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**Department of Computer Science & Engineering**

**SUB: SYSTEM SOFTWARE AND COMPILER DESIGN**

**MODULE 1 QUESTION BANK**

1. Explain SIC/XE architecture.
2. List and explain all assembler independent and dependant features.
3. Explain program relocation.
4. Write an SIC/XE program to calculate DELTA=ALPHA+BETA\*GAMMA-10.
5. Write an algorithm for Pass-1 of assembler.
6. List the data structures used in macro processor with example.

**MODULE 2 QUESTION BANK**

1. What is loader? What are basic functions the loader has to perform?
2. Develop an algorithm for Bootstrap Loader.
3. Explain Dynamic Linking with suitable example.
4. Differentiate between a linking loader and linking editor, with the help of suitable diagram.
5. Explain different loader option commands with example.
6. Write PASS-1 and PASS-2 algorithm for linking a loader.
7. Explain Dynamic Linking, automatic library search, loader design options with suitable example.
8. Write in brief i) MS-DOS linker and ii)CRAY MPP linker.
9. Write the SIC/XE program for a bootstrap loader with suitable comments.
10. Illustrate MS-DOS object module with its record types

**MODULE 3 QUESTION BANK**

1. With the help of a diagram and example, Explain the various phases of a Compiler.
2. Write a note on LEX

3. Explain input buffering strategy used in lexical analysis phase.

4. Write the regular definition for unsigned numbers.

5. Write the transition diagram for i) Unsigned numbers ii) Relational operators

6. Give the Lookahead code for sentinels

**MODULE 4 QUESTION BANK**

1. Consider the following CFG S->SS+|SS\*|a and the input string aa+a\*

i)Give LMD and RMD

ii) Parse tree

iii) Is the grammar ambiguous?

iv) Describe the grammar generated by the grammar.

v) Left factor the grammar.

2. Explain Left Recursion and Left factoring with an example.

3. Explain error recovery strategies

4. Construct the predictive parsing table for the grammar shown below and show the moves made by it on input id+id\*id

E->TE’

E’->+TE’|ԑ

T->FT’

T’->\*FT’| ԑ

F->(E)|id

5. Write the Algorithm for Predictive parsing.

6. Explain the steps to find FIRST and FOLLOW.

7. Construct Canonical LR(1) items for the augmented grammar

S’->S

S->Cc

C->cC|d

8. Construct LR(0) items and the SLR parsing table for the grammar

E->E+T|T

T->T\*F|F

F->(E)|id

9. Construct LR(0) items and the SLR parsing table for the grammar

S->L=R|R

L=\*R|ID

R->L

**MODULE 5 QUESTION BANK**

1. Give SDD of a simple calculator. Write the parse tree for the input string 5\*6+7.
2. Define synthesized and inherited attributes with examples.
3. Briefly explain the main issues in code generation.
4. Obtain the DAG for the expression, show the steps a+a\*(b-c)+ (b-c)\*d.
5. Explain i)Triples ii)Quadruples iii)Indirect triples.
6. Write the machine instruction for the following three address instruction.
7. b=a[i]
8. a[j]=c
9. x=\*p
10. \*p=y
11. If x<y goto L
12. What are the steps involved in optimization of basic blocks. Explain any two steps in brief.