SYSTEM PROGRAMMING

QUESTION BANK

1.List the phases that constitute the front end of a compiler?

2.Mention the back-end phases of a compiler?

3.Depict diagrammatically how a language is processed?

4.Write a program in Assembly Language to find sum of 10 numbers?

5.What do you mean by Dynamic Loading?

6.Give the uses of following directives: RESB, RESW, BYTE and WORD with examples?

7.In an Assembler Design Process, what are the uses of following tables: POT, MOT and SYMTAB? Explain their structures also.

8.What alternative data structures can be for MOT?

9.Explain the file formats: elf, coff, a.out?

10.Explain all types of loader?

11.Which amongst the one pass and two assembler is better and why?

12.Write down all the steps of Pass 1 and Pass 2 of Linking?

13.What do you mean by Static Linking?

14.Write a YACC program for Desk Calculator which can do following operations (+, - , *, /, ()) ?

15.Write a program in LEX to count the number of identifiers, words, characters, integers from a C file?

16.Write the actions of an LR Parse for the following string for the grammar and parse table given below: aa1bbbb

Grammar:

S ->A

S->B

A->aAb

A->0

B->1

B->aBbb

State | a | b | ACTION | | | | GOTO
0 | S1 | | 0 | 1 | $ | S | A | B
1 | S1 | | S2 | S3 | | 11 | 4 | 5
2 | | | S2 | S3 | | | | 7
3 | r6 | r4 | r4 | | | | 6 |
4 | r1 | r6 | r6 | | r4 | | |
5 | r2 | r1 | r1 | r6 | r6 | | |
6 | | r2 | r2 | | r1 | | |
7 | | S8 | | r2 | r2 | | |
8 | | S9 | | | | | |
9 | | r3 | | | | | |
10 | | S10 | | | | | |
11 | | r5 | | r5 | | | |
| | | | | acc | | |

Symbols used in the above ...
5. (a)

17.Generate the object code for following Assembly Language Program? consider start address to be 4000.

Assemble the following SIC source program :

SUM	START	4000
FIRST	LDX	ZERO
	LDA	ZERO
LOOP	ADD	TABLE, X
	TIX	COUNT
	JLT	LOOP
	STA	TOTAL
	RSUB	
TABLE	RESW	2000
COUNT	RESW	1
ZERO	WORD	0
TOTAL	RESW	1
	END	FIRST

Opcodes for the Mnemonics are :

LDX	04
LDA	00
ADD	18
TIX	2C
JLT	38
STA	0C
RSUB	4C

18.Explain the structure of section table in two pass assembler?

19.Consider the context-free grammar

S->aX

X-> bX | bY

Y->c

The symbols S,X,Y are non-terminals and S is the start symbol while a,b and c are terminal symbols.

- i) Give the canonical collections of LR(0) items for this grammar.
- ii) Is this grammar SLR? Prove by constructing SLR Parsing table