



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

**Final Term Lab Examination 2025  
Microprocessor Architecture & Assembly Language  
4<sup>th</sup> Semester**

**Total Marks: 30**  
**Ali**

**Instructor: Muhammad Danish**

**Name: Ahmad**

**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:
```