UNIVERSITY OF ASIA PACIFIC

Department of Computer Science & Engineering

Mid-Term Examination
Spring-2021

Student Name	:	Md. Sohanuzzaman Soad
Student ID	:	18101064
Section	:	B
Year	:	4^{th}
Semester	:	1^{st}
Course Code	:	CSE 403
Course Title	:	Artificial Inteligence
Date	:	12-Septempber-2021

University of Asia Pacific

Admit Card

Mid-Term Examination of Spring, 2021

Financial Clearance	PAID

Registration No : 18101064

Student Name : Md. Sohanuzzaman Soad

Program : Bachelor of Science in Computer Science and Engineering

SI.NO.	COURSE CODE	COURSE TITLE	CR.HR.	EXAM. SCHEDULE
1	CSE 400	Project / Thesis	3.00	
2	CSE 401	Mathematics for computer Science	3.00	
3	CSE 403	Artificial Intelligence and Expert Systems	3.00	
4	CSE 404	Artificial Intelligence and Expert Systems Lab	1.50	
5	CSE 405	Operating Systems	3.00	
6	CSE 406	Operating Systems Lab	1.50	
7	CSE 407	ICTLaw, Policy and Ethics	2.00	
8	CSE 410	Software Development	1.50	
9	CSE 427	Topics of Current Interest	3.00	

Total Credit: 21.50

1. Examinees are not allowed to enter the examination hall after 30 minutes of commencement of examination for mid semester examinations and 60 minutes for semester final examinations.

2. No examinees shall be allowed to submit their answer scripts before 50% of the allocated time of examination has elapsed.

3. No examinees would be allowed to go to washroom within the first 60 minutes of final examinations.

4. No student will be allowed to carry any books, bags, extra paper or cellular phone or objectionable items/incriminating paper in the examination hall.
Violators will be subjects to disciplinary action.

This is a system generated Admit Card. No signature is required.

Admit Card Generation Time: 12-Sep-2021 12:19 PM

Ans to the Que. No: 1(a)

Turing Test: The Turing test is a method of inquiry in artificial inteligence (AI) for determining whether or not a machine or a computer is capable of thinking like a human. Alan Turing is the founder of Turing Test.

Capablities Computer needs to possess: These capablities is the main requirement to pass the turing test.

i) Natural language Processing

ii) Knowledge Representation

iii) Automated Reasoning

iv) Machine Learning

Additional Capablity to Pass Total Turing Test:

i) Computer vision

ii) Robotics.

Ans to the Que. No: 1(b)

Agent: Trash Picking Robot

Performance Measure: Safe, Trash picking accuracy, efficiency, minimize cost.

Environment: UAP Campus, ~~student faculty~~ classroom, office, various obstacles.

Actuators: wheels, jointed arms, hand.

Sensors: Camera, object detector, joint angle sensor.

