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Class Test Part A

2a) Different features of Machine-Independent Loader.

- Loading and linking are often thought of as operating system service functions.

Features

- Automatic Library search
- Loader options

Automatic Library search for handling external references

- Allows programmers to use standard subroutines without explicitly including them in the program to be loaded.
- The routines are automatically retrieved from a library as they are needed during linking.

Loader options

- Common options that can be selected at the time of loading and linking.

2b) Difference between linkage loader and linkage Editor

Linking Loader	Linkage Editor
• Performs all linking and relocation operations including automatic library search and loads the linked program into memory for execution	• Produces a linked version of the program, which is normally written to a file or library for later execution.

• Suitable when a program is reassembled for nearly every execution.	• suitable when a program is executed many times without being reassembled
~~• Resolution of ext~~ • Resolution of external reference and library searching is done more than once.	• Resolution of external reference and library searching is done exactly once.

Similarities

Both linkage editor and linking loader run an object program and generates exe.

20) Machine - Independent features of a macro processor

- Concatenation of macro Parameters

Most macro processors allow parameters to be concatenated with other character strings.

- Generation of unique Labels.

It is in general not possible for the body of a macro instruction to contain labels of the usual kind.

- Conditional macro expansion

Most macro processors can modify the sequence of statements generated for a macro expansion depending on the arguments supplied in the macro invocation.

- Keyword macro parameters

Positional Parameters: —

Parameters and arguments were associated with each other according to their positions in the macro

conditional macro

Prototype and macro invocation statement

2d) Characteristics of an IDE (BASIS NetBeans)

The Explorer - The Explorer filesystem tab presents a hierarchial view of files and directories mounted in NetBeans. Files used by BBx or one of their accessory program like AppBuilder are identified by icons.

The text Editor: ~~The text editor for~~ Visually every IDE has a text editor designed to write and manipulate source code. Some tools may have visual components to drag & drop front end components, but most have a simpler interface with language specific syntax highlighting. Example :- VS code Editor

Debugger: Debugging tools assist users in identifying and remedying errors within source code.

Compiler: compilers are components that translate source code to forms machine can process.

Code completion: Code Complete features assist programmer by intelligently identifying & inserting common code components. understand such.

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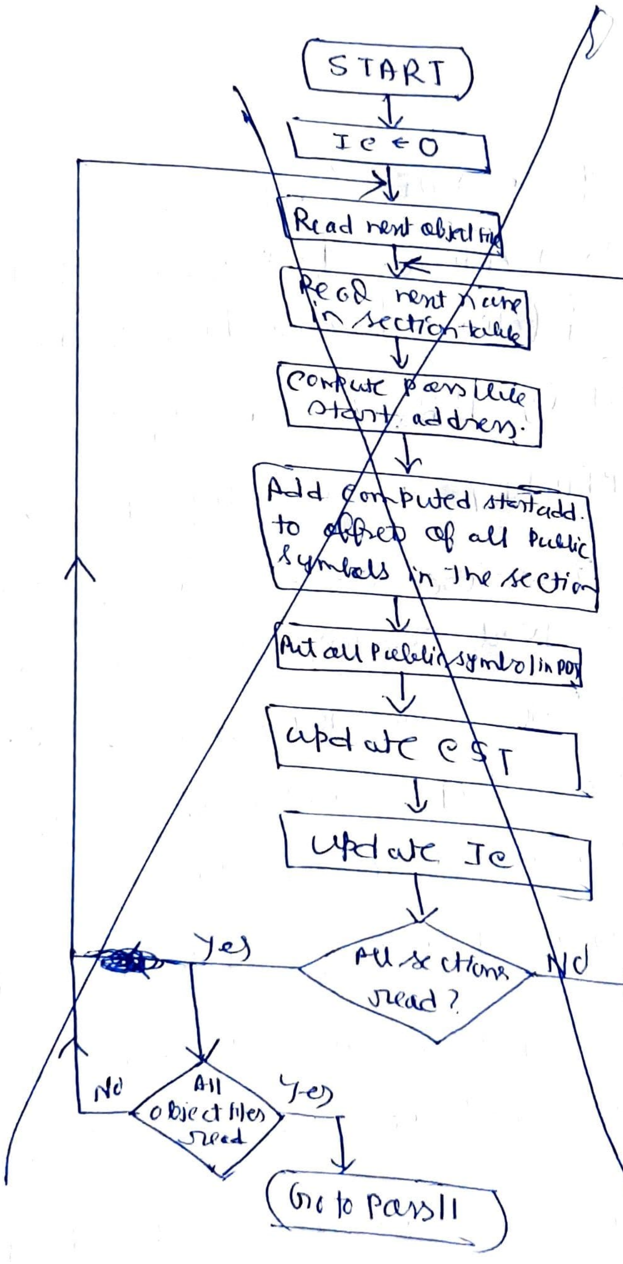
Language support:- Some IDES are language specific while some offer multi language support.

