Menoufia University
Faculty of computers and information
1st semester Final Exam
Date: Tue., 24 / 01 /2017

Subject: PRINCIPLES OF PROGRAMMING
Year: 1st
Time Allowed: 3 Hours
Full Mark : 60

Answer all the questions:

Question 1: (15 Marks)

a) **Select the best answer:** اكتب الحرف الدال على الاجابة الصحيحة فقط

1. What is the only function all C++ programs must contain?
   A) start() B) system() C) main() D) program() E) none of the other answers
2. _____ connectors are used when a flowchart ends on one page and begins again on other page.
   A) Code B) Program C) Template D) Off –page E) all the other answers
3. _____ are used to record some event or circumstance within a program.
   A) Indicators B) switches C) flags D) all the other answers E) None of the other answers
4. Each variable in an array must have the same _____ as the others.
   A) subscript B) data type C) value D) memory location E) all the other answers
5. Which of the following correctly declares an array? A) int anarray[10]; B) int anarray;
   C) anarray{10}; D) array anarray{10}; E) None of the other answers
6. What is the index number of the last element of an array with 29 elements?
   A) 29 B) 28 C) 0 D) Programmer-defined E) all the other answers
7. What punctuation is used to signal the beginning and end of code blocks?
   A) { } B) -> and <- C) BEGIN and END D) (and) E) all the other answers
8. Write the output of the following segments of code. cout << "\"\\nnow\"";
   A) "now" B) now C) "\nnow" D) ""now"" E) new line and "now"
9. Which of the following is the proper declaration of a pointer?
   A) int x B) int &x; C) ptr x; D) char x; E) int *x;
10. Assuming salary is a numeric variable, which of the following is a legal assignment statement?
    A) salary = "not enough" B) salary = "23.45" C) salary = "25" D) all of above E) none of these

...puters and information
...mester Final Exam
Date: Tue., 16/ 01 /2018

Subject: PRINCIPLES OF PROGRAMMING
Year: 1st
Time Allowed: 3 Hours
Full Mark : 60

الإجابة الزائدة عن المطلوب لن يلتفت إليها

Answer all the questions:

Question 1: (15 Marks)

a) Select the best answer: اكتب الحرف الدال على الاجابة الصحيحة فقط

1. All of these are C++ data types except _____
A) int B) main C) bool D) double E) char

2. All of these are C++ key word except _____
A) switch B) else C) using D) return E) constant

3. The selection logical structure is implemented in C++ using this statement _____ statement.
A) While B) if C) assignment D) for E) return

4. Compilation is step in the software development cycle where _____ errors are detected.
A) Logic B) syntax C) semantics errors D) specification E) all the other answers

5. Each variable in an array must have the same _____ as the others.
A) subscript B) data type C) value D) memory location E) all the other answers

6. Which of the following is the proper declaration of a pointer?
A) int x B) int &x; C) ptr x; D) char x; E) int *x;

7. The Balloon Company makes helium balloons. Large balloons cost $13.00 a dozen, medium-sized balloons cost $11.00 a dozen, and small balloons cost $8.60 a dozen. About 60 percent of the company's sales are of the smallest balloons, 30 percent are medium, and large balloons constitute only 10 percent of sales. Customer order records include customer information, quantity ordered, and size. To write a program that makes the most efficient determination of an order's price based on size ordered, you should ask first whether the size is _____.
A) large B) medium C) small D) It does not matter E) None of the other answers

8. What is the index number of the last element of an array with 29 elements?
A) 29 B) 0 C) Programmer-defined D) all of above E) None of the other answers

9. What punctuation is used to signal the beginning and end of code blocks?
A) ( ) B) [ ] C) BEGIN and END D) { } E) all the other answers

10. Write the output of the following segments of code. cout << "\"\\nnow\"";
A) "now" B) now C) ""now"" D) new line and "now" E) None of the other answers

Menoufia University
Faculty of computers and Information
1st semester Final Exam
Date: Tue., 22/ 01 /2019

