اولى كهرباء

Tanta University

Department: Electronics & Comm. Engineering
Total Marks: 100 Marks

Faculty Faculty of Engineering

Course Title: Electronics (1)	Course Code: EEC1101	Year: First Year
Date: January 2018 (First term)	Allowed time: 3 hrs	No. of Pages: (2)

Remarks: (answer the following questions… assume any missing data… answers should be supported by sketches…etc)

Question number (1) (25 Marks)

1 (a) Choose the right answer :

1. In an intrinsic semiconductor , the electron density is equal to the hole density.
   ( ) ***True*** ( ) ***False***
2. For a PN junction in equilibrium, the drift currents resulting from the electric field exactly cancel the diffusion currents due to the gradients.
   ( ) ***True*** ( ) ***False***
3. The built-in potential of a PN junction is a weak function of the doping levels .
   ( ) ***True*** ( ) ***False***
4. In a forward bias PN junction, the potential barrier is lowered by amount equal to the applied voltage. ( ) ***True*** ( ) ***False***
5. The reverse saturation current of a PN junction is directly proportional to the cross section area of the junction. ( ) ***True*** ( ) ***False***
6. Zener and avalanche breakdown of a PN junction display opposite temperature coefficients.
   ( ) ***True*** ( ) ***False***
7. The amplitude of the ripple voltage of a half wave rectifier is directly proportional to the load current. ( ) ***True*** ( ) ***False***
8. The output resistance of a transistor r_o , is inversely proportional to the collector current.
   ( ) ***True*** ( ) ***False***
9. In soft saturation ,the collector voltage must not fall below the base voltages by more than 400 mV. ( ) ***True*** ( ) ***False***
10. The voltage gain of CE core is directly proportional to the collector current and the collector resistor Rc. ( ) ***True*** ( ) ***False***

(b) Determine the electron and hole drift velocities through a 5 μm piece of intrinsic silicon across which a voltage of 10 V is applied. Assume $\mu_n = 1359\ cm^2/V$ and $\mu_p = 480\ cm^2/V$.

(c) A diode operates in the forward bias region, if we wish to increase the diode current by 15 times. How much change in V_D is required.

(d) A silicon pn junction employs $N_A = 4 \times 10^{16} cm^{-3}$ and $N_D = 5 \times 10^{17} cm^{-3}$. Determine the majority and minority carrier concentration on both sides. ($n_i = 1.08 \times 10^{10}\ cm^{-3}$)

Question number (2) (25 Marks)

2(a) For the circuit shown in **Fig.1**, the saturation current of each diode is $I_S = 2 \times 10^{-13}$ A. Determine the input voltage V_I required to produce an output voltage $V_o = 0.6$ V.
(Assume $V_T = 26$ mV).

(b) In each of the ideal diode circuits shown in **Fig.2** , if $v_I = 10$ V peak sine wave. Draw the resulting output waveform ,what are its positive and negative peak values. Assuming ideal diode

(c) Design a limiter circuits using only diodes and resistors to provide an output signal limited to the range : (i) - 0.7 V and above (ii) - 2.1 V and above (c) ± 1.4 V
(Assume that each diode has a 0.7 V drop when conducting.)

Question number (3) (25 Marks)

3(a) Draw the voltage regulator block diagram, and explain the difference between line regulation and load regulation.

(b) In the circuit shown in **Fig.3** , V_{in} = 5 V, R_1= 100 Ω, and D_2 has a reverse breakdown of 2.7 V and a small signal resistance of 5 Ω. Assuming $V_{D\,on}$ = 0.8 V for D_1, determine the line and load regulation of the circuit.

(c) Explain the difference between large signal and small signal models of bipolar transistor including early effect.

Question number (4) (25 Marks)

4(a) **(i)** In the circuit shown in **Fig.4** , if V_{CC} changes from 2.5 to 3V, determine the change in the collector current of Q_1. Assuming $I_S = 1 \times 10^{-17}$ A, and V_A = 5V.

(ii) If we wish to decrease V_B to compensate for the change in I_C , determine the new value of V_B.

(b) Explain the difference between simple biasing and biasing with emitter degeneration of npn bipolar transistor. State the advantageous and disadvantages of each.

(c) (i) Derive an expression for the voltage gain, input impedance, and output impedance of a common emitter core amplifier with inclusion of Early effect .

