

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016****Subject Code:2170701****Date:18/11/2016****Subject Name:Compiler Design****Time:10.30 AM to 1.00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define the following terms: **07**
1. Token
 2. Pattern
 3. Lexeme
 4. Ambiguous grammar
 5. Handle pruning
 6. Compiler
 7. DAG
- (b) Discuss various error recovery strategies of compiler. **07**
- Q.2** (a) Write a short note on input buffering methods. **07**
- (b) Explain subset construction method for constructing DFA from an NFA with an example. **07**
- OR**
- (b) Construct DFA for the following regular expression using syntax tree with firpos, laspos and followpos function. **07**
- $(a \mid b)^*a$
- Q.3** (a) Explain SLR parsing method with example. **07**
- (b) Construct LL(1) Parsing table for the following grammar. Also show moves made by input string : abba. **07**
- $S \rightarrow aBa$
 $B \rightarrow bB \mid \epsilon$
- OR**
- Q.3** (a) Check that following grammar is LALR or not. **07**
- $S \rightarrow L=R$
 $S \rightarrow R$
 $L \rightarrow *R$
 $L \rightarrow id$
 $R \rightarrow L$
- (b) Write a short note on operator precedence parsing with an example. **07**
- Q.4** (a) Write S-attributed syntax directed definition for simple desk calculator. Draw annotated parse tree for any valid input. **07**
- (b) What is Intermediate Code? What is its importance? Discuss various representations of three address code. **07**
- OR**
- Q.4** (a) Discuss synthesized attributes and inherited attributes in details. **07**
- (b) Explain Peephole Optimization method. **07**
- Q.5** (a) Discuss generic issues in the design of code generator. **07**

(b) Explain the following parameter passing methods.

07

1. Call-by-value
2. Call-by-reference
3. Copy-Restore
4. Call-by-Name

OR

Q.5 (a) Explain Dynamic storage allocation technique.

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(b) Discuss any three methods for code optimization.

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