2018

M.Sc.

4th Semester Examination

COMPUTER SCIENCE

PAPER—COS-402

Subject Code—26

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Module–1

Answer *Q. No. 1* and any *one* from the rest.

1. Represent the following sentences into predicate logic—

   (a) There is a barbar who shaves all men in a town who do not shave themselves.

(b) For everyone there is someone to love.

(c) A surgeon is happy if all his patients recover.

$$2+1+2$$

2. Consider the problem —

There is a monkey at the door into a room. Inside the room at the middle, a banana is hanging from the ceiling and there is a box at the window which can be used by monkey to grasp the banana. Monkey is allowed following actions —

1. Walk on the floor.

2. Climb the box.

3. Push the box around (if it is already at the box).

4. Grasp the banana if standing on the box directly under the banana.

(a) Formulate the problem as state space search problem (State description, initial state, final state, operators, cost calculation).

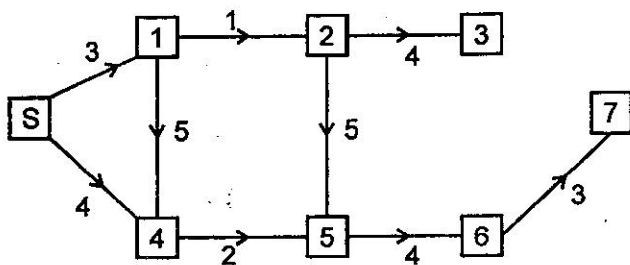(b) Solve the problem and show the steps.

(c) Draw the implicit search graph.

(d) Apply IDA on the graph. $5+2+2+6$

3. Consider the graph given in the following figure. Assume that the initial state is S and the goal state is 7. Find a path from the initial state to the goal state using A* search. Also report the solution cost. The heuristics of the rodes are as follows —

$h(1) = 14$, $h(2) = 10$, $h(3) = 8$, $h(4) = 12$,

$h(5) = 10$, $h(6) = 10$, $h(S) = 15$.

15

4. Write short notes on :

3×5

(a) IDA*

(b) Bidirecetional Search.

(c) Turing Test.

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Module–2

Group–A

Answer any *two* questions :

2×2

1. (a) What is pervasive computing ?

(b) State the functions of session mobility.

(Turn Over)

(c) Why the coverage area of a cell site is chosen as hexagonal ?

Group–B

Answer any *two* questions : 2×4

2. (a) What do you mean by Multiple Access ? Briefly state the CSMA protocol.

(b) How frequency is being reused ?

(c) State the difference between FDMA and CDMA.

(d) What operations are performed in roaming management ?

Group–C

Answer any *one* question : 1×8

3. (a) How calls are originated in mobiles ? State the complete procedure to establish a call from a mobile to landline. What is path minimization ? 2+4+2

(b) Why GSM technology is so popular ? With the help of a block diagram, explain the architecture of GSM technology.

[Internal Assessment : 10 Marks]

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