

Roll No .....

**CS-7002 (CBGS)****B.E. VII Semester**

Examination, November 2018

**Choice Based Grading System (CBGS)****Compiler Design****Time : Three Hours**<https://www.rgpvonline.com> **Maximum Marks : 70****Note:** i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) What are the phases of a compiler? Explain the function of each phase in brief with example. 7
- b) Explain the following terms:- 7
  - i) Translators, compiler and Interpreters.
  - ii) Bootstrapping.
2. a) What are major data structures used in compiler? Explain the concept of Bootstrapping. 7
- b) What do you mean by context free grammar? Give distinction between regular and context free grammar and limitations of context free grammar. 7  
<https://www.rgpvonline.com>
3. Consider the following grammar:- 14
 
$$E \rightarrow E+T/T$$

$$T \rightarrow TF/F$$

$$F \rightarrow F*/a/b$$
  - i) Construct the SLR parsing table for this grammar.
  - ii) Construct the LALR parsing table.

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4. a) What down the procedure to translate an infix expression into postfix form? Also write syntax directed definition for the same. 7
- b) Explain the symbol table management system. 7
5. a) Write a short note on operator precedence parsing and function. <https://www.rgpvonline.com> 7
- b) Differentiate between stack allocation and heap allocation. 7
6. a) Construct a DAG for the basic block whose code is given below:- 7
 
$$D:=B*C$$

$$E:=A+B$$

$$B:=B*C$$

$$A:=E-D$$
- b) What is peephole optimization? Explain it. 7
- 7. a) Explain in brief the various issues of design of a code generator. 7
- b) Explain the basic block and control flow graph. 7
- 8. Write short notes:- <https://www.rgpvonline.com> 14
  - i) Three Address code
  - ii) Loop optimization.
  - iii) Dead code elimination.
  - iv) Back patching.

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