UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

COS1511 (495845) October/November 2013

INTRODUCTION TO PROGRAMMING I

Duration 2 Hours 90 Marks

EXAMINERS
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SECOND MR KJ HALLAND

Closed book examination

This paper consists of 15 pages plus instructions for completion of a mark reading sheet

INSTRUCTIONS:

1 Please answer Section A on the mark reading sheet and Section B in the answer book
2 Do all rough work in the answer book
3 Number your answers and label your rough work clearly
4 In Section B marks are awarded for part of an answer, so do whatever you are able to in each question

ALL THE BEST!

SECTION A 20 MARKS (10 multiple choice questions, 2 marks each)

Please answer this section on the **mark-reading sheet** that you received (**not** in your answer book)
Choose one option for every question

QUESTION 1

Suppose the following declarations appear in the `main` function of a C++ program

```
char goodGame,
float price;
int nrLevels = 4,
string category;
```

If the following function header is given.

```
char gameAnalysis(int nrLevelsP, float priceP, string categoryP)
```

which of the options below is a correct calling statement of the function `gameAnalysis` in the `main` function?

```
1 gameAnalysis(3, 450 00, "action"),
2 gameAnalysis(nrLevels, price, discount);
3 goodGame = gameAnalysis(5, 600 00, "educational"),
4 goodGame = gameAnalysis(int nrlevelsP, float priceP, string categoryP);
```

QUESTION 2

Suppose the following declarations appear in the `main` function of a C++ program

```
string colour, description;
int code = 32011,
int shelf = 3,
```

If the following function header is given

```
void updateStock(int & codeP, string descriptionP, int & shelfP,
                                                    string colourP);
```

which of the options below is NOT a correct calling statement of the function `updateStock` in the `main` function?

```
1 updateStock(code, "jersey", 23, colour),
2 updateStock(code, description, shelf, colour),
3 updateStock(code, description, shelf, "blue"),
4 updateStock(code, "denim", shelf, "white");
```

QUESTION 3

Suppose the following declarations appear in the main function of a C++ program

```
int age;
char gender;
string item1, item2,
bool qualify,
```

Suppose the following calling statement appears in the main function

```
qualify = determineStatus(13, 'f', "tennis", item2),
```

Which of the options below is a correct function header of the function determineStatus in the main function?

```
1 bool determineStatus(int & ageP, char genderP, string item1P,
                                                    string item2P)
2 bool determineStatus(int ageP, char genderP, string item1P,
                                                  string & item2P)
3 bool determineStatus(int ageP, char & genderP, string & item1P,
                                                    string item2P)
4 bool determineStatus(int & ageP, char & genderP, string & item1P,
                                                  string & item2P)
```

QUESTION 4

Consider the C++ code segment below

```
int a,b,c,
cin >> a >> b;
c = 4 + b * a;
if (c < a * a)
   if (c/3 > 1)
      cout << "c = " << c;
   else
      cout << "a = " << a;
 else
  cout << "b = " << b,
```

What will the output be for the following input?

```
2  3
```

1 There is no output
2 a = 2
3. b = 3
4 c = 10

[TURN OVER]

QUESTION 5

Consider the C++ code segment below

```
char choice,
int a = 5,
int b = 15;
cin >> choice,
switch (choice)
{
      case 'e'  b = a + b,
      case 'f'  b = 2 + a * 2, break,
      case 'g'  a = ++a + b,
      case 'h'  b = b-- + a,
      default  b -= 1,
}
cout << b,
```

Suppose the input value for `choice` is `'f'` What will be displayed when code is executed?

1 16
2 15
3 14
4 12

QUESTION 6

Consider the C++ code segment below

```
int count = 8,
int a = 6, b = 13,
while (count > 0)
{
   if (b % a > 2)
      b--,
   else
      a--,
   count -= 2,
}
cout << "a = " << a << ", b = " << b << endl,
```

What is displayed when this code is executed?

1 a = 12, b = 2
2 a = 13, b = 2
3 a = 2, b = 12
4 a = 3, b = 12

QUESTION 7

Consider the following code fragment

```
int number;
cin >> number,
switch(number)
{
      case 1  cout << "Assignment due date 21 March" << endl,
      case 2  cout << "Assignment due date 10 April" << endl;
      default : cout << "Self-assessment assignment" << endl,
}
```

Which one of the following code fragments will NOT give exactly the same result as the code above?

