Total No. of Questions: 3

Enrollment No. en21cs304031

Faculty of Engineering

Mid Sem-I Examination February-2024

CS3CO27 Compiler Design

Programme: B.Tech Branch/Specialization: CSE

**Duration: 1.5 Hrs.** **Maximum Marks: 30**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

| | | | Marks | BL | CO | PO | PSO |
|---|---|---|---|---|---|---|---|
| Q.1 | i. | Which of the following technique is used for building cross compilers for other machines?<br>a) Canadian Cross<br>b) Mexican Cross<br>c) X-cross<br>d) Brazilian Cross | 1 | BL0 | CO1 | PO1 | |
| | ii. | Which of the following component is important for semantic analysis?<br>a) Yacc<br>b)Lex<br>c)Symbol Table<br>d)Type Checking | 1 | BL0 | CO1 | PO1 | |
| | iii. | YACC builds up _____<br>a) SLR parsing table<br>b) Canonical LR parsing table<br>c) LALR parsing table<br>d) None of the mentioned | 1 | BL0 | CO2 | PO1 | |
| | iv. | Which is the most powerful parser?<br>a) SLR<br>b) LALR<br>c) Canonical LR<br>d) Operator-precedence | 1 | BL | CO2 | PO1 | |
| | v. | How many derivation trees are there?<br>S->bA S->aB<br>A->a B->b<br>A->aS B->bS<br>A->bAA B->aBB<br>a) 1<br>b) 2<br>c) 3<br>d) 4 | 1 | BL2 | CO2 | PO2 | |

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|---|---|---|---|---|---|---|
| | vi. | Which grammar gives multiple parse trees for the same string?<br>a) Unambiguous<br>b) Regular<br>c) Ambiguous<br>d) All of the above | 1 | BL0 | CO2 | PO1 |
| Q.2 | i. | Write down the role of lexical analyzer. | 2 | BL0 | CO1 | PO1 |
| | ii. | Explain the cross compiler and boot strap compiler. | 4 | BL1 | CO1 | PO2 |
| | iii. | Explain the concept of front end and back end phases in the context of compiler design. | 6 | BL1 | CO1 | PO2 |
| OR | iv. | Elucidate the concept of input buffering. Describe its methodologies. | 6 | BL1 | CO1 | PO3 |
| Q.3 | i. | What is a parser and its various parsing techniques? | 2 | BL0 | CO2 | PO1 |
| | ii. | Check whether the given grammar is ambiguous or not-<br>$R \rightarrow R + R / R . R / R^* / a / b$ | 3 | BL2 | CO2 | PO3 |
| | iii. | Calculate the first and follow functions for the given grammar-<br>$S \rightarrow ACB / CbB / Ba$<br>$A \rightarrow da / BC$<br>$B \rightarrow g / \in$<br>$C \rightarrow h / \in$ | 7 | BL2 | CO2 | PO3 |
| OR | iv. | Compare the Recursive Predictive Descent Parser and the Non-Recursive Predictive Descent Parser. | 7 | BL3 | CO2 | PO2 |

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