(ii) For the circuit shown in **Fig.5** , **If** I_C = 1 mA, R_C = 1 kΩ , β = 100, and V_A = 10 V, determine the small signal voltage gain , the input and output impedances

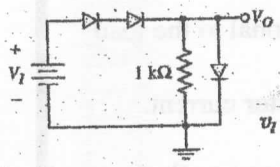
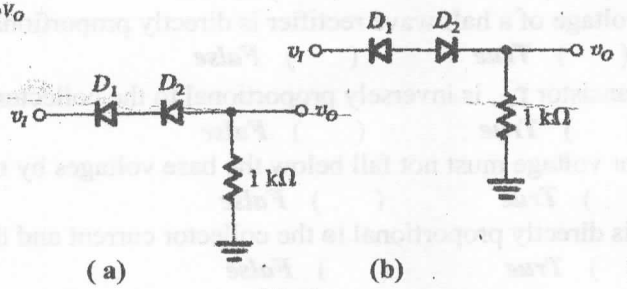
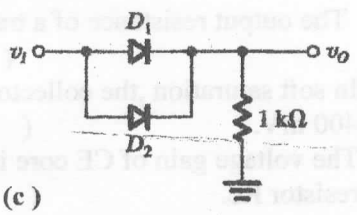


Fig.1



(a) (b)



(c)

Fig.2

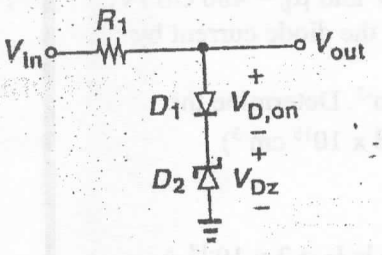


Fig.3

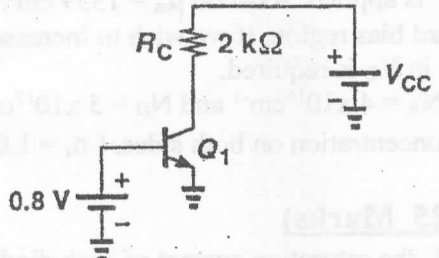


Fig.4

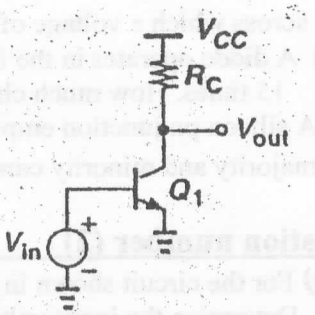


Fig.5

Good Luck..... Prof.Mustafa Mahmoud

٢٠١٨/١١/١١ اولى كهرباء

Tanta University

Department: Elec. Power and Machines Engineering
Total Marks: 70 Marks

Faculty of Engineering

Course Title: Electrical and electronic materials	**Course Code: EEC/EPM1160**	**Year: First year**
Date: 11/1/2018 (First term)	**Allowed time: 3 hrs**	**No. of Pages: (2)**

الإمتحان مكون من 5 أسئلة فى صفحتين

Problem number (1) (18 Marks)

a) Define the static dielectric constant and explain the mathematical relation between electric permittivity and magnetic permeability of vacuum. **(4 Marks)**

b) Define the magnetic dipole moment and show how it can be implemented to produce a mechanical torque. How can you increase this torque? **(4 Marks)**

c) A certain dielectric has a number of molecules per unit volume of $32*10^{15}$ cm^{-3} and a polarizability of $2.0*10^{-30}$ F cm^2. Using exact expression, calculate the relative permittivity of the dielectric and find the radius of the atom assuming electronic polarization. **(5 Marks)**

d) When an electrical field of 4.5 kV/cm is applied to a capacitor at a frequency of 314.1593 rad/sec, the dielectric power loss was 2.25 kVA/m^3, where the capacitance is 1.4 nF. If the capacitor area is 0.2 m^2 and the distance between the two parallel plates is 5 mm, calculate active and reactive components of permittivity and tangens delta of the insulator. Comment on the value of tangens delta. **(5 Marks)**

Problem number (2) (17 Marks)

a) Explain in detail the Piezoelectricity principles and its applications. **(4 Marks)**

b) Compare between the response of diamagnetic and paramagnetic materials for external magnetic fields. **(4 Marks)**

c) The core of a certain machine is made of laminations with a thickness of 0.8 mm. The resistivity of the core is 600 μΩ.m. If the total loss per unit volume of the core at a frequency of 50 Hz and a coercive force of 0.01239 AT/m is 5 W, calculate the total loss per unit volume at a frequency of 60 Hz for the same maximum magnetic flux density. **(5 Marks)**

d) Define the Meissner effect of flux jumping in superconductors and compare between type I and type II. **(4 Marks)**

P.T.O.

