

Roll. No.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ANNA UNIVERSITY, CHENNAI - 25.



MID SEMESTER EXAMINATION

B.E. (COMPUTER SCIENCE AND ENGINEERING)

Session: NOV 2022 to MARCH 2023
I Semester - (Regulation R-2018)

CS6102 – COMPUTATIONAL THINKING

Sem : I / P&Q

Duration: 90 Minutes

Date: 09-FEB-2023

Max. Marks: 40

- Write your Name, Roll No., Batch, subject code and subject title, on the answer sheet
- Write all your answers in the answer sheets supplied, legibly and neatly.

Answer all Questions

1. Convert the word HAND into the word FOUL in 5 steps. You must only change one letter of the word on each step. On every step you should have created a word in the English Dictionary. (5)

H A N D

- - - -

- - - -

- - - -

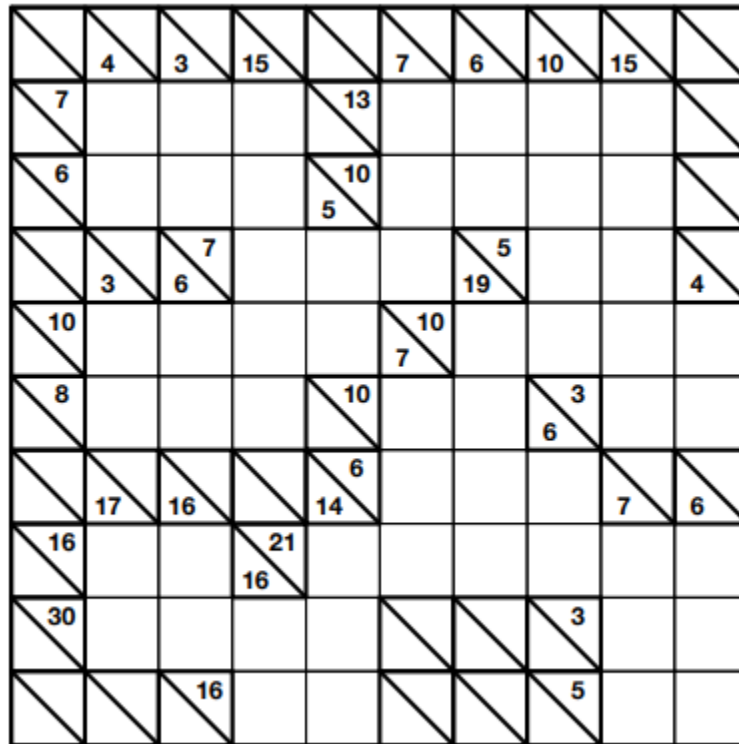
- - - -

- - - -

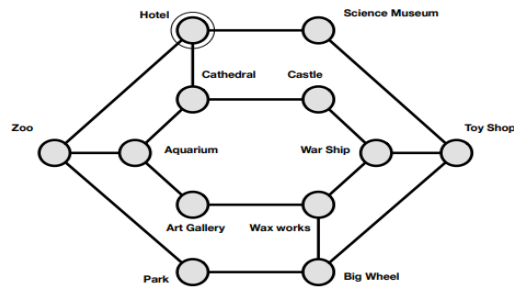
F O U L

2. A farmer is on her way to the local village with her sheepdog, Mist, who goes with her everywhere. To get to the village she has to cross a fast flowing river. An inventor living on the village side of the river has created a contraption to make it easier to get across. It consists of a rope and pulleys, with a seat hanging from the rope just big enough for one person. The locals have agreed to always leave the seat at the village side where the inventor lives so that it is easy for her to pack it away each evening; after all she is not charging anyone to use it. When she gets to the river the farmer pulls the seat across from the far side using the rope. She gets in, hugging Mist, then pulls herself across and continues into the village. On one particular day she buys a new hen and a sack of corn. Returning home later in the day she arrives back at the ravine, and quickly realizes she has a problem. She can only carry one thing across with her as she crosses using the seat. She will have to make several trips. The trouble is, if she leaves the hen and the corn alone on either side, the hen will eat the corn. Similarly if she leaves Mist and the hen together on one side the dog will worry the hen and may mean it stops laying eggs. Mist doesn't eat corn so it will come to no harm if left with him. Write down the series of steps (the algorithm in computer science jargon) that she must take to get everything across so she can continue on her way. (7)
3. A Kakuro is a crossword-like grid where each square has to be filled in with a digit from 1-9. Each horizontal or

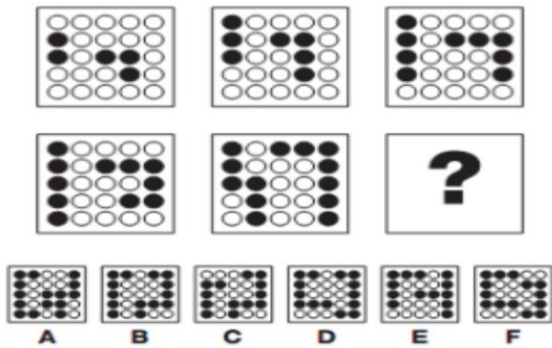
vertical block of digits must be added up to the number given to the left or above, respectively. All the digits in each such block must be different. (8)



4. You are a hotel tour guide. Tourists staying in your hotel expect to be taken on a tour visiting all the city's attractions. You have been given an underground map that shows all the locations of the attractions and how you can get from one to another using the underground network. You must work out a route that starts from the hotel and takes your tour group to every tourist site. The tourists will be unhappy if they pass through the same place twice. They also want to end up back at their hotel that evening. (5)

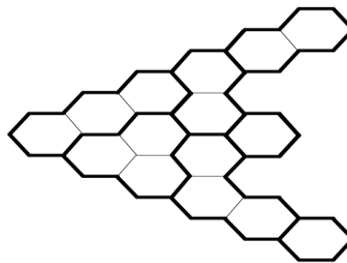


5. Complete the series 165,195,255,285,345, ? (2)
- 390
 - 420
 - 435
 - 375
6. Which grid replaces the question mark? (3)



- a. A
- b. B
- c. C
- d. D
- e. E
- f. F

7. The Number Hive puzzle is of a block of hexagons with areas marked out using thicker lines. There are two rules that must hold of a completed area in the Hive. 1) Each area must contain the numbers from 1 up to the number of hexagons in the area. 2) No number can be next to the same number in any direction, along a shared edge. (3)



8. BAKURO PUZZLE

Fill the cells with the numbers 1, 2, 4 and 8, together with their binary equivalent. Each group of adjacent cells in a row must add up to the number in the clue to its left. Each group of adjacent cells in a column must add to the number in the clue above it. No group may contain the same number more than once. (7)

