UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: BMT 1113
COURSE	: INTRODUCTION TO PROGRAMMING
SEMESTER/SESSION	: 2-2024/2025
DURATION	: 3 HOURS

Instructions:

1. This booklet contains **4** questions. Answer **All** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. 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 8 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) List six (6) basics of a typical C environment. (6 marks)

b) Describe the escape sequence function in Table 1 below. (2 marks)

Table 1

Escape Sequence	Description
\n	
\t	

c) Table 2 shows the data types in C language programming. Write the size and range of data types below. (4 marks)

Table 2

Integer	Size	Range
double		
long		
char		
int		

d) The program below has eight (8) syntax errors. Rewrite the program by correcting the syntax errors. (4 marks)

```
#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;
```

QUESTION 2

a) List the command that can be used to replace the input (scanf) and output (printf) in C programming. (2 marks)

b) The flowchart in Figure 1 is for the program to display the subject name, mark and grade based on different conditional operators.

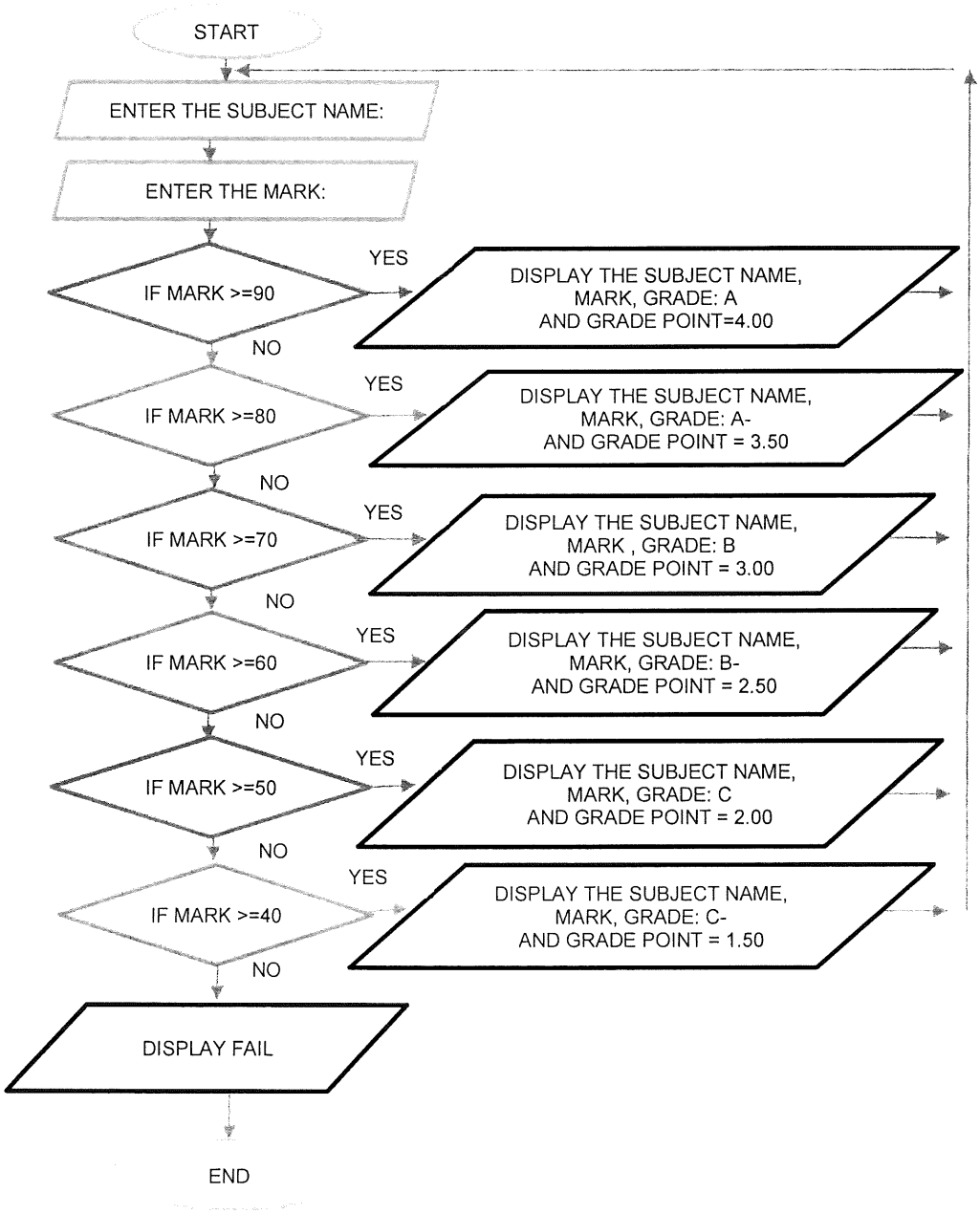

Figure 1

i) Produce the program using **if.... else if** function. (8 marks)

ii) Produce the program using **switch.... break** function. (8 marks)

c) The program below is to display three numbers, the total of the numbers and the average of the numbers.

```
#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 after the program is run and the chosen number should be any number in two digits (10 to 99). (7 marks)

ii) Produce a flowchart according to the program given. (8 marks)

QUESTION 3

a) List three (3) looping statements that are used in C language programming. (3 marks)

b) Program below shows the use of **for** function in calculating the average of seven temperature values.

```
#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) Write the description of each mathematical and logic symbols as listed in Table 3. (7 marks)

Table 3

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

QUESTION 4

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

i) a=a+5600; (2 marks)

ii) b=b*264; (2 marks)

iii) k=k%15; (2 marks)

b) Explain the function of **pre-increment operator (++n)** and **post-increment operator (n++)** by highlighting the difference between them. (4 marks)

c) Produce a program for multiplying matrix below, by using 2-dimensional matrix array function in C language programming. (13 marks)

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

d) Prove the result for 2x2 matrices multiplication above by manual calculation and show the steps of calculation. (4 marks)

.....END OF QUESTION.....