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. i) ORIGIN ii) EQU	**04**
		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**

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