Subject: PRINCIPLES OF PROGRAMMING
Year: 1st
Time Allowed: 3 Hours
Full Mark : 60

Answer all the questions: لإجابة الزائدة عن المطلوب لن يلتفت إليها

Question 1: (15 Marks)

a) **Select the best answer:** اكتب الحرف الدال على الاجابة الصحيحة فقط

1. _____ is a part of every C++ program
   A) start() B) system() C) main() D) program() E) None of the other answers
2. The instructions you write using a programming language are called _____.
   A) algorithm B) system() C) main D) program E) None of the other answers
3. Compilation is step in the software development cycle where _____ errors are detected.
   A) Specification B) Debugging C) Logic D) Semantics E) none of the other answers
4. What punctuation is used to signal the beginning and end of code blocks?
   A) ( ) B) [ ] C) BEGIN and END D) { } E) all the other answers
5. All of these are C++ key word except _____.
   A) if B) using C) boolean D) return E) const
6. Which of the following correctly declares an array? A) int anarray; B) int anarray[10][10];
   C) anarray{10}; D) array anarray[10]; E) None of the other answers
7. Which of the following is the proper declaration of a pointer?
   A) Double *x B) int x; C) pointer x; D) char x; E) all the other answers
8. The selection logical structure is implemented in C++ using this statement _____ statement.
   A) While B) if C) assignment D) for E) return
9. Each variable in an array must have the same _____ as the others.
   A) Subscript B) value C) data type D) memory location E) all the other answers
10. Write the output of the following segments of code. cout <<"\"nnow\"";
    A) "nnow" B) nnow C) ""nnow"" D) ""nnow"" E) None of the other answers

Menoufia University
Faculty of computers and information
1st semester Final Exam
Date: Tue., 24 / 12 /2019

Subject: PRINCIPLES OF PROGRAMMING
Year: 1st Pre-F
Time Allowed: 3 Hours
Full Mark : 60

Answer all the questions:

Question 1: (20 Marks)

a) Select the best answer: اكتب الحرف الدال على الاجابة الصحيحة فقط

1. What is the only function all C++ programs must contain?
   A) start() B) system() C) program() D) main() E) none of the other answers
2. _____ comments begin with //.
   A) Single-line B) Two-line C) Three-line D) Four-line E) Multi-line
3. _____ are used to record some event or circumstance within a program.
   A) Indicators B) switches C) flags D) all the other answers E) None of the other answers
4. What is the index number of the last element of an array with 29 elements?
   A) 29 B) 28 C) 0 D) Programmer-defined E) all the other answers
5. Which of the following is the proper declaration of a pointer?
   A) int &x B) ptr x; C) char x; D) int *x; E) none of these
6. _____ translates C++ source code to machine code.
   A) Preprocessor B) Saving C) Scanning D) all of above E) none of above

Menoufia University
Faculty of computers and information
1st semester Final Exam
Date: Tue., 25/ 12 /2018

Subject: PRINCIPLES OF [illegible]RAMMING
Year: 1st Pre_F
Time Allowed: 3 Hours
Full Mark : 80

Answer all the questions:

Question 1: (25 Marks)

