Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14CS2038** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PRINCIPLES OF COMPILER DESIGN** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe the phases of a compiler in detail and translate the following statement.  X = 2 \* Y - 7 | CO1 | 20 |
| **(OR)** | | | | |
| 2. | a. | Elaborate on the front end and back end of a compiler in detail. | CO1 | 10 |
| b. | Write short note on any two compiler construction tools. | CO3 | 10 |
|  |  |  |  |  |
| 3. |  | Demonstrate the construction of a minimum state DFA for the following regular expression.  1 (1\*0|01\*)\*10. | CO2 | 20 |
| **(OR)** | | | | |
| 4. | a. | Write a Lex Program to count all the even numbers. | CO3 | 10 |
| b. | Write a YACC program for performing the basic arithmetic operations on any given numbers. | CO3 | 10 |
|  |  |  |  |  |
| 5. |  | Check whether the following grammar is LL(1) or not. Check whether the string “1001” could be parsed or not.  S →1S  S 🡪 0A0S  S 🡪ε  A → 1A  A 🡪 ε | CO2 | 20 |
| **(OR)** | | | | |
| 6. |  | Construct a SLR parser for the following grammar and parse the string “aabba”  S → aS | bT | ε  T →aT | bS | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Construct a CLR parsing table for the following grammar and parse the string “ 0111”  S → CD  C → 0C | 0  D → 1D | 1 | CO2 | 20 |
| **(OR)** | | | | |
| 8. | a. | Give syntax directed definition for the construction of syntax tree for the following grammar.  E 🡪 E or T | T  T 🡪 T and F | F  F 🡪 ( E ) | true | false | CO2 | 10 |
| b. | Convert the following exoression into any five intermediate code representation.  r = (a-b) + (b \* c) – (b \* c) / (a + b) | CO2 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Discuss on Storage Organisation Strategies in detail. | CO3 | 10 |
| b. | Explain peephole optimization with proper examples. | CO2 | 10 |