**PRACTICE SHEET**

**Conditional Statements**

| **Devam Pandey** |
| --- |
| **23BCE10731** |
| **D11+D12+D13** |

| **Question No 1:**  **A school has following rules for grading system:**  **a. Below 25 - F**  **b. 25 to 45 - E**  **c. 45 to 50 - D**  **d. 50 to 60 - C**  **e. 60 to 80 - B**  **f. Above 80 – A.**  **Ask user to enter marks and print the corresponding grade.** |
| --- |
| **Source Code:**  **a = int(input("Enter the marks: "))**  **if a <= 25:**  **print ("F Grade")**  **elif a <= 45:**  **print ("E Grade")**  **elif a <= 50:**  **print ("D Grade")**  **elif a <= 60:**  **print ("C Grade")**  **elif a <= 80:**  **print ("B Grade")**  **elif a > 80:**  **print ("A Grade")**  **else:**  **print ("Invalid Input")** |
| **Sample Input and Output:**  **Enter the marks: 87**  **A Grade** |
| **Screenshot of the Output:** |

| **Question No 2:**  **Write a Python program that checks if a given year is a leap year or not. A**  **leap year is divisible by 4, except for years divisible by 100 but not divisible by**  **400.** |
| --- |
| **Source Code:**  **year = int(input("Enter the year: "))**  **if year % 4 == 0:**  **if year % 100 == 0:**  **if year % 400 == 0:**  **print ("It is a leap year")**  **else:**  **print ("It is not a leap year")**  **else:**  **print ("It is a leap year")**  **else:**  **print ("It is not a leap year")** |
| **Sample Input and Output:**  **Enter the year: 1900**  **It is not a leap year**  **Enter the year: 2024**  **It is a leap year** |
| **Screenshot of the Output:** |

| **Question No 3:**  **Accept three sides of a triangle and check whether the triangle is possible or**  **not. (Hint: Triangle is possible only when sum of any two sides is greater than**  **3rd side).** |
| --- |
| **Source Code:**  **a = int(input("Enter the 1st side: "))**  **b = int(input("Enter the 2nd side: "))**  **c = int(input("Enter the 3rd side: "))**  **if a+b > c:**  **if a+c > b:**  **if b+c > a:**  **print ("It is a Triangle!!")**  **else:**  **print ("It is not a Triangle!!")**  **else:**  **print ("It is not a Triangle!!")**  **else:**  **print ("It is not a Triangle!!")** |
| **Sample Input and Output:**  **Enter the 1st side: 3**  **Enter the 2nd side: 4**  **Enter the 3rd side: 5**  **It is a Triangle!!**  **Enter the 1st side: 1**  **Enter the 2nd side: 1**  **Enter the 3rd side: 3**  **It is not a Triangle!!** |
| **Screenshot of the Output:** |

| **Question No 4:**  **Write a Python program that converts temperatures between Celsius and**  **Fahrenheit. The user should input the temperature and its unit (C or F), and**  **the program should convert it to the other unit.** |
| --- |
| **Source Code:**  **temp = int(input("Enter the temperature only: "))**  **unit = input("Enter the unit: ")**  **if unit == "F" or unit == "f":**  **convertedTemp = (temp-32)\*(5/9)**  **print ("Converted temperature is",convertedTemp,"C")**  **elif unit == "C" or unit == "c":**  **convertedTemp = (temp\*(9/5))+32**  **print ("Converted temperature is",convertedTemp,"F")**  **else:**  **print ("Invalid Input")** |
| **Sample Input and Output:**  **Enter the temperature only: 104**  **Enter the unit: f**  **Converted temperature is 40.0 C**  **Enter the temperature only: 36**  **Enter the unit: c**  **Converted temperature is 96.8 F** |
| **Screenshot of the Output:** |

