Programming Assignment 1

Q1.

For the SIC/XE object code given below in hexadecimal format, answer the question that follows

SIC/XE Object Code: $0x7540AA$

The following tables should be referred for answering the questions

Instruction References		Memory Address	Value Stored
Mnemonic	Opcode (0x)	0x1020	0x004590
ADD	0x18	...	
AND	0x40	0x1023	0x00A900
CLEAR	0xB4	...	
DIV	0x24	0x1026	0x100200
J	0x3C	...	
JEQ	0x30	0x1030	0x75C210
JLT	0x38	...	
LDA	0x00	0x1034	0x001999
LDB	0x68	...	
LDT	0x74	0x1040	0x003500
MUL	0x20	...	
		0x1045	0x001920

Register	Value Stored		
Base (B)	0x1000	...	
Program Counter (PC)	0x1025	0x1610	0x103000
Index (X)	0x0010	...	
		0x1920	0x001034

1- What is the instruction format?

Instruction Format: Format 4 (4 bytes)

2- What is the instruction Op code?

The instruction Op code is:
Register T, 0x7540

3- What is the instruction addressing mode?

The instruction addressing mode is:
Program-Counter Relative, **Immediate**

4- What is the target address?

The target address is:
10AA

5- What is the register value in A?

Register value in A: 0010AA

Q2.

For the SIC/XE dump

```
A=000000    X=000005    L=000000    B=000005
S=FFFFFF    T=FFFFFF    P=00000D    CC=LT

01A0   69100001 54FFFFFF FE434F50 33363031
01B0   32FFFF4B 9F123456 000001A0 FFFFF1FF
```

(a) What SIC integer is stored beginning at 01A6?

O1A0 = 691000

O1A3 = 0154FF

O1A6 = FFFFFE

(b) What are the 4 ASCII characters beginning at 01AB?

01A9 = 43
01AA = 4F
01AB = 50
01AC = 33
01AD = 36
01AE = 30

50333630
The 4 ASCII
characters
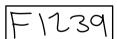are: P360

(c) What SIC/XE instruction is stored beginning at 01B3?

The SIC/XE instruction stored beginning at
O1B3 is:

F1239

4B9F1234

+JSUB (bit x) + F1234

(d) What does the instruction at 01A0 do?

+LDB load 1 into register 4

Q3.

For the SIC/XE dump
```
01A0 69100001 54FFFFFF FE434F50 33363031
01B0 32FFFF4B 9F123456 000001A0 FFFFF1FF
```
Assume "STUFF" in the symbol table has value 01B9. What value will
load into register A for each of the following:

01B9 = 0001A0

(a) LDA STUFF

Register A: 0001A0

(b) LDA #STUFF   immediate

Register A: 0001B9

(c) LDA @STUFF   indirect

Register A: 691000

(d) +LDA #STUFF   extended, immediate

Register A: 0001B9