1
```
int number,
cin >> number,
if (number == 1)
{
      cout << "Assignment due date 21 March" << endl,
      else if (number == 2)
            cout << "Assignment due date 10 April" << endl;
      else
            cout << "Self-assessment assignment" << endl,
}
```

2
```
int number,
cin >> number,
if (number == 1)
      cout << "Assignment due date 21 March" << endl;
else if (number == 2)
            cout << "Assignment due date 10 April" << endl,
      else
            cout << "Self-assessment assignment" << endl,
```

3
```
int number;
cin >> number;
if (number > 2 || number < 1)
      cout << " Self-assessment assignment " << endl,
else if (number == 2)
            cout << "Assignment due date 10 April" << endl,
      else
            cout << " Assignment due date 21 March " << endl;
```

4
```
int number;
cin >> number;
if (number == 2)
{
      cout << "Assignment due date 10 April" << endl;
}
else if (number == 1)
 {
      cout << "Assignment due date 21 March" << endl;
}
 else
{
      cout << "Self-assessment assignment" << endl,
}
```

QUESTION 8

What will be displayed on the screen by the following code?

```
for (int count = 0; count > 10, count++)
  cout << count << " + ";
```

1 There will be no output
2 `count +`
3 `10 +`
4 `0 + 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 +`

QUESTION 9

To be accepted at the *Playgroup* crèche, the following criteria must be met

- Parents must fall into the high income category or they must pay for 6 months in advance
  AND
- The child must not be younger than 3 years or older than 6 years

A `bool` variable `income` is `true` if the parents' income meets the criteria A `bool` variable `pay` is `true` if the parents can pay for 6 months in advance An `int` variable `age` represents the child's age The `bool` variable `accept` should receive the value `true` if all the criteria for acceptance are met Which of the following options will assign the correct value to `accept`?

1. `accept = (income && pay) && ( age >= 3 && age <= 6);`
2. `accept = (income || pay) && !( age < 3 || age > 6);`
3. `accept = (income && pay) || !( age < 3 && age > 6);`
4. `accept = (income || pay) || (age >= 3 && age <= 6);`

QUESTION 10

You stand a chance to win a week-end away in a competition under the following conditions (i) you have not won a similar competition in the last year (ii) You are at least 21 and at most 29 years old and (iii) you answered the competition question correctly The `bool` variable `won` has a value of `true` if you have won a similar competition in the last year Your age is stored in an `int` variable `age` and the `bool` variable `correct` has a value of `true` if you answered the competition question correctly If all the above conditions are met, we want to assign the value `true` to a `bool` variable `away` Which one of the options below gives a correct assignment statement?

```
1  away = (!won && (age >= 21 || age <= 29) && correct);
2  away = (won && (age >= 21 && age <= 29) && correct);
3  away = (!won && (age >= 21 && age <= 29) && correct);
4  away = (won || (age >= 21 && age <= 29) || correct);
```

SECTION B 70 MARKS

Answer the following questions in your answer book

QUESTION 1 [4]

In Questions 1(a) and (b) you have to write down what the purpose of the segment of code is Look at the following example before answering the questions

```
int a, b, c,
cin >> a >> b >> c;
cout << c << b << a,
```

The purpose of the above code segment is to input three integer values and display them in reverse order. Now answer questions 1(a) and (b) below

(a) [2]

```
int n = 0,
while (n <= 5)
{
     cout << n * n << endl,
     n++;
}
```

(b) [2]

Explain the purpose of the following segment of code

```
int numbers[ ] = {11, 13, 15, 23, 16},
bool valid = true,
for (int i = 0, i < 5; i++)
     if (numbers[i] > numbers[i + 1])
        valid = false,
```

QUESTION 2 [11]

Question 2(a) is based on the program below (5)

(a) The program is followed by some variable diagrams for part of the program, namely those diagrams that show a change to the value of at least one variable

