

GUJARAT TECHNOLOGICAL UNIVERSITY**MCA – SEMESTER – III • EXAMINATION – SUMMER 2018****Subject Code: 630005****Date: 25-May-2018****Subject Name: System Software****Time: 02.30 pm to 5.00 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 following terms: **07**
1. Interpreter
 2. Forward reference
 3. Sequencing Symbol
 4. FSA
 5. Application Domain
 6. SSM
 7. Impure Interpreter
- (b)** Answer the following questions
1. Explain the significance of Search and allocation data structures. **03**
 2. Explain with suitable example: Derivation and Reduction **04**
- Q.2 (a)** Explain different forms of editors in detail. **07**
- (b)** Discuss regular expression in detail. Draw DFA and STT for $(ab)^+c(d)^*(e)^+$ **07**
- OR**
- (b)** Discuss Bottom up parsing. List Naïve bottom up parsing algorithm. Also discuss limitations of the algorithm. **07**
- Q.3 (a)** List and explain advantages of Assembly language over machine language. Give instruction format for assembly language and machine language. Also explain Assembler directives. **07**
- (b)** Differentiate between Variant I and Variant II. List and explain assembler pass II algorithm. **07**
- OR**
- Q.3 (a)** Answer the following questions:
1. List assembly language imperative statements with their code. **03**
 2. Explain all data structures used in assembler pass I. **04**
- (b)** Explain with suitable example: IC token format for label, mnemonic, operand1 and operand2 fields of an assembly statement. **07**
- Q.4 (a)** Explain with suitable example: types of parameters used in a Macro. **07**
- (b)** List and explain Macro preprocessor pass-I algorithm. **07**
- OR**
- Q.4 (a)** Explain with suitable example: Expansion time variable, Conditional expansion and expansion time loops. **07**
- (b)** What is optimizing transformation? Explain all optimizing transformations with suitable example. **07**
- Q.5 (a)** Answer the followings:
1. Define: Translated origin, Linked origin and Load origin. **03**
 2. Write short note on Linking for overlays. **04**
- (b)** Write short note on static pointer, dynamic pointer and display array. **07**

OR

- Q.5 (a) Draw the block diagram of SEGDEF, EXTDEF, LEDATA and EXLUPP records of an object record. Explain the significance of each of them. 07
- (b) Explain value number concept used in local optimization with suitable example. 07

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