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|  | **United International University (UIU)** |
|  | *Dept. of Computer Science & Engineering (CSE*) |
|  | **CSE-2233, Theory of Computation** - Class Test-3 (C, I)  **Time :** 30 minutes ( SET-1) |



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| **1.** | Construct a CFG that generates the following languages:  L = { am bn ck | k = 3m+n, m >= 0, n > 0 } | **3** |
| **2.** | Consider the following context-free grammar (CFG) and answer the questions that follows:  S→ A | XP  A→ 0A11 | Z  Z→ 0Z2 | 02  X→ 0X2 | Y  Y→ 0Y | 0  P→ 1P | 11  Perform **Leftmost derivation** for the string: 0000221111 | **3** |
| **3.** | Consider the following context-free grammars (CFG):  𝑆 → 0𝑆3 | 00𝑆3 | 𝐴  𝐴 → 0𝐴2 | 0𝐴22 | 𝐵  𝐵 → 0𝐵1 | 2S3 | ε  With the help of **Top-Down Parse tree** decide whether the grammar is **Ambiguous** or not for the following string: **000001233** | **4** |