FETAC
Further Education and Training Awards Council
Comhairle na nDámhachtaini Breisoideachais agus Oiliúna

(National Council for Vocational Awards)

Computer Programming C20013

Theory Examination 2002

Duration: Two Hours

NAME (PRINT): _____

EXAM NUMBER _____

INSTRUCTIONS TO CANDIDATES:

Answer all ten questions

Return this exam/answer paper when finished

Extra paper is available from the exam supervisor if required

This written exam counts as 50% of the total module

Answer all 10 questions. All questions carry equal marks.

1. This **C** program contains 4 errors that will stop it from compiling. Circle and/or list the errors.

```
include <stdio.h>
int loopy;
main ()
{
 looper = 1;
 printf ("+--------+\n");
 while (loopy <= 8)
 {
  printf ("|        |\n);
  loopy+;
 }
 printf ("+--------+\n");
}
```

1	
2	
3	
4	

2. Why is indentation used in programming?

What is the difference between an **int** and a **float** variable?

3. The following **C** code will compile but will not generate the desired output. It has two errors. What are they? Circle and/or list the errors.

```
#include <stdio.h>
// This program should ask the users age, and inform
// them if they are 18 that they can now vote. This
// loop should execute 5 times.
int control, age;
float sum;
main ()
{
 for (control=1; control <= 5; control++);
 {
  printf ("Enter your age: ");
  scanf ("%d", &age);
  if (age = 18)
  {
   printf ("Now you can vote. Congratulations!\n");
  }
 }
}
```

1	
2	

4. Assume that there are files and folders pre-existing on the linux system. Write the sequence of commands to be issued after telnetting on to the linux system to:

Task	**Command/Key Sequence**
Change directory to **progfolder**	
Delete the file **assign04.bak**	
Copy the file **assign04.c** to **assign04.bak**	
Compile the file **assign04.c**	
Run the program	

5. The control variable for a **while** loop should appear in a program not less than four times. List those times:

1

2

3

4

6. Write the general form of the **if** statement:

7. Indicate the values in each of the variables **a**, **b**, **c**, **d** and **e** after this program finishes:

```
#include <stdio.h>
main ()
{
 int a, b, c, d, e;
 e = 5;
 d = 'A';
 while (e != 1)
 {
  a = e;
  b = (e * 2) + 1;
  e--;
 }
 c = a * b;
 d = d + b;
}
```

Variable	***Value***
a	
b	
c	
d	
e	

8. What output will the following program generate on screen?

```
#include <stdio.h>
int looper;
char thesymbol;
main ()
{
 thesymbol = 58;
 looper = 1;
 while (looper <= 5)
 {
  printf ("%c", thesymbol);
  thesymbol = thesymbol – 13;
  printf ("%c", thesymbol);
  thesymbol = thesymbol – 4;
  printf ("%c", thesymbol);
  printf ("\n");
  thesymbol = thesymbol + 17;
  looper++;
 }
}
```

Write the output here:

9. Write a **C** program snippet to read in a numeric value and a letter. The numeric value represents a distance. The letter entered will be either 'M' or 'K' – meaning that the distance value entered is in Miles of Kilometres. The letter entered may be in upper or lowercase.

Input letter	Conversion to perform
'M' or 'm'	Convert from Miles to Kilometres by dividing by 5 and multiplying by 8
'K' or 'k'	Convert from Kilometres to Miles by dividing by 8 and multiplying by 5

Display the converted value without any decimal places.

10. Given that the formula to convert degrees Fahrenheit to degrees Celsius is given as:

$$C ? \frac{5 * ?F ? 32?}{9}$$

write a program which accepts a numeric value representing a temperature in degrees Fahrenheit, converts it to degrees Celsius using the formula above and writes out the converted value, with 2 places of decimals.

Figure 1. The ASCII table.

				032	SP	033	!	034	"	035	#
036	$	037	%	038	&	039	'	040	(	041	)
042	*	043	+	044	,	045	-	046	.	047	/
048	0	049	1	050	2	051	3	052	4	053	5
054	6	055	7	056	8	057	9	058	:	059	;
060	<	061	=	062	>	063	?	064	@	065	A
066	B	067	C	068	D	069	E	070	F	071	G
072	H	073	I	074	J	075	K	076	L	077	M
078	N	079	O	080	P	081	Q	082	R	083	S
084	T	085	U	086	V	087	W	088	X	089	Y
090	Z	091	[	092	\	093	]	094	^	095	_
096	`	097	a	098	b	099	c	100	d	101	e
102	f	103	g	104	h	105	i	106	j	107	k
108	l	109	m	110	n	111	o	112	p	113	q
114	r	115	s	116	t	117	u	118	v	119	w
120	x	121	y	122	z	123	{	124	|	125	}
126	~	127	•								
Printable alphanumeric and punctuation characters used in normal document text											