



(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

NAME (PRINT): _____

EXAM NUMBER _____

Question 1. Total 40 marks.

(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++;
  }
}
```

1	
2	
3	
4	
5	

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

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

Question 2. Total 40 marks.

(a) What type of numeric data should not be stored in the **int** data type? What data type should be used instead? **10 marks**

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

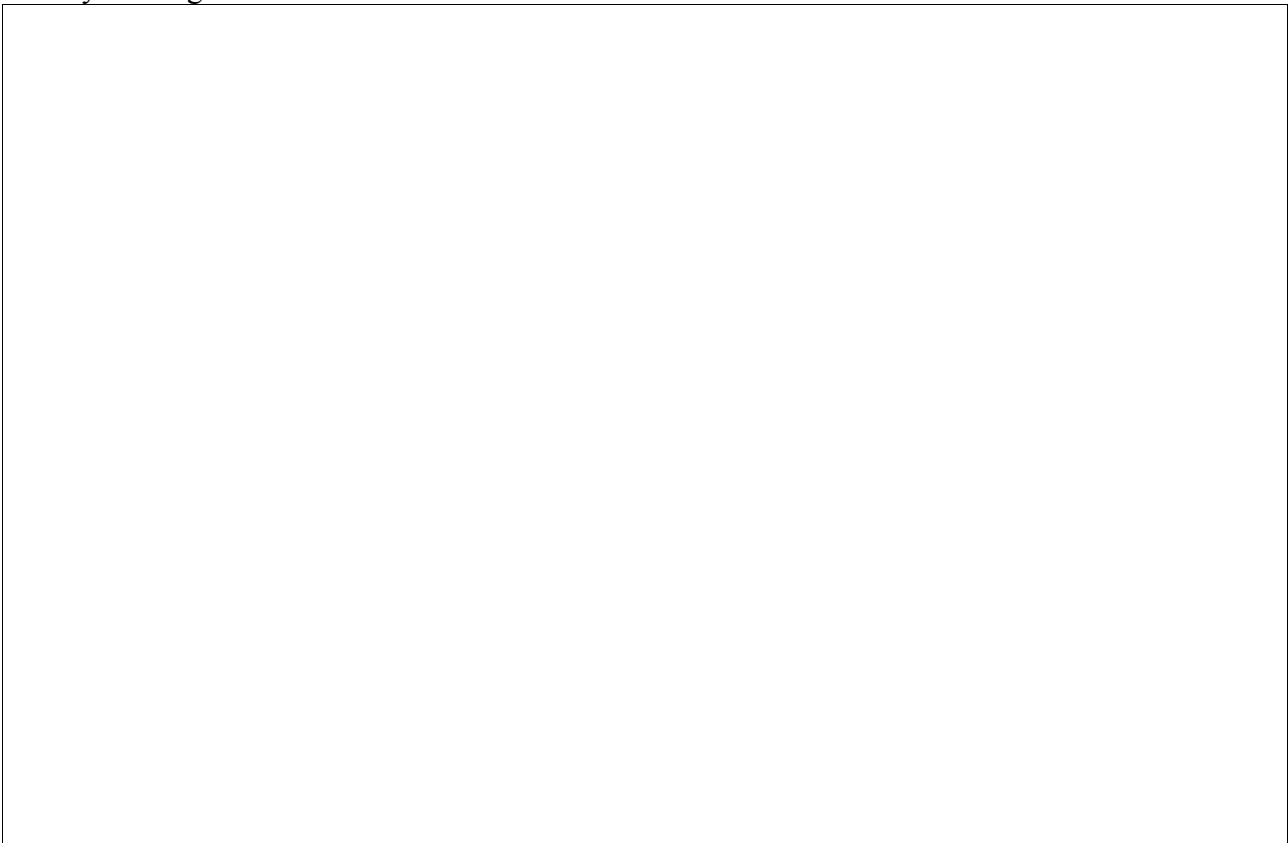
(c) Write a C program containing a loop that writes out the odd numbers between 9 and 99 **20 marks**

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[9], loopvar;
  loopvar = 0;
  while (loopvar <= 9)
  {
    numbers[loopvar] = 100 - (loopvar * loopvar);
    if (loopvar == 5)
    {
      numbers[loopvar] = 0;
    }
    loopvar++;
  }
}
```

Draw your diagram here:



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

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

Question 4. Total 40 marks.

(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	
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						