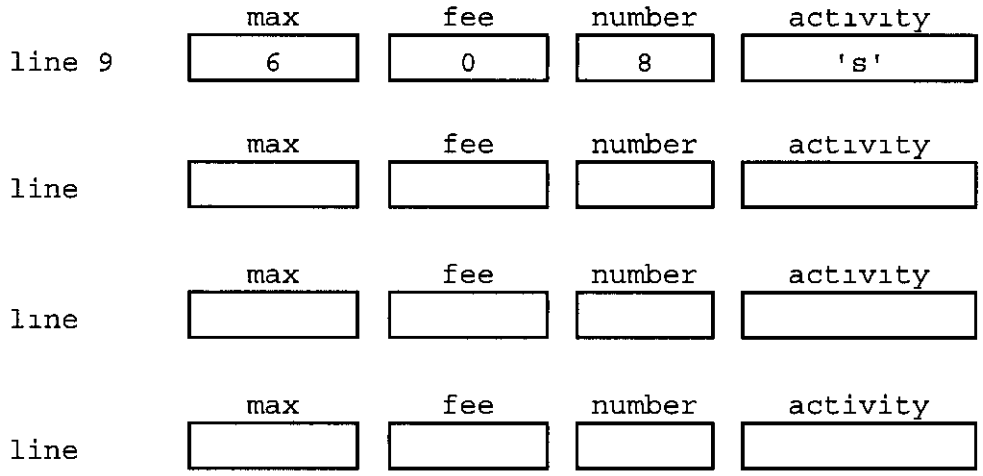
Assume that the following input is given `8 s`

Please answer the questions that follow the variable diagram

```
1    #include <iostream>
2    #include <string>
3    using namespace std,
4    const int BASIC = 100;
5    int main()
6    {
7       int max = 6, int fee = 0,
8       int number; char activity;
9       cin >> number >> activity;
10      switch (activity)
11      {
12        case 'b': case 's'
13          if (number > max)
14             fee = BASIC * --number,
15          else
16             fee = BASIC * number,
17          fee += 100,
18        case 'r':
19          fee = BASIC * number - 50,
20          max = 5,
21          break;
22        default·
23           cout << "invalid activity type";
24           fee = 0,
25           max = 0,
26      }
27      max = 2;
28      cout << max << " " << fee << " " << number << " " << activity
             << endl,
29      return 0;
30    }
```

	max	fee		
line 7	6	0		

	max	fee	number	activity
line 8	6	0	?	?



(i) Complete the three missing line numbers after line 9 of the next three lines that will change the value of at least one variable, as well as the values of the variables after these lines have been executed in your answer books. (3)

(ii) What will the output be after line 28 has been executed? (2)

Question 2(b) is based on the program below (6)

(b) The program is followed by some variable diagrams for part of the program. Please answer the following questions

(i) Complete the variable diagrams for line 7 and the next two lines that change the values of variables (1)

(ii) What will the output be after line 32 has been executed? (3)

```
 1  #include <iostream>
 2  #include <string>
 3  using namespace std;
 4  void packBlocks(int & shelfP, int blocksP, string  & colourP)
 5  {
 6      shelfP++,
 7      colourP = "red";
 8      if (shelfP >= 2 && blocksP < 10)
 9      {
10         colourP = "blue",
11         blocksP --;
12      }
13      else if (blocksP == 9 || colourP == "red")
14      {
15         colourP = "green",
16         shelfP = 4;
17      }
```

```
18      else
19      {
20         shelfP = 1,
21         blocksP += 4;
22      }
23      shelfP++,
24      blocksP-= 3,
25  }
26  int main()
27  {
28     int shelf = 2, int blocks;
29     string colour,
30     blocks = 10,
31     packBlocks(shelf, blocks, colour);
32     cout << shelf << " " << blocks << " " << colour << endl;
33    return 0;
34   }
```

	[shelf] | shelfP	[blocks]	blocksP	[colour] | colourP
line 31->4	2	10	10	?
line 6	3	10	10	?
line 7				
line				
line				

QUESTION 3 [5]

Imagine a program that counts the number of times the punctuation marks full stop (`'.'`), comma (`','`) and semi-colon (`';'`) appear in a piece of text Write down ONLY the necessary `switch` statement to increment the number of full stops, commas and semi-colons that appear in the piece of text. Do NOT write a complete program. Use the following variables.

```
char ch;                    //one character from the piece of text
     int   nrFullStops,     // the counters for the number of full
           nrCommas,        // stops, commas and semi-colons
           nrSemiColons,
```

Assume that `nrFullStops`, `nrCommas` and `nrSemiColons` have been initialised already and that a value has been input and validated for `ch`.

