

**END SEMESTER EXAMINATION, 2020****Semester: 4<sup>th</sup>****Subject code: CO-402****Subject: System Programming****Full Marks: = 70****Duration: 3 hours****Instructions: 1. Questions on Part A are compulsory****2. Answer any five questions from Part B**

<b>PART-A , MARKS-25</b>		
<b>Question No.</b>	<b>Questions</b>	<b>Marks</b>
<b>1</b>	<b>Fill in the blanks:</b>	<b>1x10=10</b>
	a. Lexical analyzer produces..... b. Instructions that do not appear in the object program are called as..... c. A .....assembly language statement indicate actions to be performed during execution. d. Syntax analysis is also called ..... e. The Assembler stores all the names and their corresponding values in..... f. A computer cannot boot if it does not have the ..... g. TII stands for..... h. .... converts Assembly Language Program to object program. i. In a two pass assembler pseudo code, equ is to be evaluated during..... j. The last statement of the source program should be.....	
<b>2</b>	<b>Write true or false:</b>	<b>1x10=10</b>
	a. Lexical analyzer isolates terminal and non terminal symbols. b. Compiler translates low level language to machine language. c. In compile and go loader, assembler is occupying portion of memory. d. A parser for a grammar is a program that produces a linear list from an input string. e. Intermediate code is a program generated between analysis and synthesis phase. f. In two pass assembler, task of pass II is to synthesize the target program. g. Code optimization is in analysis phase of compilation process. h. In direct linking loader, multiple procedure segments are not possible. i. DC is a declarative statement. j. Control, usage and allocation of different hardware components of computer is done by application software.	
<b>3</b>	<b>Choose the correct answer</b>	<b>1x5=5</b>
	a. Instructions of assembly language is called: i) Symbolic operand specification      ii) Mnemonic iii) Imperative statement              iv) None of the above	

	<p>b. Assembly language is:</p> <p>i) Low level language      ii) High level language</p> <p>iii) Both a and c      iv) None of the above</p> <p>c. Translator for low level programming language were termed as:</p> <p>i) Assembler      ii) Compiler</p> <p>iii) Linker      iv) Loader</p> <p>d. Object code is then passed through a program called..... which turns it into an executable program:</p> <p>i) Compiler      ii) Linker</p> <p>iii) Loader      iv) None of the above</p> <p>e. A bottom-up parser generates:</p> <p>i) Right most derivation      ii) Left most derivation</p> <p>iii) Right most derivation in reverse      iv) Left most derivation in reverse</p>	
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PART-B, MARK- 45		
Que No.	Questions	Marks
4	<p>(a) What are the different types of software? Give example of each.</p> <p>(b) What are the types of Assembly language statement? Explain each of those.</p>	1+2=3 6
5	<p>(a) What is a loader? What are the functions of a loader?</p> <p>(b) Explain any one of the following loading scheme with its advantages and disadvantages.</p> <p>i) Compile and Go loader    ii) General loading scheme</p>	1+4=5 4
6	<p>(a) Discuss top down and bottom up parser.</p> <p>(b) Name different phases of compiler. Explain the first two phases.</p>	3 6
7	<p>(a) What is code optimization? Explain about the different optimization rules.</p> <p>(b) Explain the following Assembler directives...</p> <p>i) LTORG    ii) EQU    iii) ORIGIN</p>	1+2=3 2*3=6
8	<p>(a) What is a compiler? State different functions of analysis and synthesis phase with block diagram.</p> <p>(b) What are the functions of dynamic loading?</p>	2+4=6 3
9	<p>(a) What is pass in a compiler?</p> <p>(b) What is top down parsing? Parse an expression <math>a+b*c</math> with the grammar rules stated below...</p> <p><math>E = T + E / T</math>  <math>T = V * T / V</math>  <math>V = &lt;id&gt;</math></p>	2 2+5=7
10	<p><b>Write short notes on any three:</b></p> <p>a) Code generation</p> <p>b) Boot strapping</p> <p>c) Non- deterministic automata (NFA)</p> <p>d) Deterministic automata (DFA)</p>	3*3=9

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