Can Tasar

Computer Design
Homework 1

Question 1:

y = a^2/b + cb/a-c

Address	Command	Symbolic Address	
01 **02** **03**	INP INP INP	A B C	inputs
04 **05** **06** **07**	SRG MUL DIV STR	A A B Y	a*a/b is stored in y
08 **09** **10**	SRG SUB STR	A C a_sub_c	a-c value stored in a_sub_c
11 **12** **13** **14** **15** **16** **17** **18**	SRG MUL DIV STR SRG ADD PRN STP	C B a_sub_c TMP Y TMP Y	kept the result of c*b/a-c in a temporary variable and added it to y
19 **20** **21** **22** **23** **24**	A B C Y a_sub_c TMP		

Question 2:

Find the sum of unknown number of integers

Address	Command	Symbolic Address	
01*(repeat)*	INP	N	add numbers to SUM and repeats
02	SRG	SUM	
03	ADD	N	
04	STR	SUM	
05	PRN	SUM	
06	JMP	01	
07	STP		
08	N		
09	SUM		

Question 3:

$$Y = \sum_{n=1}^{100} i$$

Address	Command	Symbolic Address	
01*(repeat)* **02** **03**	SRG ADD STR	Y i Y	new value of Y for each repeat
04 **05** **06**	SRG ADD STR	i 14 (one) i	increase i
07 **08** **09**	STR SUB NGT	15(hundred) i 11 (printy)	100 – i control for loop
10 **11**(printy) **12**	JMP PNT STP	01 Y	Print Y
13 **14** **15** **16**	i 1 100 Y	1 (one) (hundred)	

Questin 4:

Find the max of the 50 int

I tried to write bubble sort algorithm in this question

Address	Command	Symbolic Address	
001	INP	Num	
002 **003** **004** **005** **006**	SRG ZRO ADD STR JMP	i 007 (init_max) one i 011	i = counter if i = 0, we set max to num Then increase i
007(init_max) **008** **009** **010**	SRG ADD STR JMP	Max Num Max 004	This part will only work if i = 0 otherwise jump
011 **012** **013** **014**	SRG SUB NGT JMP	Max Num 015(new_max) 017	if max - entered num is negative it is new max number otherwise jump
015(new_max) **016**	SRG STR	Num Max	new max number
017 **018** **019** **020** **021** **022** **023** **024** **025** **026**	SRG SUB ZRO JMP STP Max Num i 50 1	Fifty i 021 stop 001 0 0 fifty one	50 times loop

It takes 50 numbers from the user one by one
and compares them with the MAX

Question 5:

Find the average of N integers

Address	Command	Symbolic Address	
001 **002***(repeat)* **003** **004**	INP SRG ADD STR	N Y i Y	new value of Y for each repeat
005 **006** **007**	SRG ADD STR	i 18 (one) i	increase i
008 **009** **010**	STR SUB NGT	N i 12 (avr)	n – i control for loop
011 **012**(avr) **013** **014** **015** **016**	JMP SRG DIV STR PNT STP	01 Y N Y Y	calculate Y/N and print
017 **018** **019** **020**	i 1 Y N	1 (one)	