector and medium sector should be aggressive regarding their investment but only high income income sector should be conservative so even if go under another iteration and get policy the same results will come

Policy :
L → A (Aggressive)
M → A (Aggressive)
H → C(Conservative)