Problem number (3) **(10 Marks)**

a) Using diagram, state the basic characteristics of these crystals. **(5 Marks)**

- Simple cubic structure,
- Body-centered cubic structure
- Define briefly the types of solids.

b) Find the volume density of atoms in a single crystal material that is a Face-centered cubic with a lattice constant a = 4.75 A°. **(5 Marks)**

Problem number (4) **(10 Marks)**

a) Define the majority and minority carriers in n-type materials. **(5 Marks)**

b) What is meant by the drift and diffusion currents in semiconductors? Drive expression for the drift current density and explain how to increase the conductivity of semiconductor. **(5 Marks)**

Problem number (5) **(15 Marks)**

a) Write short notes on the following: **(5 Marks)**
i) Carbon Nanotubes. ii) Potential impacts of nanotechnology.

b) Determine the concentration of free electrons and holes at 300°K for a Silicon sample, which has a donor atom concentration of $N_D = 2x\ 10^{14}$ atoms/cm^3 and an acceptor atom concentration of $N_A=3x10^{14}$ atoms/cm^3. Is the sample p- or n- type silicon? (n_i for Si at 300 °K $=1.5x10^{10}cm^{-3}$) **(10 Marks)**

Good Luck

Course Examination Committee
Prof. Mohamed Nasr Prof. Ahmed Refaat Azmy

اولى كهرباء

Tanta University

Department: Engineering Physics and Mathematics
Total Marks: 85 Marks

Faculty of Engineering

Course Title: Engineering Mathematics(2A)	Course Code: PME1106	Year: 1st elect. Eng.
Date: 14 JAN. 2017 (First term)	Allowed time: 3 Hrs	No. of Pages: (3)

Remarks: Answer All of The Following Questions

Question Number (1) (43 Marks)

a) Write and sketch the domain of $f(x,y) = \ln(16 - x^2 - y^2) + \frac{x}{y}$. (5 Marks)

b) If $w = f(x,y)$, $xu^2 + v = y^2$, $2yu - xv^2 = 4x$, Find w_u. (6 Marks)

c) If $Z = x^3 e^{y/x}$ Prove that: $x\,Z_x + y\,Z_y = 3\,Z$. (6 Marks)

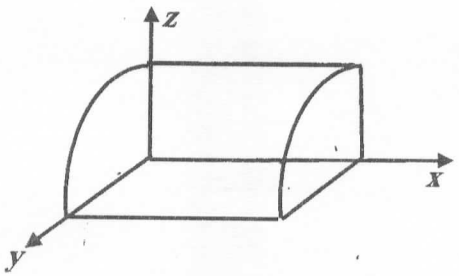
d) Expand in Maclurin series the function $f(x,y) = e^{ax+by}$ (6 Marks)

e) If $\int_0^\infty e^{-a x^2}\,dx = \sqrt{\frac{\pi}{4a}}$, $a \neq 0$ Find $\int_0^\infty x^2\, e^{-a x^2}\,dx$. (6 Marks)

f) Evaluate $I = \int_0^1 \int_y^0 \frac{1}{y}\, e^{\frac{x}{y}}\, dxdy$ (7 Marks)

g) Using triple Integral evaluate the volume of the region bounded by

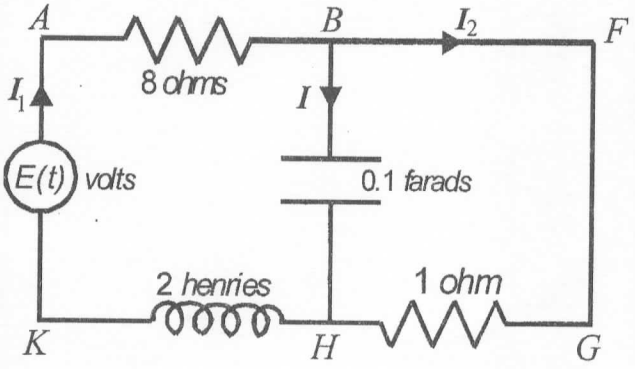
$x = 0$, $x = 5$, $z = 0$, $y = 0$, $z^2 + y^2 = 1$. (7 Marks)



Question Number (2) (12 Marks)

In the shown electric network, find the charge Q on the capacitor. Assume currents I_1, I, I_2 and Q are zero at $t = 0$.