QUESTION 4 [7]

According to an Arabian legend a fabulously wealthy but rash king agreed to give a beggar one cent if it is not a rainy day and to double the amount until a rainy day occurs (For example, if there is only 1 non-rainy day, the amount will be 1 cent, but after 4 non-rainy days, the amount will be 8 cents) Complete the program below to

1 repeatedly prompt the user to enter either Y (indicating a rainy day) or N (indicating a non-rainy day),
2 count the number of rainy days,
3 calculate how much the king must pay the beggar

Use a `while` loop The loop control variable of the `while` loop should be the `char` variable `answer` that should have the value `Y` if it is a rainy day and the value `N` if it is not a rainy day Use the variables that have been declared and DO NOT declare any other variables or write any other functions You need not validate the input

```
#include <iostream>
using namespace std,

int main()
{
    char answer; //stores 'Y' or 'N'  indicates if it rains or not
    int nonRain = 0,  //stores the number of non-rainy days
    int amount = 0;   //stores the amount the king has to pay

    cout << "Is today a rainy day? Enter Y for Yes or N for No  ";
    cin >> answer;

          //your statements

    cout << "The number of rainy days is " << nonRain << endl;
    cout << "The amount due is " << amount << "cents" << endl,
    return 0,
}
```

QUESTION 5 [8]

Write a program that displays a message indicating the marital status of an individual. Use the following table

input character	message
'm' or 'M'	Individual is married
's' or 'S'	Individual is single.
'd' or 'D'	Individual is divorced.
'w' or 'W'	Individual is widowed
anything else	An invalid code was entered

The program accepts a character indicating the marital status as indicated in the above table and displays the message corresponding to the character. Make use of nested `if`-statements

QUESTION 6 [6]

In this question you have to write a *complete* function

Suppose the test marks for one student have been stored in an `int` array called `tests` You have to write a `void` function, called `countMoreThan60` to determine the number of tests for which the student received more than 60%

Assume the following

- a declaration of a global constant:
```
const int NUM_TESTS = 10, // number of test marks
```
- two declaration statements in the main function
```
int tests[NUM_TESTS];     // list of test marks
int nrMoreThan60;
```
- values have been assigned already to all the elements of the array
- the function is called in the main function as follows
```
countMoreThan60 (tests, nrMoreThan60);
```

Write down ONLY the complete function `countMoreThan60`.

QUESTION 7 [8]

The Cool Cricket Academy's cricket team played five matches in a tournament The batting scores for each of the eleven players for each of the five matches are kept in a two-dimensional array, `scores` Each row of the array represents the five scores a specific player made in each of the five matches, and each column represents the scores for each of the players in a specific match

An example of possible output for the program is shown below
```
The total score for player 1 was 40 runs
The total score for player 2 was 32 runs
The total score for player 3 was 22 runs
The total score for player 4 was 108 runs
The total score for player 5 was 109 runs
The total score for player 6 was 110 runs
The total score for player 7 was 881 runs
The total score for player 8 was 35 runs
The total score for player 9 was 32 runs
The total score for player 10 was 35 runs
The total score for player 11 was 29 runs
```

Use the declarations in the (incomplete) program below and do the following

(a) Declare the two- dimensional array `scores` (2)

(b) Assume array `scores` has been initialised and write a program fragment to determine and display the total score that each player made in the tournament (6)

```
#include <iostream>
using namespace std;
const int NUM_MATCHES = 5;
const int NUM_PLAYERS = 11,
int main()
{
      int total,

      // array scores should be declared here (part (a) of the question)

      // Assume statements to input the array here - do not write these //
      statements

      // Your statements to determine and display the total score that
      // each player made in the tournament (part (b) of the question)

    return 0;
}
```

QUESTION 8 **[12]**

(a) Write function headers for each of the following (1 mark each)

(i) The function `control()` that has value two parameters The first parameter should accept an integer number and the second parameter a floating point number The function returns no value.

(ii) The function `add()` that has two floating point precision numbers as value parameters and returns the result

(iii) The function `manipulate_date()` accepts `day`, `month` and `year` as reference parameters and returns no value to its calling function

(iv) The function `countSpaces()` that returns the number of spaces in a string passed as a parameter

(b) Convert the following `void` function `f` into an equivalent non-void function `g` with one value parameter (2)

```
void f(int &n)
{
      n *= 2,
}
```

(c) Give an example how each of the functions in (b) will be called (2)

(d) Write a function named `totAmt()` that accepts three actual integer parameters, which represent the numbers of fifty, twenty and ten cents in a piggy bank The function should determine the rand value of the number of fifty, twenty and ten cent pieces passed and return the calculated value For example `totAmt(15,10,40)` will return `13` and `totamnt(10,10,10)` will return `8` Also complete the `main()` program that calls the `totAmt` function Note that the `main` function inputs in the values with which the `totAmt` function must be called. (4)

```
// totAmt function that return rand value of the number of fifty,
// twenty and ten cent pieces passed to it
// YOUR totAmt FUNCTION CODE SHOULD COME HERE

// main program that tests the totAmt function
int main()
{
      int fifties, twenties, tens,
      int answer,
      cin >> fifties >> twenties >> tens,

      // CALL totAmt. WRITE ONLY ONE STATEMENT

      cout << answer;
      return 0,
}
```