a) Select the best answer: اكتب الحرف الدال على الاجابة الصحيحة فقط

الإجابة الزائدة عن المطلوب لن يلتفت إليها

1. _____ is a part of every C++ program
   A) main function B) char type C) address operator D) none of above
2. Which of these is NOT a valid name for a C++ variable
   A) Hello there B) Hello_there C) HELLO1there D) HELLOTHERE
3. Identifiers cannot start with a____.
   A) letter B) underscores (_) C) digit D) none of above
4. _____ comments begin with //.
   A) Single-line B) Two-line C) Three-line D) Multi-line
5. _____ is a collection of variables of different data types under a single name
   A) Variable B) Array C) Structure D) Function
6. _____ translates C++ source code to machine code.
   (A) Preprocessor (B) Saving (C) Scanning (D) none of above
7. All of these are C++ data types except _____.
   A) int B) main C) bool D) double
8. All of these are C++ key word except _____.
   A) constant B) else C) using D) return
9. The selection logical structure is implemented in C++ using this statement _____ statement.
   A) While B) if C) return D) for
10. Compilation is step in the software development cycle where _____ errors are detected.
    A) Logic B) syntax C) semantics errors D) all the other answers
11. Each variable in an array must have the same _____ as the others.
    A) subscript B) data type C) memory location D) all the other answers
12. Which of the following is the proper declaration of a pointer?
    A) int &x B) int *x; C) ptr x; D) char x;
13. What is the index number of the last element of an array with 29 elements?
    A) 29 B) 0 C) Programmer-defined D) None of the other answers
14. What punctuation is used to signal the beginning and end of code blocks?
    A) ( ) B) [ ] C) { } D) all the other answers
15. Write the output of the following segments of code. cout << "\"\\nnow\"";
    A) "now" B) now C) ""now"" D) None of the other answers

35

Menofia University
Faculty of computers and information
1st semester Final Exam
Date Tue. 02 - 03 – 2021

Subject: Principles of Programming
Level: 1st
Time Allowed: 3 Hours
Full Mark: 60 Marks

Answer all the questions:

Question 1: (9 Marks)

a) What are the programming steps?

b) Choose the correct answer:

1) _____ is a part of every C++ program
(A) main function (B) char type (C) address operator (D) none of above

2) Which of these is NOT a valid name for a C++ variable
(A) Hello there (B) Hello_there (C) HELLO1there (D) HELLOTHERE

3) identifiers cannot start with a_____
(A) letter (B) underscores (_) (C) digit (D) none of above

4) _____ comments begin with //
(A) Single-line (B) Two-line (C) Three-line (D) Multi-line

5) Which of the following is the proper declaration of a pointer?
(A) int &x (B) ptr x; (C) char x; (D) int *x;

6) Each variable in an array must have the same _____ as the others
(A) subscript (B) data type (C) value (D) All of the above

7) What are mandatory parts in function declaration?
(A) return type, function name B) return type, function name, parameters (C) both a and b (D) none of above

8) Can any function call itself?
(A) Yes (B) No (C) Compilation Error (D) Runtime Error

(18 Marks)

b) Write the output of the following segments of code. Track your variables in a walkthrough table.

i)
```
cout << "\top ba\na\\na";
```

ii)
```
int x = 13, y = 3;
cout << x/y << y/x << x%y;
```

iii)
```
int x = 1;
while ( x < 9 ) { x ++;
if ( x%2 == 1 )
cout << x << "+"; }
```

iv)
```
int y = 1;
for (int x=2; x < 10; x = x+2) {
y = x / y; cout << y << " & "; }
cout << "\nx=" << x;
```

v)
```
int a[5] = {10,3,5,1,2};
for (int i=4; i>0; i--)
{ a[i] += a[i-1];  cout << a[i] << " "; }
```

vi)
```
int x = 1; do { x += 5;
cout << x << " "; }
while (x<=10 || x%2!=0);
```

vii)
```
int b[4] = {11,1,2,3};
int* p = b;
*p /= *(p+2);
cout << b[0];
```

viii)
```
int x = 19;
while (x > 2) { x /= 2;
cout << x;
if (x%2 == 0) cout << "\n"; }
```

ix)
```
int fun (int& x, int y, int z) { x = x + z; y = y % 3;
if (x <= 3 || x < z) z = 2*z; else z = z+1;
cout << "In fun, x=" << x << " y=" << y<<" z=" << z << "\n";
return x + y; }
int main( ) { int x = 1;  int y = 7;  int z = fun (x,y,3);
cout << "In main, x=" << x << " y=" << y << " z=" << z << "\n";
return 0; }
```

x)
```
int x = 1; do {
if ( x % 2 == 0) x -= 2;
else x++;
cout << x << " + ";
} while (x >= 0 || x == -2);
```