Consider that: $E(t) = 600\, e^{-5t} \sin(3t)$



اولى كهرباء

Tanta University

Department: Computers and Control Eng.
Total Marks: 85 Marks

Faculty of Engineering

Course Title: **Principles of Logic Design** | Course Code: **CCE1102** | Year: 1st electrical
Date: **Jan. 16th 2017 (First Term)** | Allowed time: **3 hrs** | No. of Pages: (2)

Remarks: **Please Read the question more than once to fully understand it before you start solving.**

Problem number (1) (22 Marks)

a) Draw the design of a 3-to-8 decoder and draw its truth table. Why do we need the enable line in the decoder? Then use this decoder to implement the following circuit:

$$F(A, B, C) = AC' + BC' + ABC$$

b) If we have a function: $F(A, B, C, D) = AD' + ABC' + ABC'$

1- Express F in Sum of minterms form.

2- Is this the best representation for the function? If not, what is the best one?

c) Simplify $F(A, B, C, D) = \sum (0, 1, 2, 4, 5, 6, 8, 9)$, don't care = $\sum (11, 12, 15)$ using map, into sum of products using the don't care elements.

Then simplify it without using the don't care elements and compare between the two designs.

Problem number (2) (20 Marks)

a) Given the following circuit that is used to indicate landing gear warning circuit in an aircraft. It has three inputs from three sensors on the wings and the front of the aircraft (name them as A, B and C). They are connected as shown to OR and AND gates to Red LED and Green LED:

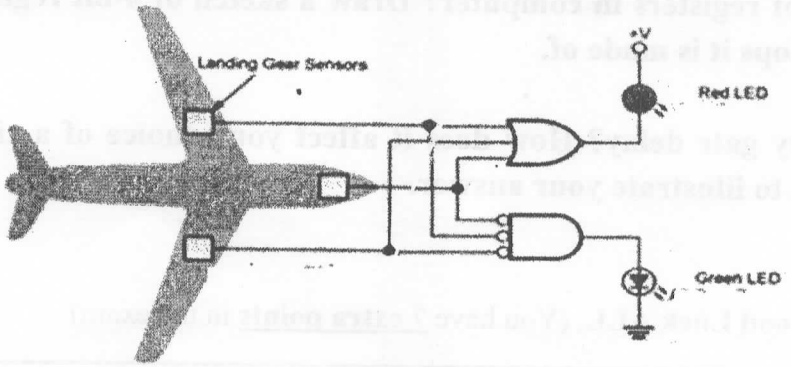
i- Write down the Red LED and Green LED equations.

ii -Write down the Truth Table.

iii- Express the function as sum of minterms.

AIRCRAFT LOGIC CIRCUIT

- **LANDING GEAR WARNING CIRCUIT**



b) Design a circuit that converts BCD number into its 9's complement. Build the truth table and just express the outputs in sum of minterms, no need to simplify.

c) Draw the internal components of 8x1 Multiplexer, write its function table and write its equations.
If its inputs (I_0 , I_1,.... I_7) = (1, 1, 0, 1, 1, 0, 1,1), the inputs of this multiplexer are X, Y and Z, the output of this multiplexer is F, write down the relation between F and X, Y and Z.

Can you use it to implement full adder equations? (3 extra marks bonus not included in the 25 marks of the question)

Problem number (3) (25 Marks)

a) Draw the 4-bit Ring counter? How it differs from Johnson Counter? What is the relation between the number of bits and number of counts in both counters?

b) Draw the circuit of 4-bit parallel full adder. State the problem of this adder and how to solve it.

c) If you want to perform the following operations on three 4-bit inputs (A, B and D) given that you have a control input called M which is used to control the operations. The output sum is called Z. How can you use the full adder to calculate these operations?

$Z = A + B$ if M=0 or $Z = A + D+1$ if M=1

Problem number (4) (25 Marks)

a) What is the goal of a comparator circuit? Write down the equations of comparing two 3-bit numbers.

b) Simplify the following functions into product of sums:

1- $F1(A,B,C,D) = \sum(1,2,3,7,8,9)$

2- $F2(A,B,C) = \pi(0,2,4,6,7)$

c) What is the role of registers in computer? Draw a sketch of 4-bit register and state what type of flip-lops it is made of.

d) What is meant by gate delay? How does it affect your choice of a circuit design? Draw an example to illustrate your answer.

Good Luck ALL, (You have 7 extra points in the exam)

Course Coordinator: Prof. Dr. Amany Sarhan

Tanta University
Faculty of Engineering
Electrical Power and Machines Engineering Dept.
Electrical Engineering 1st year
Electric Circuits (1)

Course Code: EPM1101
Final Exam 2016/2017
Maximum Marks: 90
Time: 3 hr
First Term

Question 1 [6 Marks]

For the circuit shown in Figure 1, if the current through the R_1 is zero. Determine:

1. the value of R_2.
2. the total circuit resistance.
3. the supply power.
4. the current through R_2.

