



**Sarhad University of Science and Information
Technology, Peshawar
Department of CS/IT**

**Final Term Lab Examination 2025
Microprocessor Architecture & Assembly Language
4th Semester**

Total Marks: 30
Ali

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Registration Number: SU-23-01-001-005

Note: Attempt all questions, each question carries equal marks.

Q1. Choose the Correct Answer

[CLO-1]

1. What does the JG instruction do?

- A) Jump if less than
- B) Jump if greater
- C) Jump if equal
- D) Jump always

Answer: A

2. What is the purpose of the instruction mov bl, 3 in the program?

- A) It stores the result of comparison
- B) It clears the BL register
- C) It loads the value 3 into BL for comparison
- D) It adds 3 to AL

Answer: C

3. What is the purpose of the CMP AL, BL instruction?

- A) To add AL and BL
- B) To compare AL with BL
- C) To multiply AL and BL
- D) To move BL into AL

Answer: B

4. What is the value of AL immediately after mov al, 8 executes?

- A) 0
- B) 1
- C) 8
- D) 3

Answer: C

5. What instruction stops the program execution?

- A) MOV
- B) CMP
- C) JG
- D) HLT

Answer: D

Q2. Write an assembly program to multiply two signed 8-bit numbers: 73H and 10H, using registers AL and BL.

Show the result in AX.

[CLO-2]

Answer:

```
mov al, 73h
```

```
mov bl, 10h
```

```
cbw
```

```
imul bl
```

Q3. Write an assembly program to divide an unsigned 16-bit number 0021H by 0005H. Use AX as the dividend and BX as the divisor.

[CLO-2]

Answer:

```
mov ax, 0021h
```

```
mov bx, 0005h
```

```
xor dx, dx
```

```
div bx
```

Q4. Write an assembly program to display the message "Microprocessor and Assembly Language" on the screen.

[CLO-2]

Answer:

```
mov ah, 09h
```

```
mov dx, offset msg
```

```
int 21h
```

```
int 20h
```

```
msg db 'Microprocessor and Assembly Language$', 0
```

Q5. Write an assembly program that compares two values 5 and 6 in AL and BL registers. Use the JNE instruction

to jump if they are not equal. Assign AL a value of 9 if not equal, otherwise 0.

[CLO-2]

Answer:

```
mov al, 5  
mov bl, 6  
cmp al, bl  
jne not_equal  
mov al, 0  
jmp done  
not_equal:  
mov al, 9  
done:
```

Q6. Write an assembly program that compares two signed numbers 8 and 3 in AL and BL registers. Use the JG instruction to jump if AL is greater than BL. Set AL to 1 if greater, otherwise set AL to 0. End the program properly.

[CLO-2]

Answer:

```
mov al, 8  
mov bl, 3  
cmp al, bl  
jg greater  
mov al, 0  
jmp endp  
greater:  
mov al, 1  
endp:
```