Student Name: _____   Section: _____   Roll No: _____

Program: CS20 A & B

Semester: Spring – 2021 *[Covid19 Online Exam]*

Time Allowed: 1 hour + 40 Minutes

Course: **Design & Analysis of Algorithms**

Examination: Sessional – I & II

Total Marks: 50 Weightage: 20 %

Date: 28th May, 2021

Instructor: Mr. Fazl-e-Basit

NOTE: Attempt all questions. *NO ANSWER SHEET REQUIRED*

Time: 20 Minutes   Marks: 10

Q.1) Let $f(n) = 3n^2 + 21n + 40$. Prove/Disprove *Mathematically* f(n) for: $\Omega(n^3)$, $O(n^3)$ and $\Theta(n^3)$ **[6]**

Q.2) What is the running time of the following code? Justify your argument   **[4]**

```
for x=1 to n do
  begin
      y = x;
        while y > 1 do
                y = y / 2;
    end
```