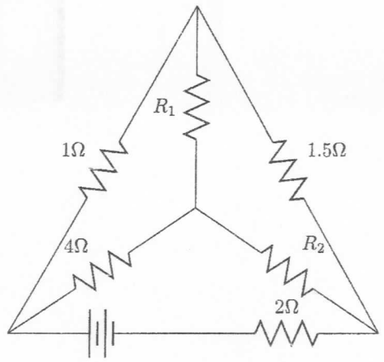


Figure 1: Circuit of question 1

Question 2 [25 Marks]

For the circuit shown in Figure 2, find the current i and sketch it in the time domain.

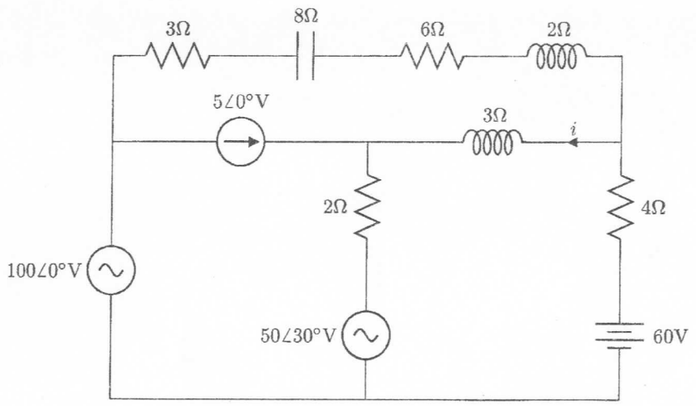


Figure 2: Circuit of question 2

Question 3 [9 Marks]

For the circuit shown in figure 3, find:

1. the total resistance between a and b.
2. the voltage V_s.
3. the power delivered from the supply.

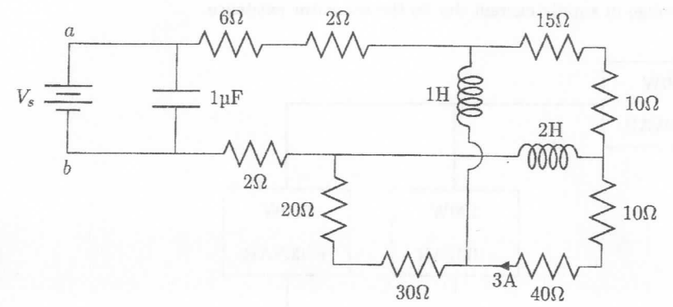


Figure 3: Circuit of question 3

Question 4 [20 Marks]

For the circuit shown in figure 4, find:

1. Z_L for maximum power transfer.
2. maximum load power P_{max}.
3. power factor at maximum power.

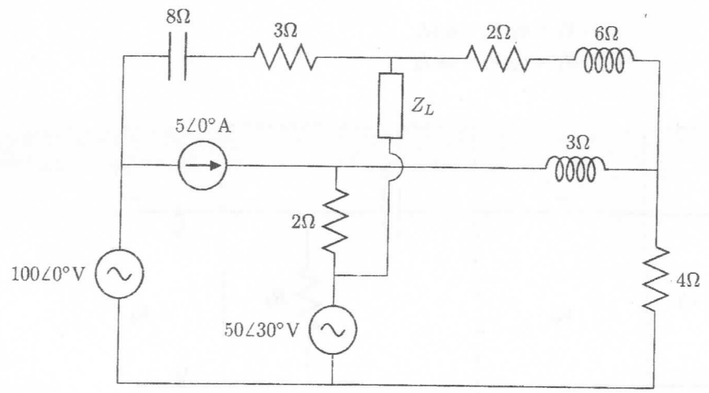


Figure 4: Circuit of question 4

Question 5 [15 Marks]

For the circuit shown in Figure 5, find:

1. the total active power.
2. the total reactive power.
3. the total apparent power.
4. the power factor capacitor that must be connected to improve the system power factor to unity.
5. determine the percentage change in supply current due to the capacitor existence.

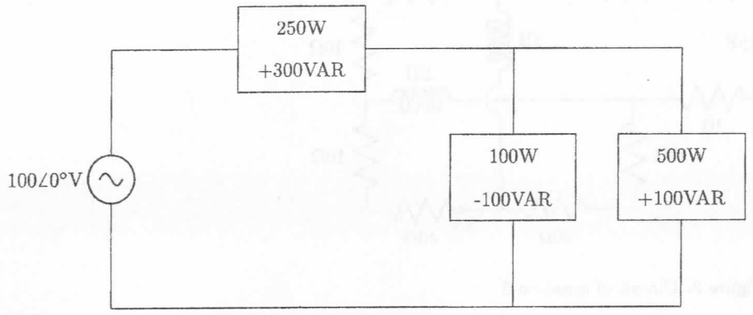


Figure 5: Circuit of question 5

Question 6[15 Marks]

For the circuit shown in Figure 6, the two tow-port networks are used as filters.