Ans to the Que. No: 2

$h(A) = 0 + 2 = 2$

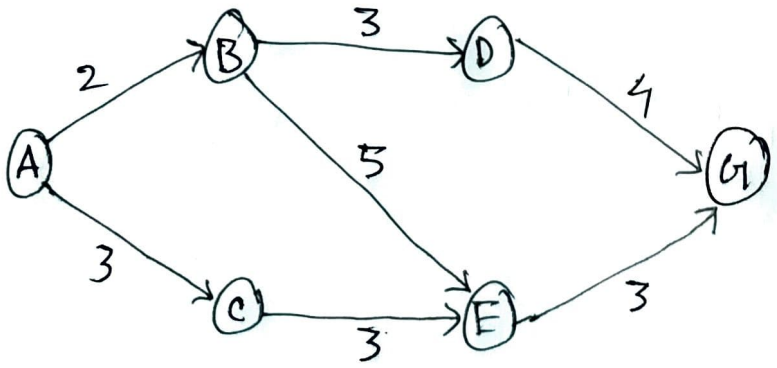
$h(B) = 4 + 3 = 7$

$h(C) = 4 + 1 = 5$

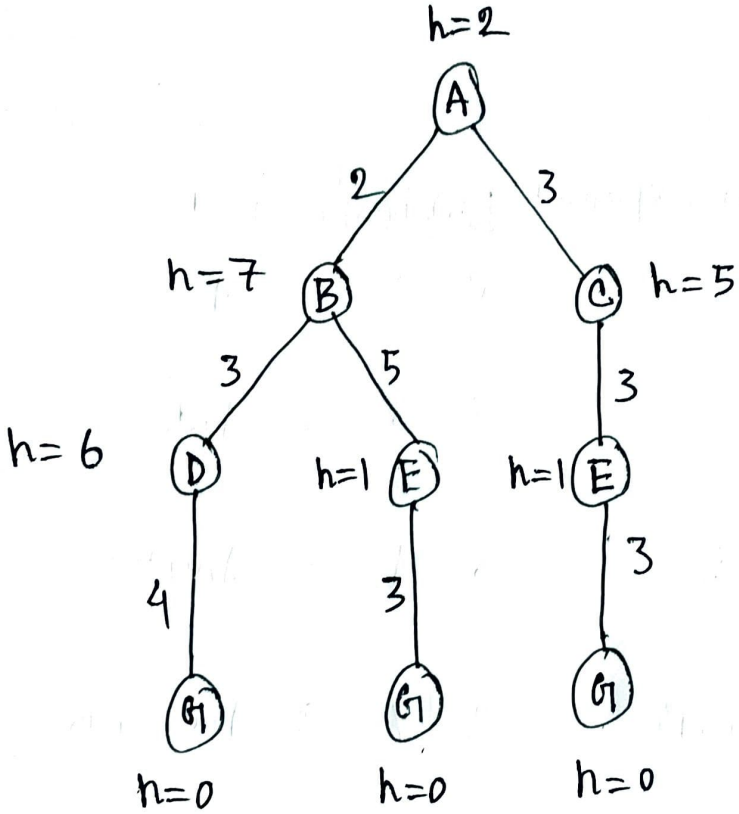
$h(D) = 4 + 2 = 6$

$h(E) = 0 + 1 = 1$

$h(G) = 0$



Search Tree:



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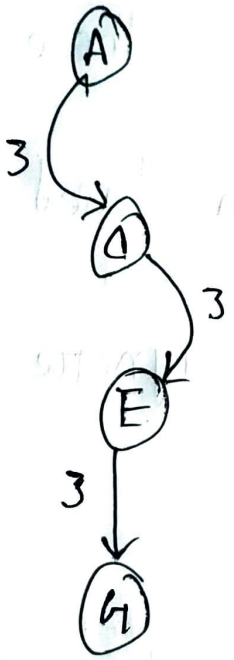
A* Search:

Iteration	Path Expanded	g(n)	h(n)	f(n)	CF	OF
1	A	0	2	2	A	B 2+7 , C 3+5
2	A, C	3	5	8	A, C	B 2+7 , E 6+1
3	A, C, E	6	1	7	A, C, E	B 2+7 , G 9+0
4	A, C, E, B	2	7	9	A, C, E, B	D 5+6 , E 7+1 , G 9+0
5	A, C, E, B, E	7	1	8	A, C, E, B	D 5+6 , G 9+0 , G 9+0
6	A, C, E, B, E, G [Goal found]	9	0	9	A, C, E, B, G	D 5+6 , G 9+0

shortest path : A → C → E → G

path cost : 9

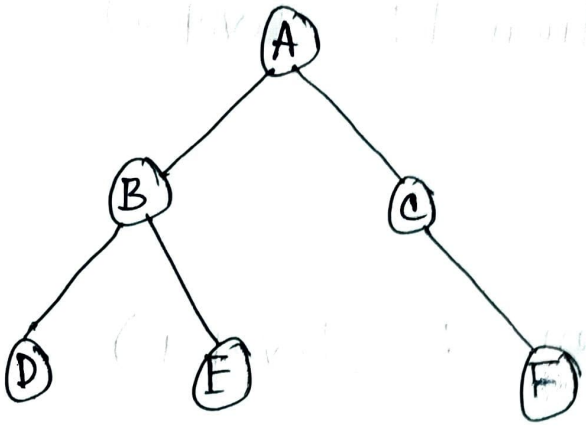


Ans to the Que No: 3(a)

Simple Reflex Agent: Simple Reflex agent is the these type of agent take decision based on current state percept and ignore the previous history.

Model based Reflex Agent: These type of agent which uses it's previous percept history to take decisions it uses memory to make decisions about an model of the total things.

Ans to the Que. No: 3(b)



BFS:

A → B → C → D → E → F

DFS:

A → B → D → E → C → F

IDS :

Iteration 1 : (Level 0)

A

Iteration 2 : (Level 1)

A → B → C

Iteration 3 : (Level 2)

A → B → C D → E → G → F