

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA - SEMESTER-III • EXAMINATION – SUMMER • 2014**

**Subject Code: 630005**

**Date: 05-06-2014**

**Subject Name: System Software**

**Time: 02:30 pm - 05:00 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)** Explain the following parameter passing mechanism. Compare and contrast in terms of execution efficiency and power to produce side effects. **07**

1. Call by value – result
2. Call by reference
3. Call by name

**(b)**

1. Define language processing. Explain language processor development tools. **04**

2. consider the grammar G **03**

<Sentence> ::= <Noun phrase><Verb phrase>

<Noun phrase> ::= <Article><Noun>

<Verb phrase> ::= <Verb><Noun phrase>

<Article> ::= a | an | the

<Noun> ::= monkey | banana

<Verb> ::= ate

Perform derivation of the string “ the monkey ate a banana”

**Q.2 (a)** Fill in the blanks **07**

1. \_\_\_\_\_ is a language processor which bridge an execution gap but is not a language translator.
2. \_\_\_\_\_ is the process of recognizing the lexical components in a source string.
3. A \_\_\_\_\_ is an association between the memory address attribute of a data item and the address of a memory area.
4. \_\_\_\_\_ aims at improving the execution efficiency of a program.
5. \_\_\_\_\_ is used to reduce the main memory requirement of a program.
6. The linker process a set of object modules to produce a ready to execute program form which is called \_\_\_\_\_.
7. The device driver is the glue between an \_\_\_\_\_ and its I/O devices.

**(b)**

1. Write short notes about loader. **04**
2. Explain extended stack model. **03**

**OR**

**(b)**

1. Write short notes about self-relocating program. **04**
2. Write short notes about programming environment. **03**

- Q.3 (a)** Write the tasks performed by the analysis and synthesis phase of assembler. Explain data structure used for assembler. **07**
- (b)** 1. Explain the following assembler directives. **04**  
i) ORIGIN  
ii) EQU  
2. Write notes on operator precedence parser. **03**
- OR**
- Q.3 (a)** Explain the algorithm for first pass of assembler. **07**
- (b)** 1. Explain three kinds of statements in assembly program. **04**  
2. Write notes on recursive decent parser. **03**
- Q.4 (a)** What is macro? Explain different types of parameter used in macro with example. **07**
- (b)** 1. Explain nested macro calls with example. **04**  
2. Explain translated origin, linked origin and load origin with example. **03**
- OR**
- Q.4 (a)** What is macro expansion? Explain expansion time variable and expansion time statements with syntax and example. **07**
- Q.4 (b)** 1. List out different tables used in micro preprocessor with fields. **04**  
2. Explain four components of object module of a program. **03**
- Q.5 (a)** What is the use of device driver. What is the significance of start(), close(), halt(), read() and ioctl() entry points in device driver. **07**
- (b)** Explain the components and use of interpreter. What is pure and impure interpreter. **07**
- OR**
- Q.5 (a)** Write steps for installing device driver in a UNIX system. **07**
- (b)** Explain different phases of the compiler in detail. **07**

\*\*\*\*\*