AI Foundations & Applications (AI61005)
Class Test 3
November 1, 2021

Question Paper has THREE Parts. This is PART B – Second Part

Time 20 Minutes

Answer All Questions

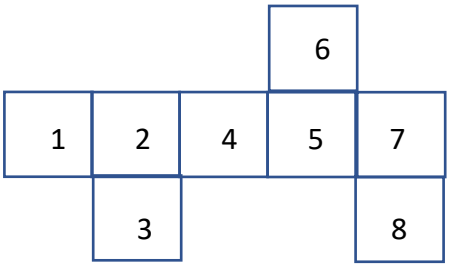
Write your name and roll number on every sheet.

Try to use one page to answer one full question – total of 2 pages only for this part

Combine the sheets into a single pdf (Max 10MB) and upload using the Google Form provided.

1. Consider the following game where there are multiple tiles in a specific configuration. There are three types of alphabet blocks A, B and C. You got to place the alphabet blocks in such a way that no two adjacent blocks (diagonal blocks are not adjacent) have the same alphabet type.

[4+4+2=10]



There are following additional constraints:

i. Only B can be placed on Tile 4 and only C can be placed on Tile 8
ii. C cannot be placed on Tile 1 and 3
iii. A cannot be placed on Tile 2
iv. B cannot be placed on Tile 7

a. Model the problem of finding a solution to this problem using an efficient variant of CSP.
b. Solve the problem using an algorithm for the identified variant. Show the steps and final solution.
c. What is the time complexity for solving the identified CSP variant considering n variables and domain size d for each variable? Explain your answer.

2. Write a prolog program to remove duplicates in a given list. For example,

```
?- remove_duplicate([1,2,1,3,3,5,4,1],L)
```

will result in `L = [1,2,3,5,4].` Explain your program **[5]**