TIME ALLOWED 2 HOURS

ALGORITHM 4 MARKS

1. Design a flowchart with a dual alternative decision structure that assigns 0 to the integer variable numberOne if the integer variable counter is less than 10. Otherwise it would assign 77 to the variable numberOne, in both cases you have to print the value of numberOne.

2. Design a while loop using a flowchart that lets the user enter a number. The number should be multiplied by 10, and the result stored into a variable named answer. The loop should iterate as long as answer contains a value less than 100.

DEBUGGING 4 MARKS

1 Find the error in the following pseudocode

```
PRINT " Enter the length of the room : "
INPUT  length
Declare Integer length
```

2 MARKS

2. The following code will not display the results expected by the developer. Can you find the error?

```
Declare Real lowest, highest, average
PRINT "Enter lowest, highest score: "
INPUT lowest
INPUT highest
Set average = lowest + highest / 2
PRINT "The average is ", average
```

2 MARKS

PROGRAMMING USING C LANGUAGE 22 MARKS

1. What is the difference between = and = =operator? **2 MARKS**

2. What is a conditional operator? **2 MARKS**

3. Determine the values of variables answer and number after the following segment of code is performed. Assume answer = 20 and number = 5 when the statement begins executing

```
answer = answer * number++;
printf("%d  %d ", answer, number);
answer -= ++number;
printf("%d  %d", answer, number);
```

3 MARKS

4. Design and implement a C program to find the number and the sum of all integers that are greater or equal to 100 and less than 200 that are divisible by 7. **3 MARKS**

5. Write a C program to print the following outputs using a for loop

```
1
2 2
3 3 3
4 4 4 4
```

6 MARKS

6. Design and implement a C program to find the discount amount after a purchase price has been given from the keyboard using the following requirements:
   - if the purchase price is greater or equal to 10000 the discount is twenty percent
   - if the purchase price is greater or equal to 8000 and it is less than 10000 the discount is ten percent
   - if the purchase price is greater or equal to 5000 the discount is five percent.

   Use a flowchart to design the algorithm and a multi- way construct in C to implement the code **6 MARKS**