NAME :- KRUNAL RANK

ROLL NO :- U18CO081

CLASS :- B TECH 3RD YEAR
COMPUTER ENGINEERING

SEMESTER :- 6

EXAM :- MID SEMESTER EXAM

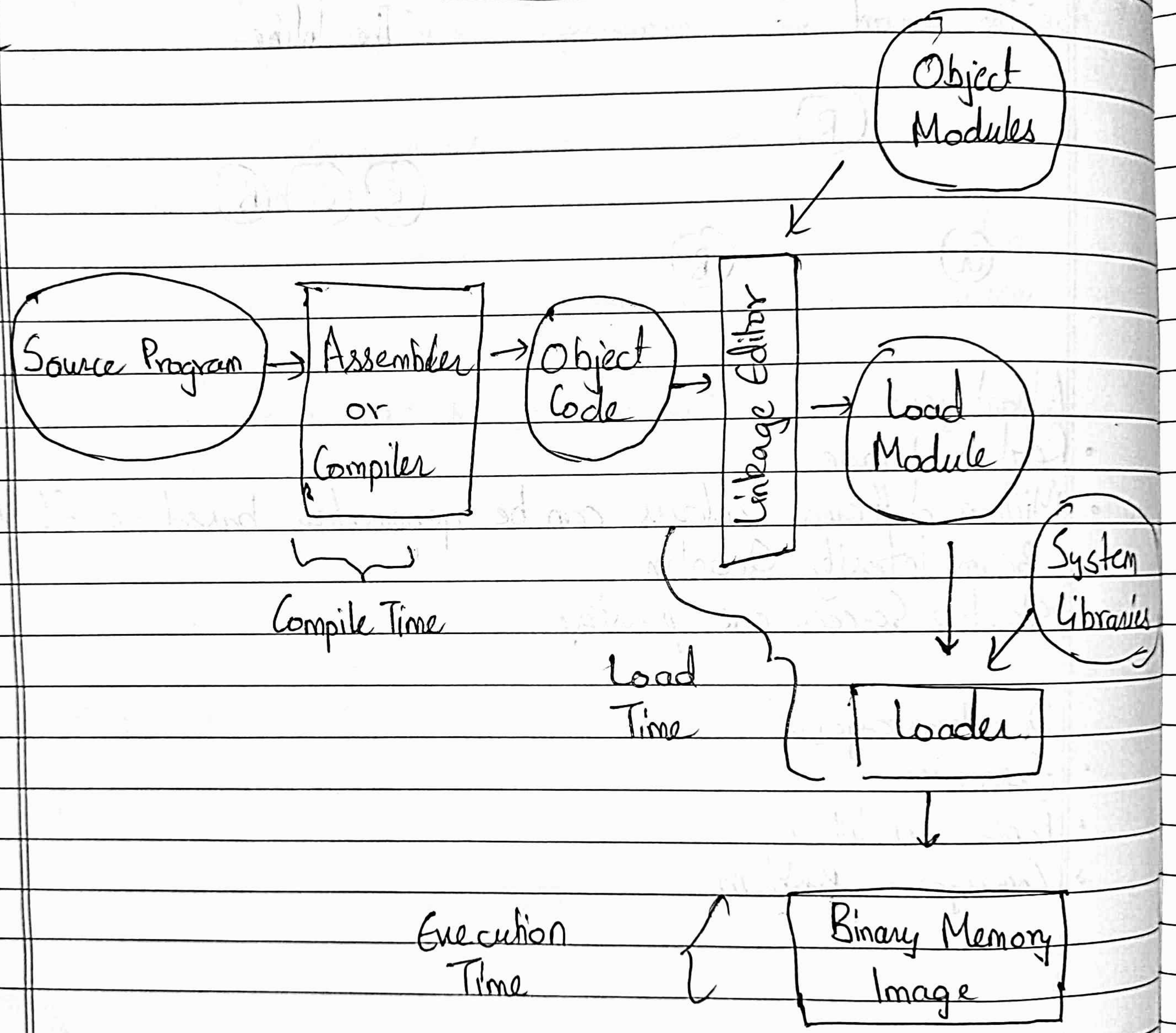
U18CO081 (81) K.R.Rank

(1)

TOTAL PAGES = 7

SECTION A

Ans 1:



Life Cycle of A Source Program

Q2 U18C0081 K.R.Rank (2)

Ans 2:

The tasks of Analysis Phase are as follows:-

- Isolate the label, mnemonic opcode, and operand fields of a constant.
- If a label is present, enter the pair in a new entry of a symbol table.
- Check validity of mnemonics opcode.
- Perform LC ~~Prog~~ Processing.

The output of Analysis Phase is the Intermediate Representation of Code that is used in the Synthesis Phase.

Ans 3:

The Table of Incomplete Instruction is usually a Hash based data structure that helps resolve the problem of forward referencing in a single pass assembles.

Forward referencing refers to the fact that a symbol is used before it is defined.

Instructions containing forward references can be left incomplete until address of the referenced symbol is defined. These are placed in Table of Incomplete Instructions.

For example, in the below example,

(100)	START 100
(100)	MOVER AREG, A
(101)	PRINT B
	.
	.
	.
(107)	A DS 3

(TII)

LC No	Incomplete Instruction
100	A
101	B

'A' is used in LC No 100 and defined at LC No. 107. Hence, it is stored in TII and then TII is used to detect all definitions of undefined symbol addresses.

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Ans 4:
- Mixed parameters can be used in macros.
- A macro definition may use both positional and keyword parameters.
- In such a case, all positional parameters must precede all keyword parameters in macro call.

For example,

SUMUP [A,B], [G=20, H=X]

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classmate

Date

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Ans 5:

- A self relocating program is a program which can perform its own relocation of address sensitive information.

- It is done with the help of a table of information that contains address sensitive instructions and code to perform relocation of such instructions.

- An overlay structured program is a program which has the load origin as some other part of the program.
- Its loading overwrites the previously loaded overlay with the same load origin.
- It is used to reduce the main memory requirement of the program.

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U18CO081 (Q6) K. R. Patel

Ans 6:

- We can reduce memory requirement of a program which has the same load origin by using an overlay.
- The overlay manager basically receives the control and loads the root.
- A procedure call which crosses overlay boundaries lead to an interrupt.
- The interrupt is processed by the overlay manager and the appropriate overlay is loaded into the memory.
- Control is then transferred to the OS loader to load the appropriate program.

Basically, Overlay is used to reduce the main memory requirement of a program and allows the programs to be larger than computer's main memory.

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Ans 7:

- Dynamic linking is performed during the execution of binary program.
- The linker is invoked when an unresolved external reference is encountered during the execution of a program.
- The arrangement has several benefits ~~contain~~ concerning use, sharing and upt updating library modules.
- If the module ~~is~~ referenced by a ~~p~~ ~~ro~~ program has already been linked to another program that is in ~~ed~~ execution, a copy of the module would exist in the memory. The same copy is used for linking.
- To facilitate dynamic linking, ~~sat~~ static linking is executed first.
- The static linker links each external reference in the program to a dummy module whose task is to call the dynamic linker and pass the symbol to it.
- Hence, the dynamic linker is activated only when an external reference is identified during execution.