UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: BMT 1113
COURSE	: INTRODUCTION TO PROGRAMMING
SEMESTER/SESSION	: 1-2022/2023
DURATION	: 3 HOURS

Instructions:

1. This booklet contains **4** questions. Answer **All** questions.
2. All theory and calculation answers should be written in answer booklet.
3. All software answers should be in a folder labeled with matric number. Specify the question number in filename.
4. Write legibly and draw sketches wherever required.
5. If in doubt, raise up your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 6 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) List **6** basics of a typical C environment.

(6 marks)

b) Describe the escape sequence function in Table 1 below.

Table 1

Escape Sequence	Description
\n	
\t	

(2 marks)

c) Table 2 show the data types in C language programming. Write the size and range of data types below.

Table 2

Integer	Size	Range
double		
long		
char		
int		

(4 marks)

d) Rewrite the correct program according to the (8) syntax errors on the program below

```
#include<stdioh>
#include<conio.h>
main();
{
int count=0;
flot num=0,sum=0,avg=0;
printf("Enter score (-1 to stop): ");
scan("%f",&num);
while(num>=0)
{
sum=sum+num;
count+;
printf("Enter score (-1 to stop): ")
scanf("%f",&num);
}
avg=sum/count;
print("\nAverage=%f",avg);
printf("\nSum=%f\n",sum);
return 0;
```

(4 marks)

QUESTION 2

a) List the command that can be place the input (scanf) and output (printf) in C programming.

(2 marks)

b) Regarding to the flowchart in Figure 1, produce the program to display the grade and pointer for the subject according on conditioning function below.