1. Explain the function of each network and the overall system.
2. Sketch the output voltage characteristics of each network against frequency.
3. Express the equivalent two-port network using a parameters, according to the equations below.

$$V_1 = a_{11}V_2 - a_{12}I_2$$
$$I_1 = a_{21}V_2 - a_{22}I_2$$

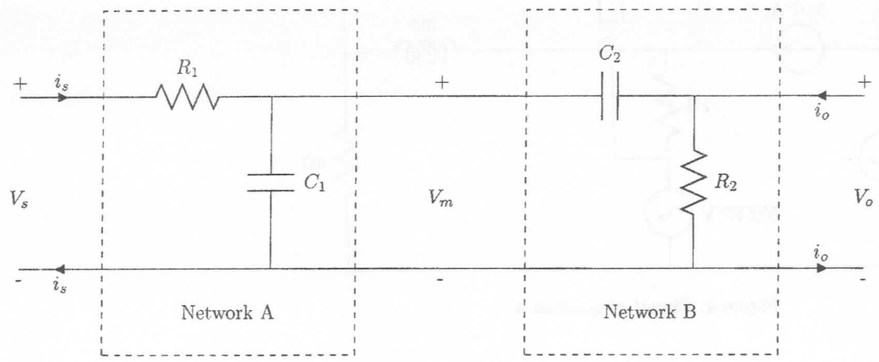


Figure 6: Circuit of question 6

with best wishes

Tanta University — Department: Computers and Control Engineering — Faculty of Engineering

(60 Marks)

Course Title: **Computer Programming** — Course Code: **CCE110 1st Year**

Date: **18/1/2017(Final)** — Model **A** — Allowed Time: **3 Hours**

Question 1: (20 points)

(I) Choose the correct answer:

1. A string manipulation function that appends specified number of characters from second argument to first argument.
   (a) strcpy()
   (b) strncpy()
   (c) strcat()
   (d) strncat()

2. Advantages of modular programming with functions
   (a) easier to understand
   (b) easier to write and change
   (c) easier to test and debug
   (d) all of the above

3. Every statement in a C++ program should end with a
   (a) :
   (b) .
   (c) ;
   (d) ,

4. In a C++ program, lines beginning with a hash sign (#) are
   (a) comments to the programmer
   (b) directives to the preprocessor
   (c) commands to the compiler
   (d) none of the above

5. To be able to use the sqrt()function in a C++ program, you should
   (a) #include <cmath>
   (b) #include <iostream>
   (c) #include <cstring>
   (d) none of the above

6. Return type which indicates that a function will perform a task but will not return any information when it completes its task.
   (a) int
   (b) int *
   (c) void
   (d) void *

7. If an array is declared as scores[5], the valid range of indices is
   (a) from 1 to 5
   (b) from 0 to 5
   (c) from 0 to 4
   (d) from 1 to 4

8. The selection logical structure is impelemented in C++ using
   (a) while statement
   (b) for statement
   (c) if statement
   (d) return statement

9. Every C++ program begins execution at the function
   (a) start
   (b) main
   (c) initial
   (d) primary

10. All of these are data types EXCEPT
    (a) int
    (b) bool
    (c) double
    (d) main

11. The equivalent of the C++ arithmetic expression $y = 2 * 5 * 5 + 3 * 5 + 7;$ is
    (a) y=960
    (b) y=272
    (c) y=72
    (d) y=410

12. The C++ statement: char color[] = "blue"; creates
    (a) 4-element array, last character is e
    (b) 6-element array, last character is "
    (c) 5-element array, last character is \0
    (d) none of the above

For questions 13–15, consider the following
$int\ a[3] = 1, 2, 3; int * ap = a;$

13. The output of $cout << ap[2] << endl;$ is
    (a) 1
    (b) 2
    (c) 3
    (d) junk data

14. The output of $ap++; cout << *ap << endl;$ is
    (a) 1
    (b) 2
    (c) 3
    (d) junk data

15. The output of $cout << *(a + 3) << endl;$ is
    (a) 1
    (b) 2
    (c) 3
    (d) junk data

16. If a=5 and b=10, the statement y= a > b ? a : b evaluates to
    (a) y=true
    (b) y=flase
    (c) y=a
    (d) y=b

17. A structured data type of same-type elements which are accessed by indices
    (a) array
    (b) set
    (c) union
    (d) function

