Question 1 sample Answer

```
START
    Declaration
        NUM Hours,WholeHours, PartialHours,MInutes, WholeMinutes,
            Seconds, WholeSeconds, PartialSeconds, InputSeconds

    OUTPUT ”Enter the number of seconds “
    INPUT InputSeconds

    Hours = InputSeconds / 3600
    PartialHours = Hours MOD 1
    WholeHours = Hours – PartialHours

    Minutes =PartialHours * 60
    PartialMinutes = Minutes MOD 1
    WholeMInutes = Minutes – PartialMinutes

    Seconds = PartialMinutes * 60

    OUTPUT “There is ”,WholeHours,” Hour(s) , ”, WholeMinutes ,” Minute(s) and ”,
            WholeSeconds ,” Second(s) in “, InputSeconds , “ second(s)
STOP
```

Question 2.1 sample Answer

START

Declaration

NUM InputNumber, Fifth, WholeFifth, PartialFifth, Fourth, WholeFourth,
PartialFourth, Third, WholeThird, PartialThird, Second,
WholeSecond, PartialSecond, First, WholeFirst, PartialFirst,

OUTPUT “Enter a number”

INPUT InputNumber

First = InputNumber / 10 000

PartialFirst = First MOD 1

WholeFirst = First – PartialFirst

PartialFirst = PartialFirst * 10000

Second = PartialFirst / 1000

PartialSecond = Second MOD 1

WholeSecond = Second – PartialSecond

PartialSecond = PartialSecond * 1000

Third = PartialSecond /100

PartialThird = Third MOD 1

PartialThird = PartialThird * 100

Fourth = PartialThird /10

PartialFourth = Fourth MOD 1

WholeFourth = Forth – PartialFourth

```
        PartialFourth = PartialFourth * 10
        WholeFifth = PartialFourth

        IF WholeFifth == WholeFirst AND WholeFourth == WholeSecond THEN
            OUTPUT InputNumber , " is a palindrome"
        ELSE
            OUTPUT InputNumber , " is not a palindrome"
        ENDIF
STOP
```

Question 2.2 sample Answer

```
START
    Declaration
        STRING strCustName
        STRING strCusType
        NUM fltPurchaseAmt = 0
        STRING strCardNumber
        STRING strCardName
        NUM fltTaxRate = 0
        NUM fltDiscPerc = 0
        NUM fltDiscAmt = 0
        NUM fltTaxAmt = 0
        NUM fltSubTot = 0
        NUM fltFinalAmt = 0

    OUTPUT “Enter the Customer name : “
    INPUT strCustName

    OUTPUT “Enter the customer type (bulk or regular): “
    INPUT strCustType
    OUTPUT “Enter the full amount for the goods purchased: “
    INPUT fltPurchaseAmt

    IF strCustType = “bulk” THEN
        strCardName = “Membership”
        OUTPUT “Enter the customer “, strCardName, “ number : “
        INPUT strCardNumber
    ELSE
```

```
        strCardName = “Loyalty”
        OUTPUT “Enter the customer “, strCardName, “ number: “
        INPUT strCardNumber
        fltTaxRate = 7
ENDIF

IF strCustType = “bulk” THEN
        IF fltPurchaseAmt < 6000 THEN
                fltDiscPerc = 6
        ELSE
                IF fltPurchaseAmt <12000 THEN
                        fltDiscPerc = 15
                ELSE
                        Flr=tDiscPerc = 30
                ENDIF
        ENDIF
        fltDiscAmt = fltPurchaseAmt * (fltDiscPerc/100)

ELSE
        IF fltPurchaeAmt >= 1500 THEN
                IF fltPurchaseAmt >= 3000 THEN
                        fltDiscPerc = 8
                ELSE
                        fltDiscPerc = 6
                ENDIF
        ELSE
                fltDiscPerc = 4
        ENDIF
```

```
            fltDiscAmt = fltPurchaseAmt * (fltDiscPerc / 100)
        fltTaxAMt = (fltPurchaseAmt – fltDiscAmt)*(fltTaxRate/100)
    ENDIF
    fltSubTot = (fltPurchaseAmt – fltDiscAmt)
    fltFinalAmt = fltSubTot + fltTaxAmt

    OUTPUT "====================================="
    OUTPUT "              ROOTED"
    OUTPUT "====================================="

    OUTPUT "Customer Name: " , strCustName
    OUTPUT "Customer Type: " , strCustType
    OUTPUT "Purchase Amount: R", fltPurchaseAmt
    OUTPUT strCardName, " card number: ", strCardNumber
    OUTPUT "Discount Applied: ", fltDiscPerc , "%"
    OUTPUT "Discount Amount: R", fltDiscAmt

    OUTPUT "Tax Applied: ", fltTaxRate, "%"
    OUTPUT "Tax Amount: R", fltTaxAmt

    OUTPUT "====================================="
    OUTPUT "Sub-Total: R", fltSubTot, "(without Taxt)"
    OUTPUT "Final Amount to be Paid: R", fltFinalAmt
    OUTPUT "====================================="
STOP
```

Question 3.1 sample Answer

```
START
    Declaration
        NUM intYearOfBirth
        NUM intCurrentYear
        NUM intYear

    OUTPUT “Enter your year of birth: “
    INPUT intYearOfBirth

    intCurrentYear = 2025
    OUTPUT “Leap years from “, intYearOfBirth, “ to “, intCurrentYear, “ :”
    FOR intYear = intYearOfBirth TO intCurrentYear STEP 1
        IF (intYear MOD 4 = 0 AND intYear MOD 100 <> 0) OR (intYear MOD 400 = 0)
        THEN
            OUTPUT intYear
        ENDIF
    ENDFOR
STOP
```

Question 3.2 sample Answer.

```
START
    Declaration
        NUM intSecretNumber
        NUM intUserGuess
        NUM intGuessCount
        STRING strPlayAgain

    strPlayAgain = “Yes”
    OUTPUT “Welcome to Mystery Number Challenge”
    WHILE strPlayAgain = “Yes”
        strPlayAgain = “no”
        intGuessCount = 1
        intSecretNumber = random(1,10)
        OUTPUT “Guess the secret number (bewteen 1 and 10): “
        OUTPUT “Your guess: “
        INPUTintUserGuess
        WHILE intUserGuess <> intSecretNumber AND intUserGuess <> -1
            IF intUserGuess < intSecretNumber THEN
                OUTPUT “Too low! Try again”
            ELSE
                OUTPUT “Too high! Try again”
            ENDIF

            OUTPUT “Enter your next guess (-1 to exit): “
            OUTPUT “Your guess: “
            INPUT intUserGuess
```

```
        ENDWHILE
        IF intUserGuess = -1 THEN
            OUTPUT "You chose to stop this game"
        ELSE
            OUTPUT "Congratulations! You've guessed the correct number"
        ENDIF
        OUTPUT "Would you like to play again? (yes/no): "
        INPUT strPlayAgain
    ENDWHILE
STOP
```