Integrations & Plugins:- IDES comes in with lot of integrations & plugins which we can customize as per our needs.

3)a)



Pass I

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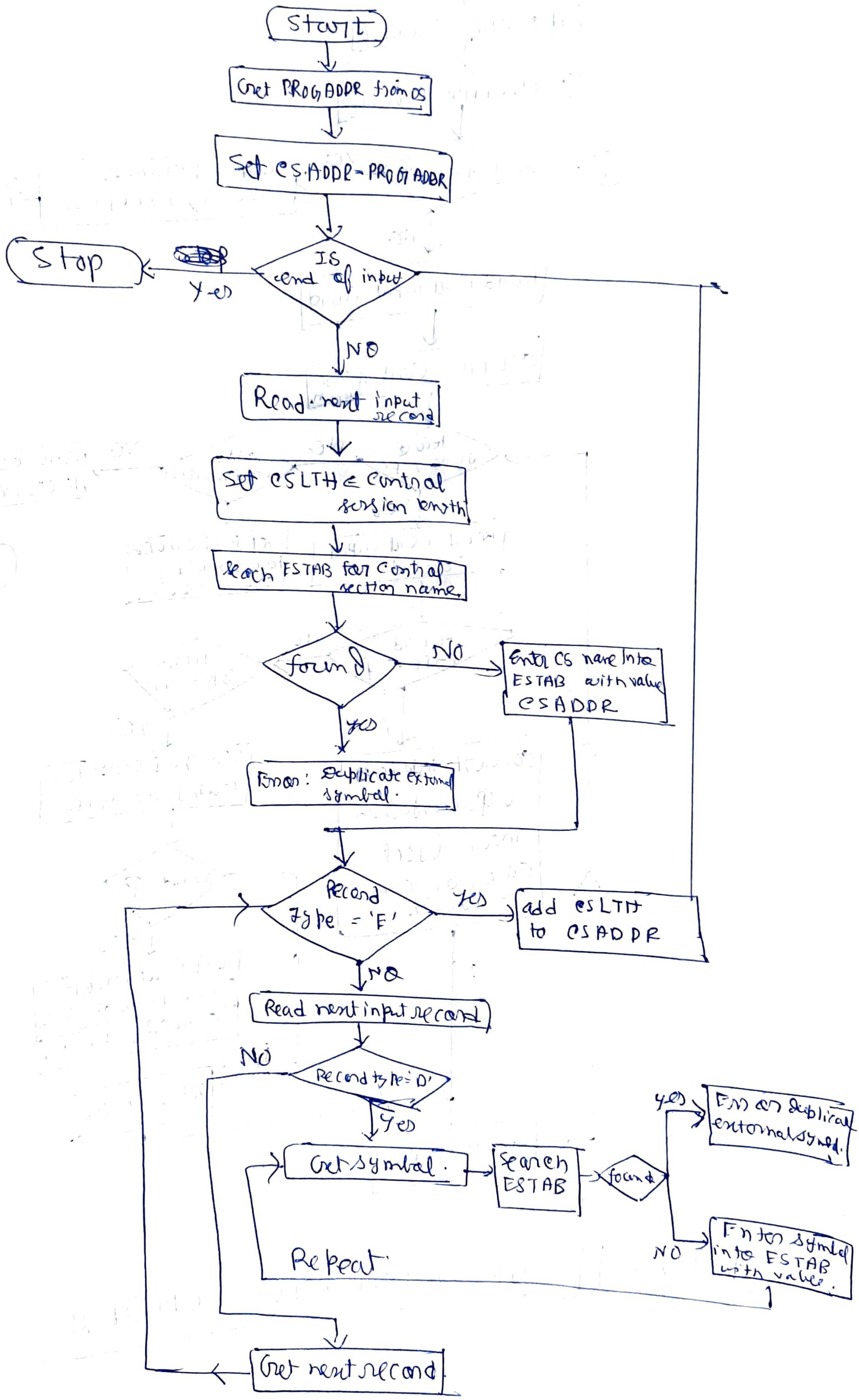
3 a) Two Pass Linking Loader



Pass 1 of Linking Loader.

