FETAC

Further Education and Training Awards Council

Comhairle na nDámhachtainí
Breisoideachais agus Oiliúna

(National Council for Vocational Awards)

Computer Programming C20013

Theory Examination 2006

Duration: Two Hours

<u>INSTRUCTIONS TO CANDIDATES:</u>

*Answer any **three** questions*

All questions carry equal marks

Answer the questions using the spaces in this exam booklet

Return this question & answer paper when finished

This written exam counts as 40% of the total module

NAME (PRINT):_____

PPS NUMBER:_____

DATE:_____

Question 1. Total 40 marks.

(a) This program contains 4 errors that will stop it from compiling. List the errors. *20 marks*

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

1	
2	
3	
4	

(b) What is a variable used for? *10 marks*

(c) What is the difference between an integer (**int**) and a float (**float**) variable? Give a sample of each type of data. *10 marks*

Question 2. Total 40 marks.

(b) Write the general form of the *if...else* statement: **10 marks**

(b) Write the general form of the **while** statement: *10 marks*

(c) The following **C** code will compile and run but will not generate the desired output. Why?

20 marks

```c
#include <stdio.h>
// A sample program.
// This program should write out the letters a..z
// of the alphabet, one on each line.
int controlvar;
char alpha;
main ()
{
 controlvar = 97;
 while (controlvar <= 122);
 {
  // This line converts and then writes the character
  printf ("%c\n", controlvar);
  controlvar++;
 }
}
```

Question 3. Total 40 marks.

(a) Indicate the values in each of the variables **a**, **b** and **c** after this program finishes:

30 marks

```
#include <stdio.h>
main ()
{
 int a, b, c, lv;
 lv = 1;
 // Don't loop when lv is ten
 while (lv != 10)
 {
  a = lv;
  b = lv * 2;
  // Add 1 to lv each time
  lv++;
 }
 c = a * b;
}
```

Variable	Value
a	
b	
c	

(b) What screen output is generated by this program line: *10 marks*
```
printf ("%c%c%c%c%c\n%c%c%c%c%c%c\n",
68,111,110,39,116,80,97,110,105,99,33);
```

Question 4. Total 40 marks.

(a) Write a C loop to read in an array of 30 numeric variables and then write out the total (sum) and the average of the numbers which have been read in.

30 marks

(b) The control variable for a **while** loop should appear in a program not less than four times. List those times. *10 marks*

1	
2	
3	
4	

Figure 1. The ASCII table.

		032	SP	033	!	034	"	035	#
036	$	37.00%		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									

Rough-Work Page

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