



(National Council for Vocational Awards)



Computer Programming C20013

Theory Examination 2005

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 <stdio.h>
main ()
int count;
cher one_letter;
one_letter = ' ';
printf ("Enter characters. Stop by pressing a full stop."):
while (one_letter != '.')
{
printf ("%c \n", one-letter);
printf ("Next character, please: ");
scanf ("%c", &one_letter);
}
}
```

1	
2	
3	
4	
5	

(b) What kind of data is stored in a float variable? Why can't int be used in this case? **10 marks**

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

Question 2. Total 40 marks.

(a) How many brackets and inverted commas should be used in a C computer program? **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 odd numbers between 9 and 99.

20 marks

Question 3. Total 40 marks.

(a) What output will the following program generate on screen? **30 marks**

```
#include <stdio.h>
#define start_symbol 58
int looper;
char thesymbol;
main ()
{
  thesymbol = start_symbol;
  looper = 1;
  while (looper <= 5)
  {
    thesymbol = thesymbol + 1;
    printf ("%c", thesymbol);
    thesymbol = thesymbol - 14;
    printf ("%c", thesymbol);
    thesymbol = thesymbol + 34;
    printf ("%c", thesymbol);
    printf ("\n");
    thesymbol = thesymbol - 21;
    looper++;
  }
}
```

Write the output here:

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

```
printf ("%c%c%c%c%c%c%c%c%c%c%c%c%c%c%c%c%c%c%c\n", 82, 111, 121, 32, 75, 101, 97, 110, 101, 32, 119, 97, 115, 32, 114, 105, 103, 104, 116, 33);
```

Question 4. Total 40 marks.

(a) What output will be generated by this program:

```
#include <stdio.h>
main ()
{
  int anumber, loopvar, total;
  loopvar = 0;
  total = 0;
  while (loopvar <= 9)
  {
    anumber = 200 - (loopvar * loopvar);
    if ((loopvar == 2) || (loopvar == 6) )
    {
      anumber = 0;
    }
    printf ("%d\n", anumber);
    loopvar++;
    total = total + anumber;
  }
  printf ("Total calculated: %d\n", total);
}
```

30 marks

Write the expected output here:

--

(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						

