



*National Council for Vocational Awards*

Information Technology CITXX

# Computer Programming C20013

NAME (PRINT): \_\_\_\_\_

EXAM NUMBER \_\_\_\_\_

*Answer all ten questions*

*Time allowed: 2 hours*

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 cvar, squared;
main ()
{
    printf ("These are the first 10 squared numbers: \n");
    cvar = 1
    while cvar <= 10)
    {
        squared = cvar * cvar;
        printf ("The squared value of %d is %d\n", cvar, squared);
    }
}
```

1	
2	
3	
4	

**2.** What is a variable used for?

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What is the difference between a character and a string variable?

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3. The following **C** code will compile but will not generate the desired output. Why?

```
#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 = 65;
    while (controlvar <= 90);
    {
        // This line converts and then writes the character
        printf ("%c\n", controlvar);
        controlvar++;
    }
}
```

4. What type of numeric data should not be stored in the **int** data type?

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What is the advantage of initialising a loop variable before using it?

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5. Assume that there is a file called **assign02.c** in a folder called **myprogs** 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	
Edit file	
Save & exit from file	
Compile program	
Run program	

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

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

```
#include <stdio.h>
main ()
{
    int a, b, c, lv;
    lv = 1;
    while (lv != 10)
    {
        a = lv;
        b = lv * 2;
        lv++;
    }
    c = a * b;
}
```

<i>Variable</i>	<i>Value</i>
<b>a</b>	
<b>b</b>	
<b>c</b>	

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

```
#include <stdio.h>
int xx, yy;
char thesymbol;
main ()
{
    thesymbol = 35;
    xx = 1;
    yy = 1;
    while (xx <= 4)
    {
        while (yy <= 3)
        {
            printf ("%c", thesymbol);
            yy++;
        }
        printf ("\n");
        xx++;
    }
}
```

Write the output here:

9. Write a **C** program snippet to read in a users age and income. The program should then generate output based upon the following table:

Age	Income	Output
<18		'Too young'
18 - 65	< 25000	'Get a real job'
18 - 65	>=25000	'Can I have a loan'
> 65		'Relax & enjoy!'

**10.** Write a **C** loop to read in an array of 25 numeric variables; then write another loop to write out the contents of the array in reverse order.

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											