

Indian Institute of Information Technology, Lucknow

End Term Exam 2024

Subject: System Programming and Scripting (SP51301C)

Q1)

Modify the following script to check if the number is divisible by 3 or 5 and print the appropriate message.
Explain the updated logic. [5 marks]

```
number=7
if [ "$number" -gt 10 ]; then
    echo "The number is greater than 10."
elif [ "$number" -eq 10 ]; then
    echo "The number is equal to 10."
else
    echo "The number is less than 10."
fi
```

Q2)

Extend the function below to include a condition where, if the age is above 50, it appends "You are a senior citizen." [5 marks]

```
greet() {
    echo "Hello, $1! You are $2 years old."
}
greet "Alice" 30
```

Q3) Do the changes in the code, make the function returns "True" if the sum of arguments is even and False if sum of arguments is odd?
[5 marks]

```
is_even() {
    echo $num
    if ((num % 2 == 0)); then
        echo 0
    else
        echo 1
    fi
}
result=$(is_even 4 3)
echo "Result: $result"
```

Q4) Explain various permissions used for scripts? [5 marks]

Q5) Explain what the function is doing and the output [5 marks]

```
fun() {
    local num=$1
    local result=1
    while [ "$num" -gt 1 ]; do
        result=$((result * num))
        ((num--))
    done
    echo "$result"
}
result=$(fun 5)
```


10 marks Questions

Q6) Modify the check sign function to also validate if the number is divisible by 5. Combine both checks and explain the logic. [10 marks]

```
check_sign() {  
    local num=$1  
    if [ "$num" -gt 0 ]; then  
        echo "$num is positive."  
    elif [ "$num" -lt 0 ]; then  
        echo "$num is negative."  
    else  
        echo "$num is zero."  
    fi  
}  
check_sign -5
```

Q7)

Extend this script to dynamically add elements based on user input (at end position) and display all fruits at the end ? [10 marks]

```
fruits=("apple" "banana" "cherry")  
fruits[3]="orange"  
fruits+=("mango")  
unset fruits[2]
```

Q8) Update the script below to allow users to input the values for num1 and num2. Include error handling if the inputs are not integers. [10 Marks]

```
greeting="Hello, World!"  
echo "$greeting"  
num1=10  
num2=5  
sum=$((num1 + num2))  
echo "Sum: $sum"  
((num1++))  
echo "Incremented num1: $num1"
```

9) Explain what operation, the function is calculating? and the output of the function? [10 Marks]

```
Fun2() {  
    local a=$1  
    local b=$2  
    while [ "$b" -ne 0 ]; do  
        local temp=$b  
        b=$((a % b))  
        a=$temp  
    done  
    echo "$a"  
}  
result=$(Fun2 56 98)  
echo "The operation ____ of 56 and 98 is $result"
```

10) Explain Traceroute and Ping with suitable examples? [10 Marks]