



***(National Council for Vocational Awards)***



## Marking Scheme

# 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");
}
```

<b>1</b>	4 marks
<b>2</b>	4 marks
<b>3</b>	4 marks
<b>4</b>	4 marks
<b>5</b>	4 marks

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

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

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

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

**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**

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

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

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

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

**20 marks**

Unsatisfactory: 0-9; Imperfect: 10-15; Largely Correct: 16-20;

**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:

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

(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);
```

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

**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**

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

(b) The control variable for a **while** loop should appear in a program not less than four times. List those times. **10 marks**

<b>1</b>	2.5 marks
<b>2</b>	2.5 marks
<b>3</b>	2.5 marks
<b>4</b>	2.5 marks

**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						