18. The loop while(1); will
    (a) never run
    (b) run forever
    (c) run for defined number of iterations
    (d) none of the above

19. The function pow(x,y) calculates
    (a) x raised to the power y
    (b) y raised to the power x
    (c) x times y
    (d) x plus y

20. int *countPtr, count; declares
    (a) two int variables
    (b) two pointer to int variables
    (c) pointer to int countPtr and int count
    (d) none of the above

21. The name of the element in row 3 and column 5 of array d is
    (a) d[3,5]
    (b) d[2,4]
    (c) d[3][5]
    (d) d[2][4]

22. The statements x = 7; y = x++; cout<<x<<" "<<y; display
    (a) 8 8
    (b) 8 7
    (c) 7 8
    (d) 7 7

For questions 23–25, consider the following
$int\ x = 10; int * p = \&x;$

23. The output of $cout << *\&x << endl;$ is
    (a) ff05ac
    (b) 10
    (c) 11
    (d) junk data

24. The output of $cout << *p << endl;$ is
    (a) ff05ac
    (b) 10
    (c) 11
    (d) junk data

25. The output of $(*p)++; cout << x << endl;$ is
    (a) ff05ac
    (b) 10
    (c) 11
    (d) junk data

(II) State whether each of the following is true or false.

1. _____ A variable can only be referenced inside function in which it is declared, it can not be referenced outside function body.
2. _____ The expression (x > y && a < b) is true if either the expression x>y is true or the expression a<b is true.
3. _____ A string can be assigned in declaration to character array or variable of type char *
4. _____ Number of elements in an array of double elements is determined by expression: sizeof (Array) / sizeof (double);
5. _____ An array of integers can be intialized by the statement: int n[ ] = { 1, 2, 3, 4, 5 };
6. _____ An array index should normally be of data type float .
7. _____ A return 0 in the main function indicates that the program ended normally.
8. _____ The *default* case is required in the switch selection statement.
9. _____ cin requires the user to press the [Enter] key when finished entering data.
10. _____ The arithmetic operators *, /, %, +, – all have the same level of precedence.
11. _____ An array can store many different types of values.
12. _____ C++ considers the variables *number* and *NuMbEr* to be identical.
13. _____ All arguments to function calls in C++ are passed by value.
14. _____ If there are fewer initializers in an initializer list than the number of elements in the ar- ray, the remaining elements are initialized to the last value in the initializer list.
15. _____ The strcmp() returns a negative value if first string greater than second string.

Question 2: (20 points)

1. **(4 points) Write** a piece of C++ code that performs bubble sort. Assume an array of integers called *numbers* with size n is already declared and initialized. **Suggest** how the bubble sort code can be enhanced.
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       continue;
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       break;
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}
cout << "All done!" << endl;
```

3. **(4 points)** Write a **recursive** function that receives a positive integer n and prints the following.

