PART D

Q a) In what environments will a simple reflex agent be perfectly rational?

Ans a) In fully observable environments or In environments where the tasks or outcomes Doesn't depend on percept history,
In environments where actions can be truly determined with the help of present Environment variables only. Eq Rubik cube solving, mathematical computations etc.

Q b) A robot is deterministic if it always behaves in the same way in the same situation. Is your greedy robot in B deterministic?

Ans a) No the robot in B is not deterministic as when the move cannot be determined by greedy Method it chooses a random mood therefore in same environments our robot will act Differently

Q c) Can you design an environment in which a randomized agent will perform poorly?

Ans b) Yes in A highly ordered environment a randomized agent will perform poorly
E.g. cow dung on a clean floor in this environment dirt is highly concentrated
in a very small region in this environment randomized agent will perform poorly.

Consider how your rational agent would change its behavior in the following situations:

Q d) Assume that it's sensing is noisy, so the observations are inaccurate by at most 20%.

And d) rational agent should also consider its internal state or check percept history
of the environment before taking any step or action. Example - Taking into account
What the value of dirt was before can help reduce errors in actions

Q e) Cleaned squares can become dirty, with the probability of this happening being a Gaussian centered at 20 moves, with an s.d. of 10. The amount of dirt is a random number between [0, 1].

Ans e) In this environment the agent should not change its behavior as the probability that the squares are being dirty again is very low. may be agent can take a break after vising all squares once there is no need for agent to keep running as the probability the floor is dirty while agent is in action is very low .