



**VIT**<sup>®</sup>  
**Vellore Institute of Technology**  
(Deemed to be University under section 3 of UGC Act, 1956)

**SCHOOL OF COMPUTER SCIENCE AND ENGINEERING**  
**Fall Semester 2021-22**  
**CSE2003 – Data Structures and Algorithms**

**Digital Assessment 1 – B1 – 27-Sep-2021**

**Answer all questions.**

1. Use Master Theorem to estimate the complexity of the following recurrence relation.

$$T(n) = 6T(n/3) + n^2 \log n \quad (3 \text{ marks})$$

2. Use Master Theorem to estimate the complexity of the following recurrence relation.

$$T(n) = 3 T(n/5) + n^2 \log n \quad (3 \text{ marks})$$

3. Transform the following infix expression to its postfix form: (4 marks)

$(A + B) * C - D / E + F.$

Trace out the steps in a table specifying the input symbol, position of the stack and the position of the output expression at every step.