**1.Create a shell script file when it is executed it will ask for id and password if the id and password is verified it will print logged in if the id and password is incorrect then it will print invalid id and password. Given ID and password are "AIUB" and "4231" respectively.**

Answer:

```
#!/bin/bash
# Prompt for username and password
read -p "Username: " username
read -s -p "Password: " password
echo
# Check if the username and password are correct
if [[ $username == "AIUB" ]] && [[ $password == "4231" ]]
then
  echo "Logged in"
else
  echo "Invalid username or password"
fi
```

**2. Write a program that asks the user for a number n and prints the sum of the numbers 1 to n**

Answer:

```
#!/bin/bash

# Prompt the user for a number
read -p "Enter a number: " n

# Initialize the sum variable to 0
sum=0

# Loop from 1 to n and add each number to the sum
```

```
for ((i=1; i<=n; i++))
do
  sum=$((sum + i))
done

# Print the sum
echo "The sum of the numbers 1 to $n is: $sum"
```

**3. Create a shell script file and write code to count all the even odd numbers from 1 to 30. Use while loop and all numbers should be mentioned whether it is odd or even.**

Answer:

```
#!/bin/bash

# Initialize variables
i=1
even=0
odd=0

# Loop from 1 to 30 and count even and odd numbers
while [ $i -le 30 ]
do
  if [ $((i%2)) -eq 0 ]
  then
    echo "$i is even"
    even=$((even+1))
  else
    echo "$i is odd"
    odd=$((odd+1))
  fi
  i=$((i+1))
```

```
done

# Print the total number of even and odd numbers
echo "Total even numbers: $even"
echo "Total odd numbers: $odd"
```

**4. Write a shell script that will print the following menu,**

**1. Basic Mathematical Calculation**

**2. Compare Numbers**

**3. Calculate CGPA**

**4. Exit**

**User can choose any option from the menu and do the operation.**

**Option 1 should pop up another menu like,**

**1. Addition**

**2. Subtraction**

**3. Multiplication**

**4. Division**

**Each option in the menu will have two input fields. Inputs can be integer/float.**

**Option 2 will print the greatest and lowest numbers between the inputs (three inputs).**

**Option 3 will take input of no of semesters and GPA for each semester and calculate the CGPA. If CGPA is less than 2.50 student is in probation (print appropriate massage). Also print if the student is up for any medal. (>=3.50 bronze medal, >=3.75 silver medal, 4.00 gold medal)**

**Once one operation is done the main menu should pop up again.**

**Option 4 should quit the whole operation.**

Answer:

```
#!/bin/bash

# Define function for basic mathematical calculation menu
basic_math() {
  echo "Basic Mathematical Calculation"
  echo "1. Addition"
  echo "2. Subtraction"
  echo "3. Multiplication"
  echo "4. Division"
  read -p "Enter your choice: " choice

  case $choice in
    1) read -p "Enter first number: " num1
       read -p "Enter second number: " num2
       echo "Result: $num1 + $num2 = $(echo "$num1 + $num2" | bc)";;
    2) read -p "Enter first number: " num1
       read -p "Enter second number: " num2
       echo "Result: $num1 - $num2 = $(echo "$num1 - $num2" | bc)";;
    3) read -p "Enter first number: " num1
       read -p "Enter second number: " num2
       echo "Result: $num1 * $num2 = $(echo "$num1 * $num2" | bc)";;
    4) read -p "Enter first number: " num1
       read -p "Enter second number: " num2
       echo "Result: $num1 / $num2 = $(echo "scale=2; $num1 / $num2" |
bc)";;
    *) echo "Invalid choice";;
  esac
}
```

```
# Define function for comparing numbers menu
compare_numbers() {
  read -p "Enter three numbers (separated by spaces): " num1 num2 num3
  greatest=$num1
  lowest=$num1
  if ((num2 > greatest)); then
    greatest=$num2
  fi
  if ((num2 < lowest)); then
    lowest=$num2
  fi
  if ((num3 > greatest)); then
    greatest=$num3
  fi
  if ((num3 < lowest)); then
    lowest=$num3
  fi
  echo "Greatest number: $greatest"
  echo "Lowest number: $lowest"
}

# Define function for calculating CGPA menu
calculate_cgpa() {
  read -p "Enter number of semesters: " semesters
  total_gpa=0
  for ((i=1; i<=semesters; i++))
  do
    read -p "Enter GPA for semester $i: " gpa
    total_gpa=$(echo "scale=2; $total_gpa + $gpa" | bc)
  done
```

```
  cgpa=$(echo "scale=2; $total_gpa / $semesters" | bc)
  echo "CGPA: $cgpa"
  if (( $(echo "$cgpa < 2.50" | bc -l) )); then
    echo "You are in probation"
  elif (( $(echo "$cgpa >= 4.00" | bc -l) )); then
    echo "Congratulations! You have earned a gold medal."
  elif (( $(echo "$cgpa >= 3.75" | bc -l) )); then
    echo "Congratulations! You have earned a silver medal."
  elif (( $(echo "$cgpa >= 3.50" | bc -l) )); then
    echo "Congratulations! You have earned a bronze medal."
  fi
}

# Main loop for the menu
while true
do
  echo "Main Menu"
  echo "1. Basic mathematical calculation"
echo "2. Compare Numbers"
echo "3. Calculate CGPA"
echo "4. Exit"
read -p "Enter your choice: " choice

case $choice in
1) basic_math;;
2) compare_numbers;;
3) calculate_cgpa;;
4) echo "Exiting program..."
exit;;
*) echo "Invalid choice";;
```

```
esac
done
```

**5. Write a shell script to calculate the sum of 1~100.**

Answer:

```
#!/bin/bash

sum=0
for ((i=1; i<=100; i++))
do
  sum=$(($sum + $i))
done

echo "The sum of numbers from 1 to 100 is: $sum"
```

**6. Write a shell script that will ask for following inputs from the user and print them,**

**Name,**

**Occupation,**

**Institution,**

**Id No,**

**Date. (User will not input any date. Print current date)**

Answer:

```
#!/bin/bash

# Ask for user inputs
read -p "Enter your name: " name
read -p "Enter your occupation: " occupation
read -p "Enter your institution: " institution
```

```
read -p "Enter your ID number: " id
date=$(date +"%Y-%m-%d")

# Print the user inputs along with the current date
echo "Name: $name"
echo "Occupation: $occupation"
echo "Institution: $institution"
echo "ID number: $id"
echo "Date: $date"
```