BASIL ALI KHAN
20K-0477

Assignment # 01

Question # 01:

He addressed potential criticism of the test. Objections such as potential for bias and machines to rely on tricks remain applicable today. Turing responses to these objections are still valid to some extent. Nav objection have been come up after publication like limited finite abilities to test assess and its dependency on human tasks. The prediction that a computer would have 30 % chance of passing the test by 200 did not come to pass but important progress has made in AI since after.

Question # 02

(a)

Even significant progress in AI & autonomous Driving cars, the challenges like traffic congestion and uncertain upredictable driving behaviours and style make difficult for AI to handle such task.

(3)

There has been immense progress in game like chess, playing bridge at competitive level remain challenged and difficult task for computers.

(4)

There has been successfull attempts in developing AI system to develop & discover new mathematical theorum still not capable of proving all mathematical theorum and this area of research is in beginning stages.

(5)

While AI has made progress in NLP and generating text, but creating funny stories requires understanding of humour and cultre context that machines lack in.

(6)

Its complex and difficult challenged for computers to provide advice in areas requiring legal judgement and understanding.

Question # 02.

Domain: Online shopping.

→ Environment is accessible as it can be accessed anywhere through internet connection.

→ Deterministic as action taken by agent will result in predictable outcome.

→ Episodic as each shopping session can be considered as separate episode.

→ Static since ~~ent~~ items available in environment donot change.

→ Not continous as action taken by agent is discrete and not occur continously overtime

→ Agent architecture best for this is goal based agent. The agent goal is to find and purchase item that user wants optimizing for price, stock availability and shipping time. Agent will interact with environment by searching for items, adding them to users cart and checking out.

Question # 04

Playing Soccer:

P: Scored more than opponent in specified time

E: Field, Two team 22 players with each team 11, ball, goal, referee

A: Player body parts, feets, legs, heads

S: Eye to see ball & players

Exploring subsurface of Arabian sea:

P: Exploring Ocean depth successfully and gathering relevant data

E: Underwater ecosystem & marine life

A: Underwater submarines & vehicles and remote devices.

S: Camera to take images and sensors to detect oxygen, pressure & temperature

Shopping for used AI Books on Internet:

P: Finding & purchasing desired book under budget

E: Online marketplace platform.

A: Computer or mobile device

S: Screen to view, input devices such as keyboard and mouse

Playing a tennis match:
P: Scoring more points than opponent
E: Tennis court, two players, net, tennis ball
A: Player body parts.
S: Eyes to see ball & players.

Practicing tennis against wall:
P: Improved tennis skill through drill.
E: Court with wall.
A: Player body parts.
S: Eyes to see ball & wall.

Question # 05:

(3)

False
Some environment are inherently unpredictable ~~which~~ and random elements to make impossible for any agent perfectly rational. such as rock paper scissor game.

(4)

False
Agent program not only include current percept

but also past memory as well as states that agent has. Agent function takes entire history of percepts & actions as input.

(5)

False
theoretically every agent function can be implemented by some program / machine but some agent fuction that are complex requiring too much computational power can't be pratically implemented by current technology

(6)

True
For example flipping a coin receives rewards if heads and no reward if tails. The optimal strategy is chose head or tail with equal probability equivalent to choose randomly

(7)

True
If two task environment have same optimal policy such as shortest path.