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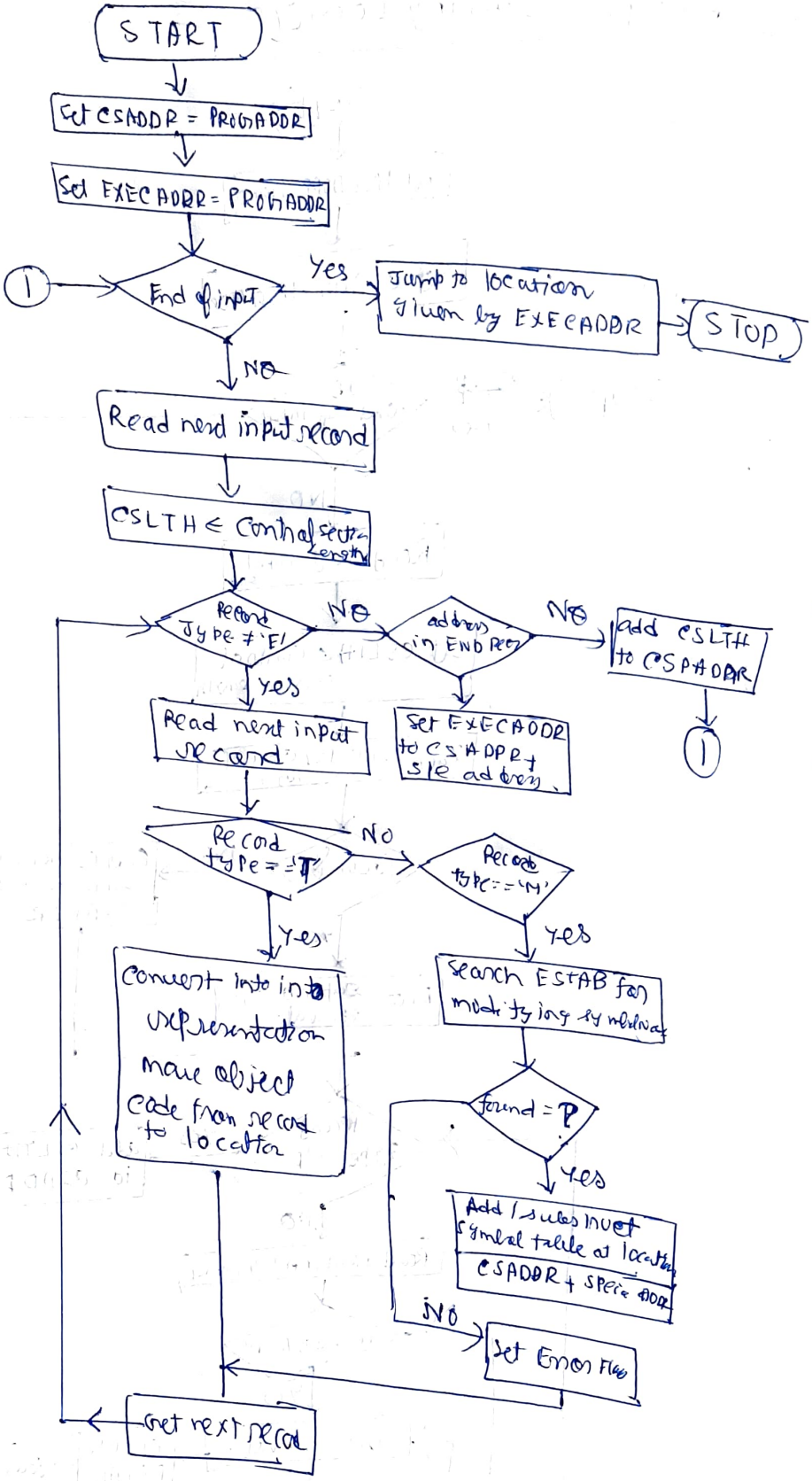

PASS II OF LINKING LOADER

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1)

LABEL	Mnemonics	opcode	LOCCTR	LOCCTR Rougher
MAIN	START			0
	BALR	10, 0	0	
	USING	*, 10		2
	L	5, = F'4'	2	
	SER	6, 6	6	
	L	4, 0(0, 1)	8	
	L	6, 4 (0, 1)	12	
CYCLE	LE	2, 0 (0, 4)	16	
	LE	4, 0 (0, 6)	20	
	MER	2, 4	24	
	AER	6, 2	26	
	A	6, F'4'	28	
	A	4, = F'4'	30	~~26~~
	BCT	5, CYCLE	32	
	L	4, 8 (0, 1)	36	
	STE	6, 0 (0, 4)	40.	
	END	MAIN		

44.

i) Symbol Table

SYMBOL	declaration	value	R/A	segment
MAIN	Yes	0	R	CS
CYCLE	Yes	16	R	CS.

ii) Literal Table.

Literal	LC value	error status	R/A
= F'4'	48	no	R

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iii) Base Register table

Reg No	Content
10	2

iv) ST in a single table.

LOCATION	General machine Instruction	Generated hexadecimal
0	BALR. 10, 0	06A0
2	L 5, =F'4' => L 5, 46(0,10)	5850A02E
6	SER 6,6	3B66.
8	L 4, 0(0,1)	58401000
12	L 6, 4(0,1)	58601004
16	LE 2, 0(0,4)	78204000
20	EE 4, 0(0,6)	78466000
24	MER 2,4	3C24.
26	AER 6, 2	3A62.
28	A 6, F'4'	5A64
30	A 4, =F'4' => A 4,46(0,10)	5A4A
32	BCT 5, 14(0,10)	4650A00E
36	L 4, 8 (0, 1)	58401008
40	STE 6,0 (0, 4)	70604000.

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