

(National Council for Vocational Awards)



Computer Programming C20013

Theory Examination 2003

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

Marking Scheme

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

```
#include <stdio.H>
main ()
{
  int looper;
  printf ("These are the first 10 squared numbers:\n);
  loopy = 1;
  while (looper <= 10)
  {
    printf ("%d\n", looper * looper)
    looper++;
  }
}</pre>
```

1	4 marks
2	4 marks
3	4 marks
4	4 marks
5	4 marks

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

```
Unsatisfactory: 0; Unclear: 6, 7; Correct: 10;
```

(c) What is the difference between a character and a string variable? 10 marks

Unsatisfactory: 0; Unclear: 6, 7; Correct: 10;



Question 2. Total 40 marks.

	Unsatisfactory: 0; Unclear: 6, 7; Correct: 10;
Write the general	form of the if statement: 10 marks
	Unsatisfactory: 0; Unclear: 6, 7; Correct: 10;
Write a C progran ks	n containing a loop that writes out the odd numbers between 9 and 99 20
Ur	nsatisfactory: 0-9; Imperfect: 10-19; Largely Correct: 20-30;

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

```
#include <stdio.h>
main ()
{
  int numbers[9], loopvar;
  loopvar = 0;
  while (loopvar <= 9)
  {
    numbers[loopvar] = 100 - (loopvar * loopvar);
    if (loopvar == 5)
      {
       numbers[loopvar] = 0;
      }
      loopvar++;
    }
}</pre>
```

Draw your diagram here:

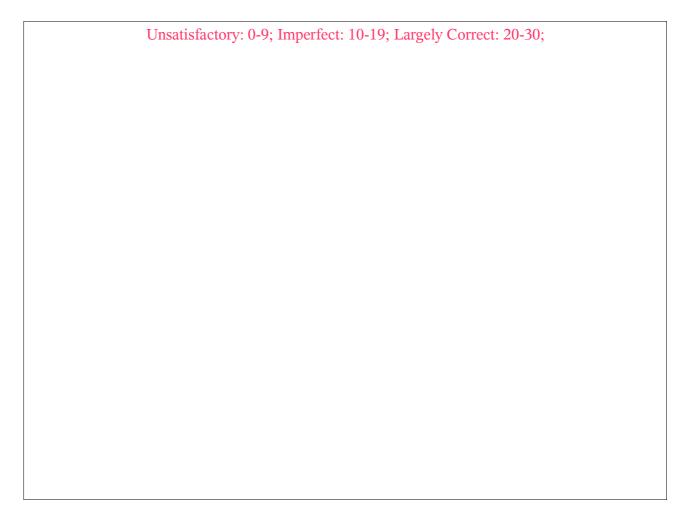
```
Unsatisfactory: 0-9; Imperfect: 10-19; Largely Correct: 20-30;
```

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

```
printf ("%d\n",'H'+'w');
```

Unsatisfactory: 0; Unclear: 6, 7; Correct: 10;

(a) Write a C loop to read in an array of 20 numeric variables; then write another loop to write out the contents of the array in reverse order. Also write out the total sum 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	2.5 marks
2	2.5 marks
3	2.5 marks
4	2.5 marks

Figure 1. The ASCII table.

				032	SP	033	!	034	17	035	#
036	\$	37	.00%	038	&	039	1	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	А
066	В	067	С	068	D	069	E	070	F	071	G
072	Н	073	I	074	J	075	K	076	L	077	М
078	N	079	0	080	P	081	Q	082	R	083	S
084	Т	085	U	086	V	087	M	088	Χ	089	Y
090	Z	091	[092	\	093]	094	^	095	1
096	`	097	а	098	b	099	С	100	d	101	е
102	f	103	g	104	h	105	i	106	j	107	k
108	1	109	m	110	n	111	0	112	р	113	q
114	r	115	S	116	t	117	u	118	V	119	W
120	Х	121	У	122	Z	123	{	124	1	125	}
126	~	127									

Printable alphanumeric and punctuation characters used in normal document text

Rough Work Page

Rough Work Page		