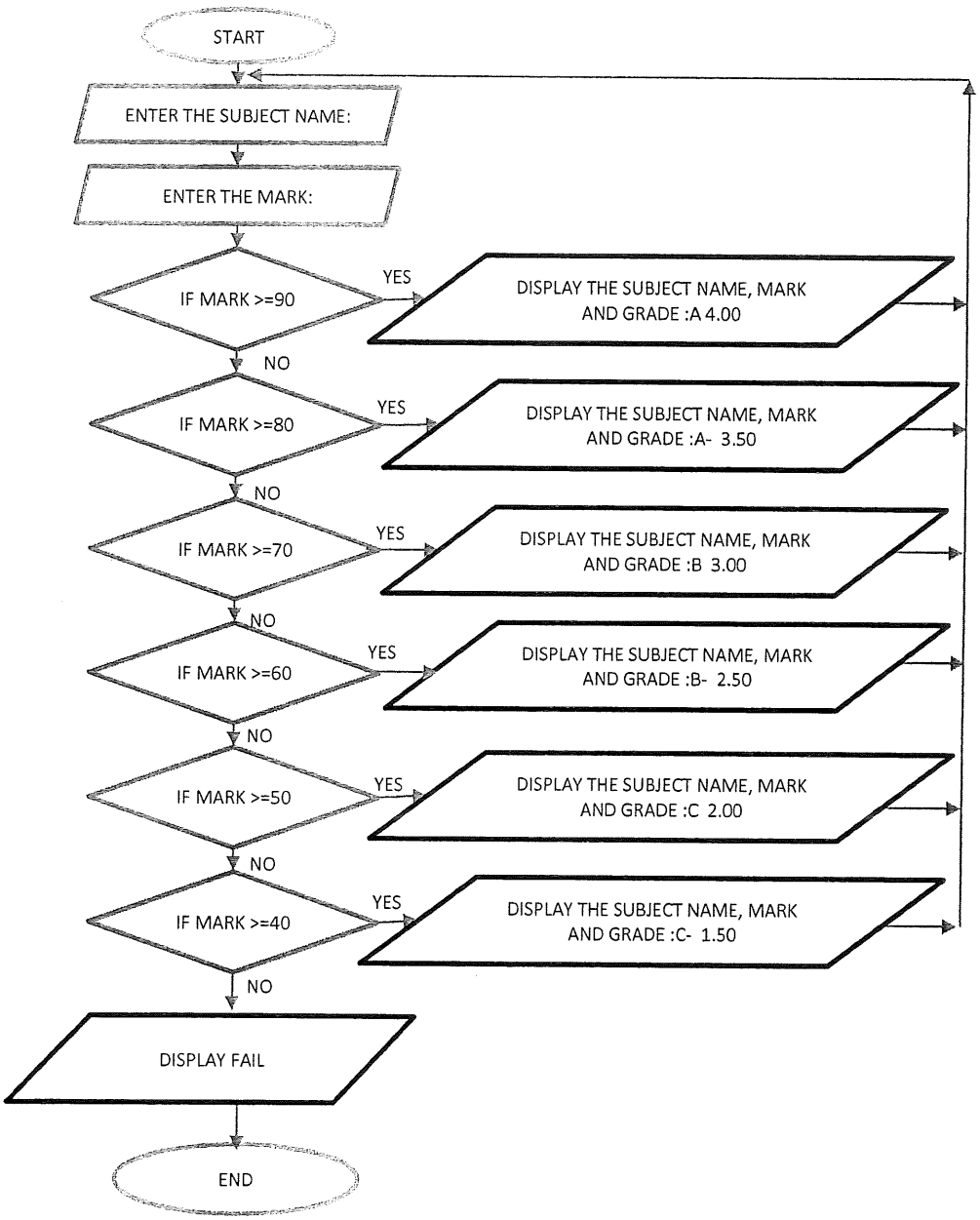

Figure 1

i) Using **if.... else if** function.

(8 marks)

ii) Using **switch.... break** function.

(8 marks)

c) According on program below, illustrate the result of program after run and the number chose should be in two digits.

```
#include "stdio.h"
int main(){
int numberA;
int numberB;
int numberC;

int total;
int average;
int tax;

printf("Enter first value: ");
scanf("%d",&numberA);
printf("Enter second value: ");
scanf("%d",&numberB);
printf("Enter third value: ");
scanf("%d",&numberC);

total= numberA+ numberB+ numberC;
average= total / 3;
tax= (numberA+ numberB+ numberC)-(0.6*(numberA+ numberB+ numberC));

printf("%d+%d+%d=%d\n",numberA, numberB,numberC, total);
printf("(%d+%d+%d)/3=%d\n",numberA, numberB,numberC, average);
printf("(%d+%d+%d)-(0.6*(%d+%d+%d))=%d\n",numberA, numberB, numberC, numberA,
numberB, numberC, tax);
return 0;
}
```

i) Illustrate the result for input and output.

(7 marks)

ii) Produce the flowchart according the program are given.

(8 marks)

QUESTION 3

a) List the **three** looping statement are used in C language programming.

(3 marks)

b) Program below show the **for** function in calculating the average of seven temperatures.

```
#include<stdio.h>
#include<conio.h>
main()
{
int count=0;
float num=0,sum=0,avg=0;
for(count=0;count<7;count ++)
{
printf("Enter temperature : ");
scanf("%f",&num);
sum=sum+num;
}
avg=sum/7;
printf("\nAverage=%f\n",avg);
}
```

i) Produce the program by using **while** function statement

(7 marks)

ii) Produce the program by using **do....while** function statement

(7 marks)

c) According on Table 3 below, write the description of each mathematical and logic symbols.

Table 3

Symbol	Description
==	
!=	
>>	
>=	
&&	
||	
*	

(7 marks)

QUESTION 4

a) Simplify the arithmetic equation below in C language programming.

i) a=a+5600;

(2 mark)

ii) b=b*264;

(2 mark)

iii) k=k%15;

(2 mark)

b) Explain the function of **Pre-increment operator (++n)** and **Post-increment operator (n++)** and give difference between it.

(4 marks)

c) Produce the program for multiplying matrix below, by using 2D matrix array function in C language programming.

$$\begin{bmatrix} 1 & 2 \\ 5 & 6 \end{bmatrix} \times \begin{bmatrix} 3 & 4 \\ 7 & 8 \end{bmatrix}$$

(13 marks)

d) Prove the result for matrix 2x2 above by the manually calculating and show the steps of calculation.

(4 marks)