

Question 1:

```
C:\>edit Lab1_t1.asm  
C:\>masm Lab1_t1.asm;  
Microsoft (R) Macro Assembler Version 5.00  
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.  
  
51700 + 464844 Bytes symbol space free  
0 Warning Errors  
0 Severe Errors
```

```
C:\>link Lab1_t1.obj  
  
Microsoft (R) Overlay Linker Version 3.60  
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.  
  
Run File [LAB1_T1.EXE]:  
List File [NUL.MAP]:  
Libraries [.LIB]:  
  
C:\>Lab1_t1.exe  
A
```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program

File Edit Search View Options Help C:\LAB1_T1.ASM

```
dosseg      ;disk op system segment
.model small ;max 16 bit code
.stack 100h  ;starting address 100hexa decimal
.data        ;variable declaration
.code        ;all code
main proc    ;Define the start of main procedure
  mov dl,'A' ;A is declared
  mov ah,2    ;output
  int 21h    ;intrupt
  mov ah,4ch  ;exit
  int 21h    ;intrupt
main endp    ;end of main procedure
end main     ;end of main program
```

Question 2:

```
C:\>edit Lab1_q2.asm  
C:\>masm Lab1_q2.asm;  
Microsoft (R) Macro Assembler Version 5.00  
Copyright (C) Microsoft Corp 1981-1985, 1987. All rights reserved.  
  
51700 + 464844 Bytes symbol space free  
  
0 Warning Errors  
0 Severe Errors  
  
C:\>link Lab1_q2.obj  
  
Microsoft (R) Overlay Linker Version 3.60  
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.  
  
Run File [LAB1_Q2.EXE]:  
List File [MUL.MAP]:  
Libraries [.LIB]:  
  
C:\>Lab1_q2.exe  
BILAL  
C:\>
```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, P



The screenshot shows a DOSBox window with the title bar 'C:\LAB1_Q2.ASM'. The window contains assembly language code with comments explaining each instruction. The code starts with segment declarations (.dosseg, .model small, .stack 100h), variable declarations (.data), and code declarations (.code). It then defines a main procedure (main proc) which outputs 'B', then 'I', then 'L', then 'A', then 'L' again. It performs interrupt 21h calls for output and declaration, and ends with an exit (int 21h, mov ah,4ch). The comments describe the purpose of each line, such as 'disk op system segment', 'maximum 16 bit code', and 'declaration of variable L'.

```
File Edit Search View Options Help  
C:\LAB1_Q2.ASM  
  
dosseg :disk op system segment  
.model small :maximum 16 bit code  
.stack 100h :starting address 100h  
.data :variable declaratin  
.code :All code  
main proc :main procedure start from here  
mov dl,'B' :B is declared  
mov ah,2 :Output odf B  
int 21h :interrupt  
mov dl,'I' :Declaration  
mov ah,2 :Output of I  
int 21h :Interrupt  
mov dl,'L' :again declaration  
mov ah,2 :Output of L  
int 21h :Intruption  
mov dl,'A' :declaration Of A  
mov ah,2 :Output of A  
int 21h :Interrupt  
mov dl,'L' :declaration of variable L  
mov ah,2 :Output of Variable  
int 21h :Interrupt  
mov ah,4ch :Exit  
  
int 21h :interrupt  
main endp :end of procedure  
end main :end of main program
```

Question3:

```
C:\>Nasm Lab1_q3.asm -O Lab1_q3.com
nasm: error: unrecognised option '-O'
nasm: error: more than one input file specified
type 'nasm -h' for help

C:\>Nasm Lab1_q3.asm -o Lab1_q3.com

C:\>Lab1_q3.com

C:\>Nasm Lab1_q3.asm -l Lab1_q3.lst

C:\>Type Lab1_q3.lst
      [org 0x100] ;it indicates that first da
ta will be stored at 100h
      mov ax,10 ;Assigning value
      mov bx,15 ;assigning value
      add ax,bx ;adding both numbers
      mov bx,4 ;overwrite bx with 4.previous
s value is lost
      mov ax,0x4c00;terminating the programme
      int 0x21 ;Intrupt
      1
      2 00000000 B80A00
      3 00000003 BB0F00
      4 00000006 01D8
      5 00000008 BB0400
      6 0000000B B8004C
      7 0000000E CD21
      8
```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ... —

The screenshot shows a DOSBox window with the title bar "C:\LAB1_Q3.ASM". The menu bar includes File, Edit, Search, View, Options, and Help. The main window displays the assembly code from the previous listing, with the comments removed for readability. The assembly instructions are shown in blue, and the comments are shown in white.

```
[org 0x100] ;it indicates that first data will be stored at 100h
mov ax,10 ;Assigning value
mov bx,15 ;assigning value
add ax,bx ;adding both numbers
mov bx,4 ;overwrite bx with 4.previous value is lost
mov ax,0x4c00;terminating the programme
int 0x21 ;Intrupt
```

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: ...																-	□	X
AX	4C00	SI	0000	CS	F000	IP	14A1	Stack	*0	42BD	Flags	7210						
BX	0004	DI	0000	DS	19F5				+2	06C5								
CX	0000	BP	0000	ES	19F5	HS	19F5		+4	7010	OF	DF	IF	SF	ZF	AF	PF	CF
DX	0000	SP	FFF2	SS	19F5	FS	19F5		+6	0110	0	0	1	0	0	1	0	0
CMD >																		
14A0	FB			STI					1		0	1	2	3	4	5	6	7
14A1	FE			DB	FE				DS:0000	CD 20 FF 9F 00 EA FF FF								
14A2	3825			CMP	[DI],AH				DS:0008	AD DE 1B 05 C5 06 00 00								
14A4	00CF			ADD	BH,CL				DS:0010	18 01 10 01 18 01 92 01								
14A6	CB			RET	Far				DS:0018	01 01 01 00 02 FF FF FF								
14A7	51			PUSH	CX				DS:0020	FF FF FF FF FF FF FF FF								
14A8	B94001			MOU	CX,0140				DS:0028	FF FF FF FF EB 19 E6 11								
14AB	E2FE			LOOP	14AB				DS:0030	A2 01 14 00 18 00 F5 19								
14AD	59			POP	CX				DS:0038	FF FF FF FF 00 00 00 00								
									DS:0040	05 00 00 00 00 00 00 00								
									DS:0048	00 00 00 00 00 00 00 00								
2	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F		
DS:0000	CD 20 FF 9F 00 EA FF FF								AD	DE 1B 05 C5 06 00 00						= f.R i..+...		
DS:0010	18 01 10 01 18 01 92 01								01	01 01 00 02 FF FF FF					R.	
DS:0020	FF FF FF FF FF FF FF FF								FF	FF FF FF EB 19 E6 11								δ.μ.
DS:0030	A2 01 14 00 18 00 F5 19								FF	FF FF FF 00 00 00 00						6.....J.	
DS:0040	05 00 00 00 00 00 00 00								00	00 00 00 00 00 00 00						
1 Step	2 ProcStep	3 Retrieve	4 Help	ON	5 BRK	Menu	6		7	up	8	dn	9	le	10	ri		