Assignment-01

Students (RABBIYA MEHMOOD & MISBAH SHAKEEL)

$$\boldsymbol{3n^3 + 20n^2 + 5 = O(n^6)}$$

$$3n^3 + 20n^2 + 5 \leq C.n^6$$

$$let\ C = 30\ and\ no = 1$$

$$3(1)^3 + 20(1)^2 + 5 \leq 30(1)^6$$

$$28 \leq 30$$

This equation satisfies Big-Oh condition.

$$\boldsymbol{7n - 2 = O(n)}$$

$$7n - 2 \leq C.n$$

$$let\ C = 8$$

$$7n - 2 \leq 8n$$

$$-2 \leq n$$

$$n \geq -2$$

$$7(-2) - 2 < -8(-2)$$

$$-14 - 2 \leq -16$$

$$-16 \leq -16$$

This equation satisfies Big-Oh condition.

$$\boldsymbol{7n - 2 = \Theta(n^2)}$$

$$C.n^2 \leq 7n - 2$$

$$let\ C = 5\ and\ no = 1$$

$$5(1)^2 \leq 7(1) - 2$$

$$5 \leq 7 - 2$$

$$5 \leq 5$$

$$7n - 2 \leq C.n^2$$

$$let\ C = 8\ and\ no = 1$$

$$7(1) - 2 \leq 8(1)^2$$

$$7 - 2 \leq 8$$

$$5 \leq 8$$

This equation satisfies Big- Θ condition.

$$\boldsymbol{7n - 2 = \Theta(n)}$$

$$C.n \leq 7n - 2$$

$$let\ C = 6\ and\ no = 1$$

$$6(1) \leq 7(1) - 2$$

$$6 \leq 5$$

$$7n - 2 \leq C.n$$

$$let\ C = 7\ and\ no = 1$$

$$7(1) - 2 \leq 7(1)$$

$$5 \leq 7$$

$$6 \leq 5 \leq 7$$

This equation violating the rules of big-theta equation