DEPARTMENT OF COMPUTER SCIENCE
COMSATS University, Attock Campus

Class: BS-CS-5
Course title: AI
Max. Marks: 10

Instructor: Dr. Zahoor Tanoli
Course Code: CSC462
Assignment: 3

Perform CSP and formulate the following problem [CLO-3]

Q-1: Your task is to schedule some tasks on Tuesday, Thursday, and Saturday. There are 5 Tasks that need to be performed on these days and you have 3 workers who will be doing these tasks.

Each worker can perform one task at a time.
The tasks are:

- Task 1 – Sanitary work: from 18:00-19:00
- Task 2 – Electricity work: from 18:30-19:30
- Task 3 – Wood work: from 19:00-20:00
- Task 4 – Steel work: from 19:00-20:00
- Task 5 – Tiling work: from 19:30-20:30

The professors are:

- Worker A, who can perform tasks 3 and 4.
- Worker B, who can perform tasks 2, 3, 4, and 5.
- Worker C, who can perform tasks 1, 2, 3, 4, 5.

a. Formulate this problem as a CSP problem in which there is one variable per task, stating the domains, and constraints. Constraints should be specified formally and precisely but may be implicit rather than explicit.

b. Draw the constraint graph associated with this CSP.

c. Show the domains of the variables after running arc-consistency on this initial graph

Q-2: **Apply CSP to solve the 4-queen problem with the rules Horizontal, vertical and diagonal assignments are not allowed.**