| **Question No 5:**  **A student will not be allowed to sit in exam if his/her attendance is less than**  **75%. Take following input from user -Number of classes held, Number of**  **classes attended and print percentage of class attended. Allow the student to**  **sit for the exam if he/she has medical case. Ask user if he/she has medical**  **cause or not (‘Y’ or ‘N’) and print accordingly. Finally Print whether the student**  **is allowed to sit in exam or not.** |
| --- |
| **Source Code:**  **clHeld = int(input("Number of classes held : "))**  **clAttended = int(input("Number of classes attended : "))**  **attendance = (clAttended/clHeld)\*100**  **if attendance < 75:**  **medCondition = input("The student has any medical conditions (Answer in 'Y' or 'N') : ")**  **if medCondition == "Y" or medCondition == "y":**  **print ("Allowed to sit in exam !!")**  **elif medCondition == "N" or medCondition == "n":**  **print ("Not Allowed to sit in exam")**  **else:**  **print ("Not Allowed to sit in exam")** |
| **Sample Input and Output:**  **Number of classes held : 10**  **Number of classes attended : 7**  **The student has any medical conditions (Answer in 'Y' or 'N') : N**  **Not Allowed to sit in exam**  **Number of classes held : 10**  **Number of classes attended : 8**  **Not Allowed to sit in exam**  **Number of classes held : 10**  **Number of classes attended : 5**  **The student has any medical conditions (Answer in 'Y' or 'N') : y**  **Allowed to sit in exam !!** |
| **Screenshot of the Output:** |

| **Question No 6:**  **Create a Python program that calculates and categorizes a person’s Body**  **Mass Index (BMI) based on their height and weight.** |
| --- |
| **Source Code:**  **h = float(input("Enter the hieght(in meters): "))**  **w = float(input("Enter the weight(in Kgs): "))**  **bmi = w/(h\*\*2)**  **if bmi < 18.5:**  **print ("The person is underweight!!!")**  **elif bmi >= 18.5 and bmi < 24.5:**  **print ("The person is Normal!!!")**  **elif bmi >= 24.5 and bmi < 30:**  **print ("The person is Overweight!!!")**  **elif bmi >= 30:**  **print ("The Person is Obese !!!")**  **else:**  **print ("Invalid input!!!")** |
| **Sample Input and Output:**  **Enter the hieght(in meters): 1.8**  **Enter the weight(in Kgs): 80**  **The person is Overweight!!!** |
| **Screenshot of the Output:** |

| **Question No 7:**  **Create a Python program for a movie theatre that calculates ticket prices**  **based on age and time of day. Tickets for children (age < 12) are $5, adults (age**  **>= 12) are $10, and seniors (age >= 60) are $7. For evening shows (after 5 PM),**  **there’s an additional $2 surcharge.** |
| --- |
| **Source Code:**  **time = input("Is the show after 5pm (answer in 'Y' or 'N') : ")**  **ticketPrice = 0**  **if time == "y" or time == "Y":**  **ticketPrice = 2**  **age = int(input("Enter the age of the viewer: "))**  **if age < 12:**  **ticketPrice = ticketPrice + 5**  **elif age >= 12 and age < 60:**  **ticketPrice = ticketPrice + 10**  **elif age >= 60:**  **ticketPrice = ticketPrice + 7**  **else:**  **print ("Invalid Input")**  **print ("Ticket price is $", ticketPrice)** |
| **Sample Input and Output:**  **Is the show after 5pm (answer in 'Y' or 'N') : y**  **Enter the age of the viewer: 4**  **Ticket price is $ 7**  **Is the show after 5pm (answer in 'Y' or 'N') : n**  **Enter the age of the viewer: 59**  **Ticket price is $ 10** |
| **Screenshot of the Output:** |

| **Question No 8:**  **A company decided to give bonus of 10% to employee if his/her year of**  **service is more than 3 years. Ask user for their salary and year of service and**  **print the net bonus amount.** |
| --- |
| **Source Code:**  **salary = int(input("Enter your salary: "))**  **serviceYears = int(input("Enter your years of service: "))**  **if serviceYears >3:**  **print ("Congratulations!! You are eligible for a bonus... Your bonus amount is : ", salary/10)**  **else:**  **print ("Sorry you are not eligible for a bonus")** |
| **Sample Input and Output:**  **Enter your salary: 40000000**  **Enter your years of service: 4**  **Congratulations!! You are eligible for a bonus... Your bonus amount is : 4000000.0** |
| **Screenshot of the Output:** |