b

i) oP ba
a\na

ii) 401

iii) 3+5+7+9+

iv) 2 2 3 2
X = (error)

v) 3 6 8 13

vi) 6 11 16

vii) 5

viii) 94
2

ix) In fun, X = 4 Y = 1 Z = 4
In main, X = 4 Y = 7 Z = 5

x) 2+0+-2+-4+

) Write the output of the following segments of code.

```
int A =1 , B =2;
if(((A==1) || (B==2)) && (B==0))
cout<<"This exam is difficult ";
else
cout<< "This exam is easy ";
```

```
int fun (int& x, int y, int z) { x = x + z; y = y % 3;
if (x <= 3 || x < z) z = 2*z; else z = z+1;
cout << "In fun, x=" << x << " y=" << y<<" z=" << z
<< "\n"; return x + y; }
int main( ) { int x = 1;  int y = 7;  int z = fun (x,y,3);
cout << "In main, x=" << x << " y=" << y << " z=" <<
z << "\n"; return 0; }
```

```
int x = 1; do { x += 5;  cout << x << " "; }
while (x<=10 || x%2!=0);
```

```
int c = 1;   while (c < 20) {
if (c%4 == 0 && c%3 != 0) cout << c << "x"; c++;}
```

```
int a[5] = {10,20,30,40,50};
int* ptr = &a[3];
cout << *(ptr-2) << "\n";
cout << (*ptr)-2 << "\n";
```

2.
```
int i = 5, j = 6, k = 7, n = 3;
cout << i + j * k - k % n << endl;
cout << i / n << endl;
```

4.
```
int t , count;
for (t=0; t<5 ; t++)  {  count = 1;
for( ; ; ) {  cout << count <<" ";  count ++;
if (count == 5)       break;  }
cout << '\n';       }
```

6.
```
cout << "one\two\three";
cout << "\n945\b8\b7";
```

8.
```
for (int i=1; i<=3; i++) { for (int j=1; j<i; j++)
cout << i << " "; cout << "\n";}
```

10.
```
char ch, title[ ] = "Menoufia";
ch = title[3];  title[1] = ch;
cout << title << endl;
cout << ch << endl;
```

b)

1	This Exam is eacy
3	in Fun , x=4 y=1 z=4 in Main, x=4 y=7 z=5
5	6 11 16
7	4x8x16x
9	20 38

2	46 1
4	1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
6	one wo hree 947
8	2 3 3
10	Monoupia 0

b) Write the output of the following segments of code.

1.
```
float x = 3; float y = 5; int z; cout << "x - y";
```

2.
```
int x = 3, y = 5, z; z = x + y; cin >> z; //z = x + y
```

3.
```
int x=3, y=5; if ( x > 5 )
  if ( y > 5 ) cout<< "x and y are > 5";
else cout<< "x is <= 5"; cout<< "Done";
```

4.
```
int A =1 , B =2;
(A % B == A) ? cout<< "A": cout << "B" ;
```

5.
```
int f, c; f = 42; c = ( f - 32 ) * 5 / 9;
cout << c << endl;
```

6.
```
int count = 10;
while(count-- > 0)  { cout << count << " "; }
```

7.
```
int A_fun ( int &a) { a = 55; return 123; }
int main()  { int a, b; b = 99; a = 12;
    a = A_fun(b); cout << a + b;  }
```

8.
```
int x, y=0, z=0;
for (x=0; x < 10; x++) {  y = y + 1; }
    z = x + y + z;  cout << z;  }
```

9.
```
int num1 = 0, num2=20;
if (( num2>0) && (num1<=num2))
    if ((num1<0) || (num1 % 2 == 0))
      num1=num1+1;
    do {  cout << num1 << " ";
      num1 += 2;
    } while (num1 < num2);
```

10.
```
int X[ ] = { 10, 25, 30, 55, 110 }, *p = X;
while ( *p < 110) { if (*p % 3 != 0) *p =*p + 1;
      else   *p = *p + 2;
      p++;  }
  for (int I = 4; I >= 1; I--) { cout << X[I] << "*";
    if (I % 3 == 0)  cout << endl;  }
  cout << X[0] * 3 << endl; }
```

1	x − y	2	No output
3	Done	4	A
5	5	6	9 8 7 6 5 4 3 2 1 0
7	17 8	8	20
9	1 3 5 7 9 11 13 15 17 19	10	110 * 56 * 32 * 26 * 33

b) Write the output of the following segments of code.

