Birla Institute of Technology and Science-Pilani, Hyderabad Campus
Second Semester 2021-2022
Tutorial-5
Course No CS F351
Course Title: Theory of Computation

General Instructions: *Argue logically. Write it in a manner that explains your logic very clearly. Do not miss steps in between.*

1. Design a PDA for the language
   (a) $L_3 = \{a^i(bc)^j \mid i, j \geq 0, i \geq j\}$
   (b) $L = \{a^n b^m \mid n \neq m\}$
2. Construct a PDA that accepts the language generated by a grammar with productions: $S \rightarrow aSbb \mid b$.
3. Convert the PDA $M = (\{q\}, \{0,1\}, \{Z, A, B\}, \delta, q, Z, \phi)$ to CFG P: $\delta(q, 0, B) = (q, \epsilon), \delta(q, 1, A) = (q, \epsilon), \delta(q, \epsilon, Z) = (q, \epsilon), \delta(q, 0, Z) = (q, AZ), \delta(q, 1, Z) = (q, BZ)$
   $\delta(q, 0, A) = (q, AA), \delta(q, 1, B) = (q, BB)$