| **Question No 9:**  **Ask user to enter age, gender (M or F), marital status (Y or N) and then using**  **following rules print their place of service.**  **If employee is female, then she will work only in urban areas.**  **If employee is a male and age is in between 20 to 40 then he may work in**  **anywhere.**  **If employee is male and age is in between 40 to 60 then he will work in urban**  **areas only.**  **And any other input of age should print "ERROR".** |
| --- |
| **Source Code:**  **age = int(input("Enter your age:"))**  **gender = input("ENter your gender(answer in 'm' or 'f'):")**  **marritalStatus = input("ENter your marital status(answer in 'y' or 'n'):")**  **if gender == "f"or gender == "F":**  **print ("You will only work in urban areas")**  **elif gender == "M" or gender == "m":**  **if age >= 20 and age <=40:**  **print ("You can work anywhere")**  **elif age >= 40 and age <=60:**  **print ("You can work only in urban areas")**  **else:**  **print ("ERROR")**  **else:**  **print ("Error: Unknown gender")** |
| **Sample Input and Output:**  **Enter your age:32**  **ENter your gender(answer in 'm' or 'f'):**  **Enter your age:32**  **ENter your gender(answer in 'm' or 'f'):m**  **ENter your marital status(answer in 'y' or 'n'):n**  **You can work anywhere**  **Enter your age:43**  **ENter your gender(answer in 'm' or 'f'):m**  **ENter your marital status(answer in 'y' or 'n'):n**  **You can work only in urban areas** |
| **Screenshot of the Output:** |

| **Question No 10:**  **A 4 digit number is entered through keyboard. Write a program to print a**  **new number with digits reversed as of orignal one.**  **E.g.-**  **INPUT: 1234 OUTPUT: 4321**  **INPUT: 5982 OUTPUT: 2895** |
| --- |
| **Source Code:**  **num = input("Enter a 4 digit number: ")**  **print (num[::-1])** |
| **Sample Input and Output:**  **Enter a 4 digit number: 1234**  **4321** |
| **Screenshot of the Output:** |

| **Question No 11:**  **What will be the output of the following?**  **if i < j:**  **if j < k:**  **i = j**  **else:**  **j = k**  **else:**  **if j < k:**  **j = i**  **else:**  **i = k**  **print(i,j,k)**  **(a) i = 3, j = 5, k = 7**  **(b) i = -2, j = -5, k = 9**  **(c) i = 8, j = 15, k = 12**  **(d) i = 13, j = 15, k = 13**  **(e) i = 3, j = 5, k = 17**  **(f) i = 25, j = 15, k = 17** |
| --- |
| **Source Code:**  **i = int(input("1st no. :"))**  **j = int(input("2nd no. :"))**  **k = int(input("3rd no. :"))**  **if i < j:**  **if j < k:**  **i = j**  **else:**  **j = k**  **else:**  **if j < k:**  **j = i**  **else:**  **i = k**  **print(i,j,k)** |
| **Sample Input and Output:**  **1st no. :3**  **2nd no. :5**  **3rd no. :7**  **5 5 7**  **1st no. :-2**  **2nd no. :-5**  **3rd no. :9**  **-2 -2 9**  **1st no. :8**  **2nd no. :15**  **3rd no. :12**  **8 12 12**  **1st no. :13**  **2nd no. :15**  **3rd no. :13**  **13 13 13**  **1st no. :3**  **2nd no. :5**  **3rd no. :17**  **5 5 17**  **1st no. :25**  **2nd no. :15**  **3rd no. :17**  **25 25 17** |
| **Screenshot of the Output:** |

| **Question No 12:**  **Write a Python program that takes a user's input for their exam score and**  **provides the corresponding grade along with remarks. Consider the following**  **grading scale:**  **A: 90-100 (Perfect score marked as 'A' with the remark 'Perfect score!')**  **B: 80-89 (Remark: 'Good job!')**  **C: 70-79 (Remark: 'Average performance.')**  **D: 60-69 (Remark: 'Below average.')**  **F: Below 60 (Remark: 'Failed.').**  **Include additional remarks for a perfect score (100) and excellent performance**  **(grades A and B). Make use of if, elif, and else statements, as well as nested if**  **and else statements in the same program.** |
| --- |
| **Source Code:**  **marks = int(input("Enter your marks: "))**  **if marks < 60:**  **print ("F Grade!!!! Falied")**  **elif marks < 69:**  **print ("D Grade!!!! Below average")**  **elif marks < 79:**  **print ("C Grade!!!! Average Performance")**  **elif marks < 89:**  **print ("B Grade!!!! Good Job! Excellent performance")**  **elif marks >89:**  **if marks == 100:**  **print ("A Grade!!!! Perfect score Excellent Performance")**  **else:**  **print ("A Grade!!!! Excellent Performance")**  **else:**  **print ("Invalid Input")** |
| **Sample Input and Output:**  **Enter your marks: 99**  **A Grade!!!! Excellent Performance** |
| **Screenshot of the Output:** |