



(National Council for Vocational Awards)



Computer Programming C20013

Theory Examination 2004

Duration: Two Hours

INSTRUCTIONS TO CANDIDATES:

*Answer any **three** questions*

All questions carry equal marks

Return this exam/answer paper when finished

Extra paper is available from the exam supervisor if required

This written exam counts as 40% of the total module

NAME (PRINT): _____

PPS NUMBER: _____

DATE: _____

Question 1. Total 40 marks.

(a) This program contains 5 errors that will stop it from compiling. List the errors. **20 marks**

```
#include <studio.h>
main ()
{
    char name[20];
    int age
    printf ("Please enter your name and age:");
    scan ("%s %d", &name &age);
    printf ("Hello, %s.\n");
    if (age > 30)
        printf ("You are ancient!\n");
    else
        printf ("Pass the Pampers!\n");
}
```

1	
2	
3	
4	
5	

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

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

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Question 2. Total 40 marks.

(a) What form of character data should *not* be stored in the **char** data type? How should such data be stored instead? ***10 marks***

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

(c) Write a C program containing a loop that writes out the even numbers between 10 and 100

20 marks

Question 3. Total 40 marks.

(a) Draw a diagram to represent the state of the **numbers** array after this program finishes. **30 marks**

```
#include <stdio.h>
main ()
{
    int numbers[6], loopvar;
    loopvar = 0;
    while (loopvar <= 5)
    {
        numbers[loopvar] = 500 - (loopvar * loopvar * loopvar);
        if (loopvar == 3)
        {
            numbers[loopvar] = 500 + loopvar * 2;
        }
        loopvar++;
    }
}
```

Draw your diagram here:

(b) What screen output is generated by this program line: **10 marks**

```
printf ("%c%c%c%c%c%c%c%c%c%c\n", 71,111,111,100,32,76,117,99,107);
```

Question 4. Total 40 marks.

(a) Write a C loop to read in an array of 30 numeric variables; then write another loop to write out every second element of the array. Also calculate the average of *all* the values in the array.

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											