```
1
1 2
1 2 3
1 2 3 4
.
.
1 2 3 4 . . . n
```

4. **(8 points) Draw** a flow chart and **write** a complete C++ program that reads a year from the user and prints a message to indicate if it is a leap year or not. A leap year is a year of 366 days where February is 29 days.
There are two rules for determining leap years (Y is a century-year if it's evenly divisible by 100):
Rule 1: A century-year (divisible by 100) is a leap-year only if it's evenly divisible by 400. For example, century-years 1700, 1900, 1800, and 3400 are not leap-years since they're not divisible by 400. But the century-years 1600, 2000, and 2400 are leap years because they are evenly divisible by 400.
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Tanta University — Department: Computers and Control Engineering — Faculty of Engineering

(60 Marks)

Course Title: **Computer Programming** — Course Code: **CCE110 1st Year**

Date: **18/1/2017(Final)** — Model **B** — Allowed Time: **3 Hours**

Question 1: (20 points)

(I) Choose the correct answer:

1. Every statement in a C++ program should end with a
   (a) :
   (b) .
   (c) ;
   (d) ,

2. A string manipulation function that appends specified number of characters from second argument to first argument.
   (a) strcpy()
   (b) strncpy()
   (c) strcat()
   (d) strncat()

3. The name of the element in row 3 and column 5 of array d is
   (a) d[3,5]
   (b) d[2,4]
   (c) d[3][5]
   (d) d[2][4]

4. To be able to use the sqrt()function in a C++ program, you should
   (a) #include <cmath>
   (b) #include <iostream>
   (c) #include <cstring>
   (d) none of the above

5. The selection logical structure is impelemented in C++ using
   (a) while statement
   (b) for statement
   (c) if statement
   (d) return statement

6. If a=5 and b=10, the statement y= a > b ? a : b evaluates to
   (a) y=true
   (b) y=flase
   (c) y=a
   (d) y=b

7. The loop while(1); will
   (a) never run
   (b) run forever
   (c) run for defined number of iterations
   (d) none of the above

For questions 8–10, consider the following
$int\ a[3] = 1, 2, 3; int * ap = a;$

8. The output of $cout << ap[2] << endl;$ is
   (a) 1
   (b) 2
   (c) 3
   (d) junk data

9. The output of $ap{+}{+}; cout << *ap << endl;$ is
   (a) 1
   (b) 2
   (c) 3
   (d) junk data

10. The output of $cout << *(a + 3) << endl;$ is
    (a) 1
    (b) 2
    (c) 3
    (d) junk data

11. Return type which indicates that a function will perform a task but will not return any information when it completes its task.
    (a) int
    (b) int *
    (c) void
    (d) void *

12. All of these are data types EXCEPT
    (a) int
    (b) bool
    (c) double
    (d) main

13. A structured data type of same-type elements which are accessed by indices
    (a) array
    (b) set
    (c) union
    (d) function

14. In a C++ program, lines beginning with a hash sign (#) are
    (a) comments to the programmer
    (b) directives to the preprocessor
    (c) commands to the compiler
    (d) none of the above

15. int *countPtr, count; declares
    (a) two int variables
    (b) two pointer to int variables
    (c) pointer to int countPtr and int count
    (d) none of the above

16. Advantages of modular programming with functions
    (a) easier to understand
    (b) easier to write and change
    (c) easier to test and debug
    (d) all of the above

17. If an array is declared as scores[5], the valid range of indices is
    (a) from 1 to 5
    (b) from 0 to 5
    (c) from 0 to 4
    (d) from 1 to 4

18. The function pow(x,y) calculates
    (a) x raised to the power y
    (b) y raised to the power x
    (c) x times y
    (d) x plus y

19. The equivalent of the C++ arithmetic expression $y = 2 * 5 * 5 + 3 * 5 + 7;$ is
    (a) y=960
    (b) y=272
    (c) y=72
    (d) y=410

20. The C++ statement: char color[] = "blue"; creates
    (a) 4-element array, last character is e
    (b) 6-element array, last character is "
    (c) 5-element array, last character is \0
    (d) none of the above

For questions 21–23, consider the following
$int\ x = 10; int * p = \&x;$

21. The output of $cout << *\&x << endl;$ is
    (a) ff05ac
    (b) 10
    (c) 11
    (d) junk data

22. The output of $cout << *p << endl;$ is
    (a) ff05ac
    (b) 10
    (c) 11
    (d) junk data

23. The output of $(*p){+}{+}; cout << x << endl;$ is
    (a) ff05ac
    (b) 10
    (c) 11
    (d) junk data

24. The statements x = 7; y = x++; cout<<x<<" "<<y; display
    (a) 8 8
    (b) 8 7
    (c) 7 8
    (d) 7 7

25. Every C++ program begins execution at the function
    (a) start
    (b) main
    (c) initial
    (d) primary

(II) State whether each of the following is true or false.

1. _____ Number of elements in an array of double elements is determined by expression: sizeof (Array) / sizeof (double);
2. _____ If there are fewer initializers in an initializer list than the number of elements in the ar- ray, the remaining elements are initialized to the last value in the initializer list.
3. _____ An array can store many different types of values.
4. _____ A string can be assigned in declaration to character array or variable of type char *
5. _____ The strcmp() returns a negative value if first string greater than second string.
6. _____ All arguments to function calls in C++ are passed by value.
7. _____ An array index should normally be of data type float .
8. _____ An array of integers can be intialized by the statement: int n[ ] = { 1, 2, 3, 4, 5 };
9. _____ cin requires the user to press the [Enter] key when finished entering data.
10. _____ The *default* case is required in the switch selection statement.
11. _____ A variable can only be referenced inside function in which it is declared, it can not be referenced outside function body.
12. _____ A return 0 in the main function indicates that the program ended normally.
13. _____ The arithmetic operators $*, /, \%, +, -$ all have the same level of precedence.
14. _____ The expression (x > y && a < b) is true if either the expression x>y is true or the expression a<b is true.
15. _____ C++ considers the variables *number* and *NuMbEr* to be identical.

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