QUESTION 9 [6]

Consider the following type definition.

```
struct CarType
{
      string make,
      double price;
}
```

(a) Given this structure type definition, what will output be produced by the code below? (2)

```
cout setf(ios  fixed),
cout precision(2);
CarType car1, car2,
car1 make = "Honda",
car1 price = 99999 00,
cout << car1 make << " R" << car1 price << endl,
car2 = car1,
car2 price = car2 price/9,
cout << car2 make << " R" << car2 price << endl,
```

(b) Write a function `input_car_record` which has a single parameter of type `CarType` named `new_car` The function `input_car_record` fills `new_car` with values input from the keyboard (4)

QUESTION 10 **[6]**

(a) Write a function named `changeSpaces()` that changes all spaces to hyphens and all digits to asterisks (*) in its single string parameter For example, if the variable called `message` contains the string `Happy Holidays are here 2020`, the function call `changeSpaces(message)` should change the value of `message` to `Happy-Holidays-are-here-****` (5)

Use the following functions

function prototype	Description
`bool isspace(char)`	Returns `true` if `char` evaluates to a space, otherwise it returns `false`
`bool isdigit(char)`	Returns `true` if `char` evaluates to a digit (0 through 9), otherwise it returns `false`

(b) Consider the following declaration

```
string sentence = "Outside it is cloudy and warm ",
string str = "cloudy",
int position,
```

What will the output of the following code be? (1)

```
position = sentence.find(str),
cout << position,
```

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EXAMINATION MARK READING SHEET EKSAMEN-MERKLEESBLAD

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e g PSY100 X
STUDIE EENHEID bv PSY100 X

1

PAPER NUMBER
VRAESTELNOMMER

2

INITIALS AND SURNAME
VOORLETTERS EN VAN

3

DATE OF EXAMINATION
DATUM VAN EKSAMEN

4

EXAMINATION CENTRE (E G PRETORIA)
EKSAMENSENTRUM (BV PRETORIA)

5

STUDENT NUMBER
STUDENTENOMMER

6

7

UNIQUE PAPER NO
UNIEKE VRAESTEL NR

8

9

For use by examination invigilator

Vir gebruik deur eksamenopsiener

IMPORTANT

1 USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2 MARK LIKE THIS
3 CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4 ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5 CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6 CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7 CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8 DO NOT FOLD

BELANGRIK

1 GEBRUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
2 MERK AS VOLG
3 KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4 VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5 KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6 KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7 MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
8 MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

