

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION)

CLASS: BE  
BRANCH: IT

SEMESTER: VII  
SESSION : MO/2019

SUBJECT : IT7043 COMPILER DESIGN

TIME: 1.5 HOURS

FULL MARKS: 25

**INSTRUCTIONS:**

1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

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- Q1 (a) Explain the need compiler. Differentiate between compiler and interpreter. [2]  
(b) Highlight some *important features* of any standard compiler. What are the challenges in designing compiler? [3]
- Q2 (a) Explain the front-end and the back-end parts of a compiler. [3]  
(b) Highlight the secondary tasks of lexical analyzer. [2]
- Q3 (a) Explain why a system may have several compilers but normally has a single linker. [2]  
(b) Define parser. Can a C-compiler detect any error for the following statement at Lexical analysis phase? Justify your answer. [3]  
`int 9x, *p;`
- Q4 (a) Point out the drawbacks of top down parser. [2]  
(b) Explain the importance of finding FIRST and FOLLOW sets for constructing LL(k) parser;  $k \geq 1$ . [3]
- Q5 (a) Design LL(1) parser for the grammar (G) given below (without removing immediate left-recursion). [5]  
 $E \rightarrow E+T, E \rightarrow T, T \rightarrow id$ . Is the grammar LL(1)? Draw conclusion about the grammar G from the designed LL(1) table.
- Q6 (a) Explain the concept behind *l*-value and *r*-value. [2]  
(b) Explain briefly various *conflicts* that occur during shift-reduce parsing. [3]

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