جامعه المنصوره كليه الهندسه قسم الهندسهالكهربيه الفرقه الاولي

المادة تطبيقات حاسب1 التاريخ 1 - 1 - 2013

الزمن:3 ساعه

Try the following

Problem 1 ***5 Points***

Two players play a game of tossing two dies and the sum of the two appeared numbers will determine the winner. The sum of the two numbers will be a number in the range (2.....12) because every face of the two dies begin with 1 and ending with 6. Every player play one time only The player win if the sum of the two appeared numbers is 7 or 11, he loses if the sum of the two numbers is 12 or 3 or 2. But if the sum of the two numbers is 4 or 5 or 6 or 8 or 9 or 10 he will repeat the playing getting one point, he repeat until he win with points (if he gets 20 points) or, lose if he get sum of two numbers is 7. Write a pseudo code and draw a flow chart implementing the whole program with C++ code.

Problem 2 ***5 Points***

Given the following 100 cells figure 1 write a pseudo code and draw flow chart and C++ code to print out the numbers in the dark cells and its sum.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Figure 1 100 cell figures

Problem 3 ***26 Points***

Try the following and write the correct answer in a table like the following:

Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Answer													

1) Which of the following is an invalid C++ assignment operation. Assume that all variables are ints.
   a) x = x = x += 100;
   b) ++i = 155 * x++;
   c) a = 100 + x / 7;
   d) b %= 3 * x % 2;

2) Which of the following is the correct way of converting degrees Fahrenheit (F) to degrees Celsius (C). F and C are doubles. (Recall that 0C is 32F and there are 9/5 degrees F per degree C.)
   a) C = 5.0 / 9.0 * F - 32.0;
   b) C = F - 32.0 * 9.0 / 5.0;
   c) C = (F - 32.0) * 5.0 / 9.0;
   d) C = F * 5.0 / 9.0 + 32.0;

3) Which of the following is a correct variable declaration.
   a) double bool;
   b) int 7_days_in_may;
   c) int _22_;
   d) float I_NEED_$$$;

4) A run-time error is always caused by:
   a) wrong syntax
   b) incorrect logic
   c) missing a library function
   d) missing a header file
   e) All of the above

5) Which one of the following is a correct in **C++** to express: **y** is between **x** and **z**, inclusive.
   a) (x < y < z)
   b) (x <= y <= z)
   c) (y > x && y > z)
   d) (y >= (x && y) >= z)

6) Which of the following code correctly determines if x, y, and z are not equal to each other?
   a) x != y != z
   b) ((x =! y) != z)
   c) x != y && y != z
   d) none of these

7) What is the value of **n** after the following switch statement

```
int n = 22;
switch(n)
{
  case 20: n++;
           break;
  case 22: n--;
  case 23: --n;
           break;
  case 24: n*=3;
           break;
  default:  n = n*5;
};
```

   a) 20
   b) 21
   c) 22
   d) 110

8) Which of the following is an invalid logical expression. Assume that all variables are ints.
   a) a >= b && x != 5
   b) a = b && c <= d
   c) 500 <= x
   d) none of the above

9) cout << sin(90);

The above code fragment will display:
a) 0.00
b) 1.00
c) 0
d) none of the above

10) Which set of function prototypes can be overloaded
a) int GetValue(int dummy);
   void GetValue(int dummy, int &input);

b) int GetValue(int dummy);
   double GetValue(int dummy);

c) int GetValue(int dummy, int input);
   int GetValue(int dummy, int dataValue);

d) none of the above

11) From the following definition

```
void f(int& one, int two)
{
  int temp;

  temp = one++;
  one = two;
  two = temp;
}
```

What is the value of x and y after the following statements execute? (Assume that variables are properly declared.)

```
two = 10;
one = 15;
f(two,one);
```

a) one = 10, two = 15;
b) one = 16, two = 10;
c) one = 15, two = 11;
d) one = 15, two = 10;

12)
```
double a = 10;
double b = 10.75;
int c = 10;

cout << c + ((int(b) > a)? b : a);
```

The above segment will display

a) 20
b) 20.75
c) 10.75
d) None of the above

13)
```
char letter = 'r';
bool test = letter;
cout << test;
```

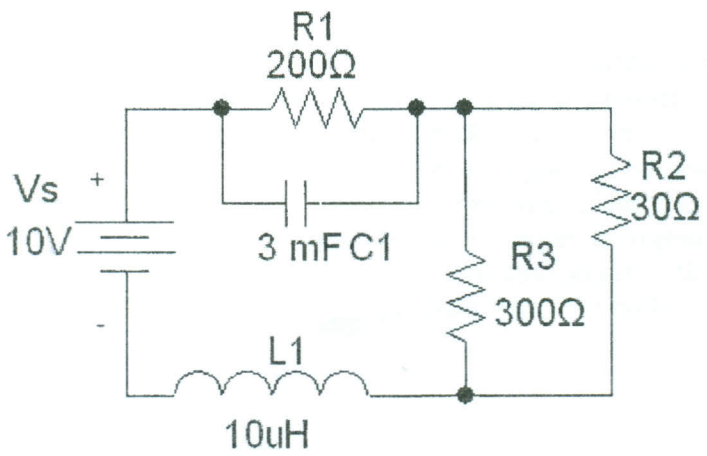
After the above segment the output will be;

a) r
b) 0
c) 1
d) 114

Problem 4 **8Points**

1-Explain in details the following:
A-Software life cycle B-Flowchart C-pseudo code
Support your answer with examples?

2-Given a simple circuit shown in figure 2 using Kirchhoff current theory find branches currents with a flow char, pseudo code and C++ code to find that currents.



Problem 5 **6 Points**

Given a vector of 100 students (names) and a two dimensions matrix of degrees of 5 courses for each student, the final of each course is 100 points, draw **a flowchart and write a pseudo code to do the following:** Calculate the grade of each student for each course and print it out. Also calculate the total grade of every student, use the following grading schemes.

Degree>= 90 points the grade will be 85%	A
75 points<= **Degree**< 85 points the **grade** will be	B
65 points<= **Degree**< 75 points the **grade** will be	C
50 points<= **Degree**< 65 points the **grade** will be	D
Degree< 50 points the grade will be	