10

1	c1 c2 c3 c4 c5	36	c1 c2 c3 c4 c5	71	c1 c2 c3 c4 c5	106	c1 c2 c3 c4 c5
2	c1 c2 c3 c4 c5	37	c1 c2 c3 c4 c5	72	c1 c2 c3 c4 c5	107	c1 c2 c3 c4 c5
3	c1 c2 c3 c4 c5	38	c1 c2 c3 c4 c5	73	c1 c2 c3 c4 c5	108	c1 c2 c3 c4 c5
4	c1 c2 c3 c4 c5	39	c1 c2 c3 c4 c5	74	c1 c2 c3 c4 c5	109	c1 c2 c3 c4 c5
5	c1 c2 c3 c4 c5	40	c1 c2 c3 c4 c5	75	c1 c2 c3 c4 c5	110	c1 c2 c3 c4 c5
6	c1 c2 c3 c4 c5	41	c1 c2 c3 c4 c5	76	c1 c2 c3 c4 c5	111	c1 c2 c3 c4 c5
7	c1 c2 c3 c4 c5	42	c1 c2 c3 c4 c5	77	c1 c2 c3 c4 c5	112	c1 c2 c3 c4 c5
8	c1 c2 c3 c4 c5	43	c1 c2 c3 c4 c5	78	c1 c2 c3 c4 c5	113	c1 c2 c3 c4 c5
9	c1 c2 c3 c4 c5	44	c1 c2 c3 c4 c5	79	c1 c2 c3 c4 c5	114	c1 c2 c3 c4 c5
10	c1 c2 c3 c4 c5	45	c1 c2 c3 c4 c5	80	c1 c2 c3 c4 c5	115	c1 c2 c3 c4 c5
11	c1 c2 c3 c4 c5	46	c1 c2 c3 c4 c5	81	c1 c2 c3 c4 c5	116	c1 c2 c3 c4 c5
12	c1 c2 c3 c4 c5	47	c1 c2 c3 c4 c5	82	c1 c2 c3 c4 c5	117	c1 c2 c3 c4 c5
13	c1 c2 c3 c4 c5	48	c1 c2 c3 c4 c5	83	c1 c2 c3 c4 c5	118	c1 c2 c3 c4 c5
14	c1 c2 c3 c4 c5	49	c1 c2 c3 c4 c5	84	c1 c2 c3 c4 c5	119	c1 c2 c3 c4 c5
15	c1 c2 c3 c4 c5	50	c1 c2 c3 c4 c5	85	c1 c2 c3 c4 c5	120	c1 c2 c3 c4 c5
16	c1 c2 c3 c4 c5	51	c1 c2 c3 c4 c5	86	c1 c2 c3 c4 c5	121	c1 c2 c3 c4 c5
17	c1 c2 c3 c4 c5	52	c1 c2 c3 c4 c5	87	c1 c2 c3 c4 c5	122	c1 c2 c3 c4 c5
18	c1 c2 c3 c4 c5	53	c1 c2 c3 c4 c5	88	c1 c2 c3 c4 c5	123	c1 c2 c3 c4 c5
19	c1 c2 c3 c4 c5	54	c1 c2 c3 c4 c5	89	c1 c2 c3 c4 c5	124	c1 c2 c3 c4 c5
20	c1 c2 c3 c4 c5	55	c1 c2 c3 c4 c5	90	c1 c2 c3 c4 c5	125	c1 c2 c3 c4 c5
21	c1 c2 c3 c4 c5	56	c1 c2 c3 c4 c5	91	c1 c2 c3 c4 c5	126	c1 c2 c3 c4 c5
22	c1 c2 c3 c4 c5	57	c1 c2 c3 c4 c5	92	c1 c2 c3 c4 c5	127	c1 c2 c3 c4 c5
23	c1 c2 c3 c4 c5	58	c1 c2 c3 c4 c5	93	c1 c2 c3 c4 c5	128	c1 c2 c3 c4 c5
24	c1 c2 c3 c4 c5	59	c1 c2 c3 c4 c5	94	c1 c2 c3 c4 c5	129	c1 c2 c3 c4 c5
25	c1 c2 c3 c4 c5	60	c1 c2 c3 c4 c5	95	c1 c2 c3 c4 c5	130	c1 c2 c3 c4 c5
26	c1 c2 c3 c4 c5	61	c1 c2 c3 c4 c5	96	c1 c2 c3 c4 c5	131	c1 c2 c3 c4 c5
27	c1 c2 c3 c4 c5	62	c1 c2 c3 c4 c5	97	c1 c2 c3 c4 c5	132	c1 c2 c3 c4 c5
28	c1 c2 c3 c4 c5	63	c1 c2 c3 c4 c5	98	c1 c2 c3 c4 c5	133	c1 c2 c3 c4 c5
29	c1 c2 c3 c4 c5	64	c1 c2 c3 c4 c5	99	c1 c2 c3 c4 c5	134	c1 c2 c3 c4 c5
30	c1 c2 c3 c4 c5	65	c1 c2 c3 c4 c5	100	c1 c2 c3 c4 c5	135	c1 c2 c3 c4 c5
31	c1 c2 c3 c4 c5	66	c1 c2 c3 c4 c5	101	c1 c2 c3 c4 c5	136	c1 c2 c3 c4 c5
32	c1 c2 c3 c4 c5	67	c1 c2 c3 c4 c5	102	c1 c2 c3 c4 c5	137	c1 c2 c3 c4 c5
33	c1 c2 c3 c4 c5	68	c1 c2 c3 c4 c5	103	c1 c2 c3 c4 c5	138	c1 c2 c3 c4 c5
34	c1 c2 c3 c4 c5	69	c1 c2 c3 c4 c5	104	c1 c2 c3 c4 c5	139	c1 c2 c3 c4 c5
35	c1 c2 c3 c4 c5	70	c1 c2 c3 c4 c5	105	c1 c2 c3 c4 c5	140	c1 c2 c3 c4 c5