PF ASSIGNMENT

Question 1

```
INPUT speedInKps
speedInMph = speedInKps * 0.62 * 3600
OUTPUT speedInMph
```

Question 2

```
INPUT number
IF number <= 0 THEN
    PRINT "Invalid input"
ELSE
    IF number % 2 == 0 THEN
       PRINT "Even"
    ELSE
       PRINT "Odd"
```

Question 3

```
INPUT age, gender, province
IF province == "Sindh" THEN
    IF age >= 18 THEN
       PRINT "Legal to marry"
    ELSE
       PRINT "Illegal to marry"
ELSE IF province == "Punjab" OR province == "Other" THEN
    IF gender == "male" THEN
       IF age >= 18 THEN
          PRINT "Legal to marry"
       ELSE
          PRINT "Illegal to marry"
    ELSE IF gender == "female" THEN
       IF age >= 16 THEN
          PRINT "Legal to marry"
       ELSE
          PRINT "Illegal to marry"
ELSE
    PRINT "Invalid province"
```

Question 4

```
INPUT priceOnions, priceApricots, priceGrapes, priceTomatoes
INPUT quantityOnions, quantityApricots, quantityGrapes, quantityTomatoes
INPUT money

totalCost = (priceOnions * quantityOnions) +
        (priceApricots * quantityApricots) +
        (priceGrapes * quantityGrapes) +
        (priceTomatoes * quantityTomatoes)

IF totalCost <= money THEN
    change = money - totalCost
    PRINT "Total cost: ", totalCost
    PRINT "Change: ", change
ELSE
    deficit = totalCost - money
    PRINT "Total cost: ", totalCost
    PRINT "Not enough money, you need ", deficit, " more."
```

Question 5

```
INPUT cropType,
INPUT soilMoisture,
INPUT rainedLast24Hours
DECLARE Boolean irrigation = FALSE

SWITCH (cropType)
    CASE "wheat":
        IF soilMoisture < 30 AND rainedLast24Hours == false THEN
            Irrigation = TRUE
        ELSE
            Irrigation =  FALSE
    CASE "corn":
        IF soilMoisture < 40 THEN
            Irrigation = TRUE
        ELSE
            Irrigation =  FALSE
    CASE "rice":
        IF soilMoisture < 25 AND rainedLast24Hours == false THEN
            Irrigation = TRUE
```

```
        ELSE
            Irrigation =  FALSE
        DEFAULT:
            PRINT "Invalid crop type"
```

QUESTION 6

```
    INPUT height, age, ride
    IF ride == "The Dragon Roller Coaster" THEN
        IF height >= 48 AND age >= 10 THEN
            PRINT "You meet the criteria for The Dragon Roller Coaster."
        ELSE
            PRINT "Sorry, you do not meet the criteria for The Dragon Roller Coaster."
    ELSE IF ride == "The Sky Swing" THEN
        IF height >= 54 THEN
            PRINT "You meet the criteria for The Sky Swing."
        ELSE
            PRINT "Sorry, you do not meet the criteria for The Sky Swing."
    ELSE IF ride == "The Carousel" THEN
        IF age >= 5 THEN
            PRINT "You meet the criteria for The Carousel."
        ELSE
            PRINT "Sorry, you do not meet the criteria for The Carousel."
    ELSE
        PRINT "Invalid ride selection."
```

QUESTION 7

```
    INPUT segmentPattern
    IF segmentPattern == "1111110" THEN
        PRINT "Floor 0"
    ELSE IF segmentPattern == "0110000" THEN
        PRINT "Floor 1"
    ELSE IF segmentPattern == "1101101" THEN
        PRINT "Floor 2"
    ELSE IF segmentPattern == "1111001" THEN
        PRINT "Floor 3"
    ELSE IF segmentPattern == "0110011" THEN
        PRINT "Floor 4"
    ELSE IF segmentPattern == "1011011" THEN
        PRINT "Floor 5"
    ELSE IF segmentPattern == "1011111" THEN
        PRINT "Floor 6"
    ELSE IF segmentPattern == "1110000" THEN
```

```
        PRINT "Floor 7"
    ELSE IF segmentPattern == "1111111" THEN
        PRINT "Floor 8"
    ELSE IF segmentPattern == "1111011" THEN
        PRINT "Floor 9"
    ELSE
        PRINT "Invalid pattern"
END
```

QUESTION 8

```
    INPUT number
    DECLARE int sum = 0
    WHILE number > 0
        digit = number % 10  // Extract the last digit
        sum = sum + digit
        number = number / 10  // Remove the last digit (integer division)
    PRINT "Sum of digits: ", sum
```

QUESTION 9

```
    INPUT birthDay, birthMonth, birthYear
    INPUT currentDay, currentMonth, currentYear

    IF currentMonth < 1 OR currentMonth > 12 OR birthMonth < 1 OR birthMonth > 12 THEN
        PRINT "Invalid month"
        END

    IF birthYear < 0 OR currentYear < 0 THEN
        PRINT "Invalid year"
        END

    IF birthMonth IN [4, 6, 9, 11] THEN
        IF birthDay < 1 OR birthDay > 30 THEN
            PRINT "Invalid day for month with 30 days"
            END
    ELSE
        IF birthDay < 1 OR birthDay > 31 THEN
            PRINT "Invalid day for month with 31 days"
            END

    IF currentMonth IN [4, 6, 9, 11] THEN
        IF currentDay < 1 OR currentDay > 30 THEN
            PRINT "Invalid day for month with 30 days"
```

```
            END
    ELSE
        IF currentDay < 1 OR currentDay > 31 THEN
            PRINT "Invalid day for month with 31 days"
            END
    END

    ageYears = currentYear - birthYear
    ageMonths = currentMonth - birthMonth
    ageDays = currentDay - birthDay

    // Adjust if current day/month is earlier in the year than birth day/month
    IF ageDays < 0 THEN
        ageMonths = ageMonths - 1
        IF currentMonth == 1 THEN
            daysInPrevMonth = 31
        ELSE IF currentMonth == 3 OR currentMonth == 5 OR currentMonth == 7 OR
currentMonth == 8 OR currentMonth == 10 OR currentMonth == 12 THEN
            daysInPrevMonth = 30
        ELSE
            daysInPrevMonth = 31
        END
        ageDays = ageDays + daysInPrevMonth
    END

    IF ageMonths < 0 THEN
        ageYears = ageYears - 1
        ageMonths = ageMonths + 12
    END

    PRINT "Age: ", ageYears, " years, ", ageMonths, " months, and ", ageDays, " days."
END
```