



(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**

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

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

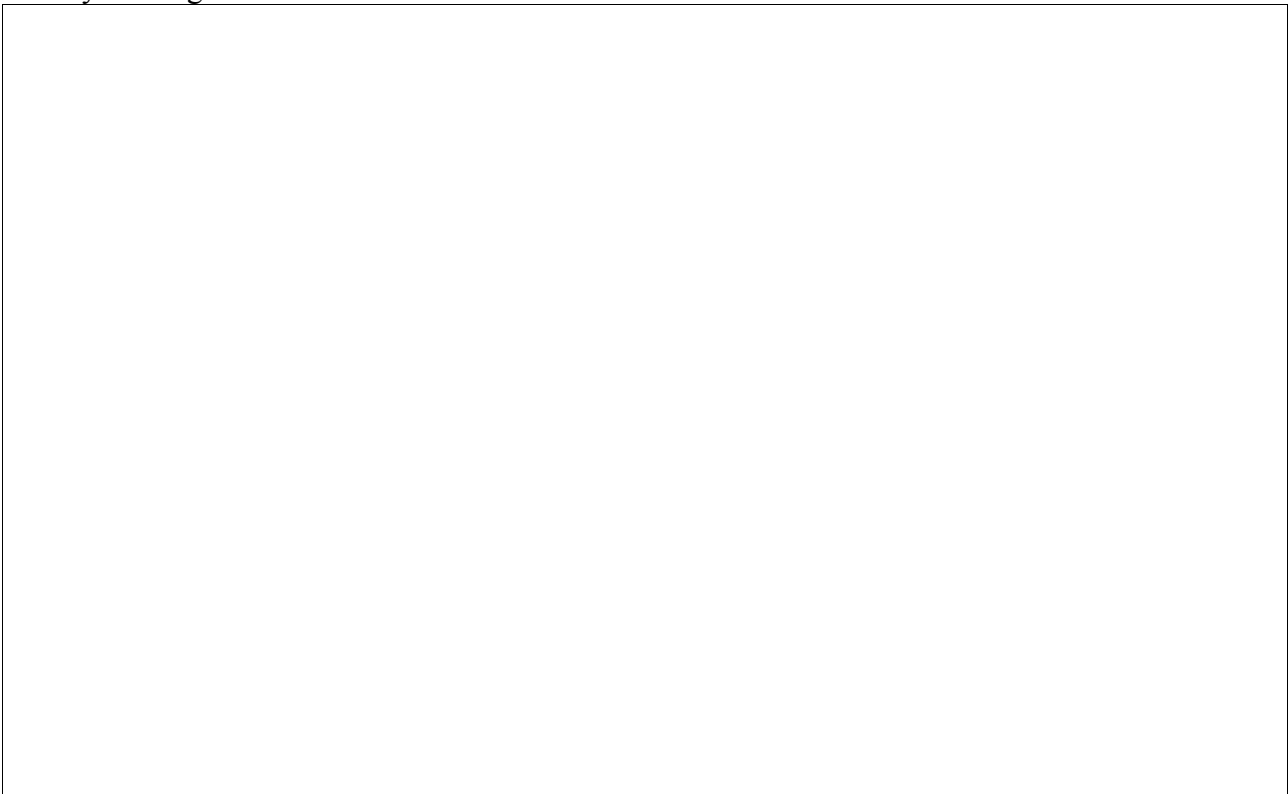
20 marks

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\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

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(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						

