General Software

EVALUATION SHEET

1. Match each of the following concepts with its definition by writing the correct letter in the space provided.

Concept	Definition
Source Program	d
Symbol Table	e
Assembly	c
Machine Code	b
Assembler	a
Assembly Language	f

Definitions

a. Program that translates a symbolic language program into machine code.

b. Form of a program that is executable by a computer.

c. Process of translating a symbolic language program.

d. Form of a program as it is written by a programmer.

e. Establishes the relationships between labels and actual addresses.

f. Rules that a programmer must obey in writing a program.

2. Circle the letters of the statements that describe the advantages of using assembly language rather than machine code.

(a.) Faster to write.

b. Manipulates a greater number of binary addresses.

c. Less costly to use.

d. Greater variation in types of programs that may be written.

(e.) Easier to learn.

(f.) More self-documenting.

(g.) Less error prone.

3. For each of the actions listed below, place an X in the column corresponding to the assembler pass during which the action occurs. (Note that some actions may occur in more than one pass. In such cases, indicate *all* passes in which the action may occur.)

Action	Pass 1	Pass 2	Pass 3
Symbol Table			
a. The symbol table is constructed.	X		
b. The symbol table is printed.	X	X	X
Binary Machine Code			
c. The binary machine code is generated.		X	
d. The binary code tape is punched.		X	
Assembly Listing			
e. The assembly listing is printed.		X	X
Error Checking			
f. Duplicate labels are detected.	X		
g. Unresolved references are detected.		X	
h. Instruction syntax errors are detected.	X		

4. Indicate whether each of these statements is an advantage (A) of using high-level programming languages, a disadvantage (D), or neither (N) an advantage nor disadvantage by writing the correct letter in the space provided.

Statement	A, D, or N
Uses a different amount of execution time and memory space than low-level languages.	D
Efficiency of a high-level language translator differs from that of a low-level language translator.	D
Similarity to natural language and algebra.	A
Uses a very specific vocabulary and grammar.	N
Translated into assembly language, then into machine code.	D
A high ratio of machine instruction to language statement affects program development time.	A
Use of mnemonic variable names and syntax affects documentation.	A
A primary purpose is to express program procedures.	N
Translator used to handlemachine-dependent details.	A

5. Using the instruction set below, convert the statement

RESULT = A + B – C + D

into equivalent assembly instructions.

CLA
ADD
STR
CMA
IAC
"Data"

- As the statement would most likely be part of a larger program, a *halt* statement would *not* be inserted after the operation is coded.

- It is *not* necessary to convert the instructions into binary machine code.

- RESULT, A, B, C, and D are stored at successive locations beginning at location 205. Assume that the instructions for the arithmetic are to begin at location 317.

RESULT = A + B – C + D

Location	Label	Operand
205	RESULT,	0
206	A,	1
207	B,	7
210	C,	5
211	D,	10

Location	Op Code	Operand	Comments*
317	CLA		/clear the accumulator
320	ADD	C	/AC = C
321	CMA		/AC = –C (1's complement)
322	IAC		/AC = –C (2's complement)
323	ADD	D	/AC = –C + D
324	ADD	B	/AC = B – C + D
325	ADD	A	/AC = A + B – C + D
326	STR	RESULT	/RESULT = A + B – C + D

* This is supplementary information. It is not expected to be part of the student's answer.