1. int x=5, y=7; z = x + y;	2. int x=5; cin>>x ;
3. Int n=21; (n %2 == 0) ? cout<< "even": cout<< "odd" ;	4. int product = 3; while (product <= 100) product = 3 * product; cout<< product;
5. int x=7, y=5; if (x > 5) if (y > 5) cout<< "x and y are > 5"; else cout<< "x is <= 5"; cout<< "Done";	6. char ch; char title[] = "Mohamed"; ch = title[3]; title[1] = ch; cout << title << endl; cout << ch << endl;

7. int d = 31; do { d = d/3;
if (d%2 == 1) d += 4;
cout<< d << "+";
} while (d>2);
	8. for(int i = 1; i<= 6; i += 2) {
	if (i%2 == 0) cout<<i++ << "*\n";
	else cout<< ++i<< "#\n"; }
	cout << i << "*\n";

9. int c = 1; while (c < 20) { if (c%4 == 0 && c%3 != 0) cout << c << "x"; c++;}	10. for (int i=1; i<=3; i++) { for (int j=1; j<i; j++) cout << i << " "; cout << "\n";}

(b)

(1) nothing
(2) nothing
(3) odd

(4)243
(5) x is <= 5 Done
(6) Mahamed
a

(7)10+7+2+

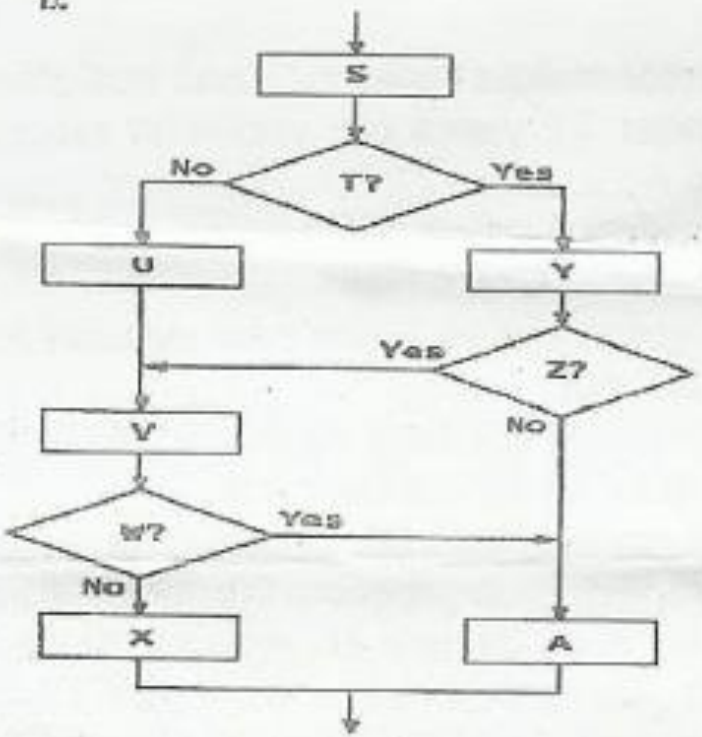
(8) 2#
4*
7*

(9) 4x8x16x

(10) 2
3 3

d) Each of the flowchart segments in the following Figure is unstructured. **Redraw** each segment so that it does the same thing but is **structured**. Then, write **pseudocode** corresponding to these flowcharts.

i.



*(final 2016) *Redraw each segment so that it does the same thing but is structured.