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SECTION: 1J

**PSEUDOCODE:**

**QUESTION NO.1**: Write pseudocode to find the smallest number among three given variables. Implement a decision-making structure to compare the variables.

**SOLUTION:**

START

**INPUT** n1, n2, n3

**IF** n1<n2 **AND** n1<n3 **THEN**

**PRINT** n1, “is smallest”

**ELSE IF** n2<n1 **AND** n2<n3 **THEN**

**PRINT** n2, “is smallest”

**ELSE PRINT** n3, “is smallest”

STOP

**QUESTION NO.2**: Develop pseudocode for a basic calculator that performs multiplication and division. The pseudocode should prompt the user for two numbers and an operator, then display the result of the operation.

**SOLUTION:**

**START**

**SET** result, choice, n1, n2

**PRINT** "Enter the first number: "

**INPUT** n1

**PRINT** "Enter the second number: "

**INPUT** n2

**PRINT** "Enter the operator (\* for multiplication, / for division): "

**INPUT** operator

**IF** operator == "\*" **THEN**

result = n1 \* n2

**PRINT** "The result of", n1, "\*", n2, "is", result

**ELSE** **IF** operator == "/" **THEN**

**IF** n2 == 0 **THEN**

**PRINT** "Error: Division by zero is not possible"

**ELSE**

**PRINT** "Choose numerator:"

**PRINT** "1. n1 as Numerator"

**PRINT** "2. n2 as Numerator"

**INPUT** choice

**IF** choice == 1 **THEN**

result = n1 / n2

**PRINT** "The result of", n1, "/", n2, "is", result

**ELSE** **IF** choice == 2 **THEN**

result = n2 / n1

**PRINT** "The result of", n2, "/", n1, "is", result

**ELSE** **PRINT** "INVALID CHOICE"

**ELSE** **PRINT** "Invalid Operator"

STOP

**ALGORITHM:**

**QUESTION NO.2**: Create an algorithm that asks the user for a day number (1-365) and outputs the

corresponding day of the week, assuming that January 1st is a Monday.

**SOLUTION:**

**STEP 1:** SET variables: day\_number, day

**STEP 2:** PRINT "ENTER DAY NUMBER OF YEAR"

**STEP 3:** TAKE input of variable day\_number

**STEP 4:** IF day\_number is greater than or equal to 1 AND less than or equal to 365 THEN

**STEP 4:** SET day = day\_number % 7

**STEP 4:** IF day is equal to 0 THEN PRINT "Day is Monday"

**STEP 4:** ELSE IF day is equal to 1 THEN PRINT "Day is Tuesday"

**STEP 4:** ELSE IF day is equal to 2 THENPRINT "Day is Wednesday"

**STEP 4:** ELSE IF day is equal to 3 THEN PRINT "Day is Thursday"

**STEP 4:** ELSE IF day is equal to 4 THEN PRINT "Day is Friday"

**STEP 4:** ELSE IF day is equal to 5 THEN PRINT "Day is Saturday"

**STEP 4:** ELSE **STEP** PRINT "Day is Sunday"

**STEP 5:** ELSE PRINT "INVALID DAY NUMBER"

**QUESTION NO.1**: Write an algorithm to determine whether a number is a prime number. The algorithm should iterate through possible divisors and determine if the number has any divisors other than 1 and itself.

**SOLUTION:**

STEP 1: SET number

STEP 2: PRINT "ENTER A NUMBER"

STEP 3: TAKE input of variable number

STEP 4: IF number is less than 2 THEN

STEP 4: PRINT "NOT A PRIME NUMBER"

STEP 5: ELSE

STEP 5: SET divisor = 2

STEP 5: WHILE divisor \* divisor <= number DO

STEP 5: IF number MOD divisor = 0 THEN

STEP 5: PRINT "NOT A PRIME NUMBER"

STEP 5: EXIT

STEP 5: ELSE

STEP 5: SET divisor = divisor + 1

STEP 5: END IF

STEP 5: END WHILE

STEP 5: PRINT "PRIME NUMBER"

**QUESTION NO.3**: Write an algorithm to determine whether a number is a prime number. The algorithm should iterate through possible divisors and determine if the number has any divisors other than 1 and itself.

**SOLUTION:**

STEP 1: SET variables: number1, number2, temp

STEP 2: PRINT "ENTER FIRST NUMBER"

STEP 3: TAKE input of variable number1

STEP 4: PRINT "ENTER SECOND NUMBER"

STEP 5: TAKE input of variable number2

STEP 6: IF number1 is less than or equal to 0 OR number2 is less than or equal to 0 THEN

STEP 7: PRINT "INVALID INPUT: BOTH NUMBERS MUST BE POSITIVE"

STEP 8: ELSE

STEP 9: WHILE number2 is not equal to 0 DO

STEP 10: SET temp = number2

STEP 11: SET number2 = number1 MOD number2

STEP 12: SET number1 = temp

STEP 13: END WHILE

STEP 14: PRINT "GCD IS" , number1

**FLOWCHART:**

**QUESTION NO.2**: Imagine you are automating the process of a vending machine. Create a flowchart that

includes decision points for user input, selecting products, accepting payment, and dispensing

the correct item. Include error-handling for invalid inputs and insufficient funds.

**SOLUTION:**

ON THE NEXT PAGE =>

START

READ CASH

SELECT PRODUCT

GIVE CASH

DISPENSE PRODUCT

B

STOP

A

IF CASH >=

PRODUCTP

FALSE

TRUE

IS CHANGE

AVAILABLE?

FALSE

B

TRUE

CASH = CASH - PRODUCTP

QUESTION NO.1 : =>

B

B

STOP

SEND FOR STANDARD DEPARTURE VIA DATE AND

STORE AT STANDARD PLACE

SEND FOR DEPARTURE

CHECK FOR NEXT EARLIEST AVAILABLE DEPARTURE

A

A

CHECK URGENCY?

MARK AND STORE AT FRAGILE ITEMS COMPARTMENT

CHECK FRAGILITY

READ SENDER,RECEIVER, DATE\_OF\_RECEIVING AND DATE\_OF\_SENDING

SET URGENCY,FRAGILITY, SENDER,RECEIVER, DATE\_OF\_RECEIVING AND DATE\_OF\_SENDING

START

IF CASH >=

PRODUCTP

READ CASH

START