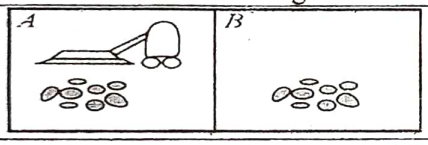
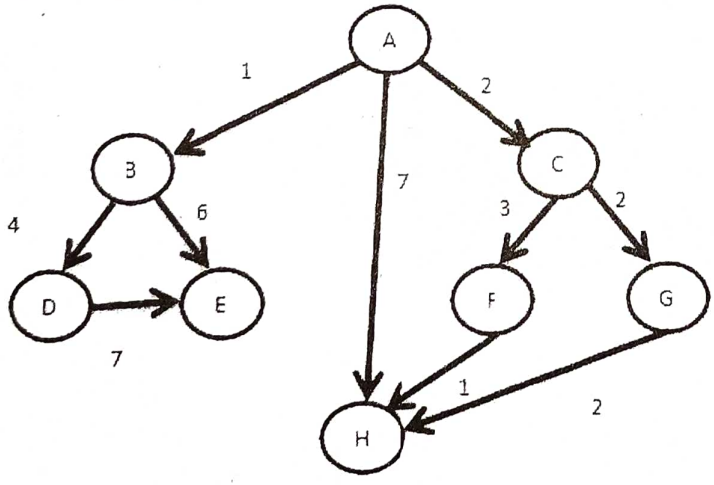
SEMESTER-UG 4th –Course work
Mid- Semester Examination, FEB-MARCH, 2022

Course Code: CACSC11
Course Title: Artificial Intelligence
Time: **1 Hour 30 Mins** Max. Marks: **15**

**Note: Attempt all questions. Missing data / information (if any), may be suitably assumed and mentioned in the answer.**

| Q. No. | Question | Marks | CO |
|---|---|---|---|
| 1a | What is artificial intelligence? Explain the types of artificial intelligence in brief. | 1.5 | CO2 |
| 1b | Define artificial intelligence (AI) system. Explain risk and benefit of AI. | 1.5 | CO2 |
| 2a | What is the concept of rationality? Explain task environment characteristics to design a rational agent with suitable example. | 1.5 | CO2 |
| 2b | What is artificial intelligence environment? Explain types of environments in brief. | 1.5 | CO2 |
| 3 |  | | |
| 3a | Consider a vacuum-cleaner world as shown in the figure. Write percepts and actions. | 1 | CO1 |
| 3b | Write a function named Reflex-Vacuum-Agent that returns an action based on sensors input from the environment. | 2 | CO1 |
| 4a | What are various types of artificial intelligence (AI) agents? Explain any one of them. | 1.5 | CO2 |
| 4b | Differentiate between uninformed and informed search. Explain completeness and optimality of Depth First Search (DFS). | 1.5 | CO1 |
| 5 |  | | |
| 5a | What is search heuristic? | 1 | CO1 |
| 5b | Consider the above graph with the heuristics values. Let A be the start node and H be the goal node. Use A* search algorithm to print the path of traversal from start node to goal node. | 2 | CO1 |

| NODES | HEURISTICS |
|---|---|
| A | 5 |
| B | 3 |
| C | 4 |
| D | 2 |
| E | 6 |
| F | 3 |
| G | 1 |
| H | 0 |