



جامعة طنطا

كلية العلوم - قسم الرياضيات

المستوى (الفرقة) / الثالث الشعبة (علوم الحاسب)

التاريخ / 5-1-2021 اسم المادة : مفاهيم لغات البرمجة CS3107

الاختبار النهائي - الفصل الدراسي الأول للعام الأكاديمي 2020-2021



**Answer the Following Questions**

**Question one : Choose the correct answer ( 60 point)**

الاختبار في اربع صفحات

- 1- The smallest integer type is .....and its size is .....bits.  
a) Short, 8                      b) byte, 8                      c) short, 16                      d) byte, 16
- 2- In Java, arrays are ...  
a. Objects                      b. object references                      c. primitive types                      d. none of the above
- 3- In Java, local variables are defined ...  
a. within the class as static                      b. outside the class  
c. within methods                      d. none of the above
- 4- In Java, which of the following statements is consider to be correct about constructors?  
a. Has at least one parameter                      b. Has the same name of the class  
c. Must return void                      d. None of the above
- 5- Which of these operators is used to create an object of a class?  
a. new                      b. alloc                      c. malloc                      d. new malloc
- 6- In Java, which of the following statements is consider to be correct about the source file?  
a. There can be only one public class per source file  
b. A source file can have multiple nonpublic classes  
c. The source file must have the name of its public class  
d. All of the above
- 7- The smallest integer type is ..... And the size of the largest type is ..... bits  
a. short, 16                      b. byte, 8                      c. short, 64                      d. byte, 64
- 8- Which of the following can be operands of arithmetic operators?  
a. Numeric                      b. Boolean                      c. Characters                      d. Both a, c
- 9- If you want your condition to depend upon two conditions BOTH being true, what is the proper operator to put between the two Boolean statements?  
a. &&                      b. ||                      c. !                      d. None of the above.
- 10- If you want your condition to depend upon two conditions At least one being true, what is the proper operator to put between the two Boolean statements?  
a. &&                      b. ||                      c. !                      d. None of the above.
- 11- Which of the following has a higher precedence in Java?  
a. \*                      b. +                      c. &&                      d. ==
- 12- The extension name of a Java source code file is ?  
a .java                      b .obj                      c .class                      d .exe
- 13- A statement is a way of giving the proper location for the compiler to find that particular class.  
a. Import                      b. export                      c. include                      d. main



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- 14- which of the following is not a primitive data type.  
a. byte                      b. short                      c. enum                      d. int
- 15- what is size of integer in java programming.  
a. 4 bytes                      b. 5 bytes                      c. 2 bytes                      d. 8 bytes
- 16- which data type can store 64 bit value ?  
a. double                      b. int                      c. long                      d. float
- 17- An expression involving byte, int, and literal numbers is promoted to which of these?  
a. int                      b. long                      c. byte                      d. float
- 18- which notation is used for newline in java ?  
a. \n                      b. \r                      c. \t                      d. \u
- 19- Which of these is necessary to specify at time of array initialization?  
a. Row                      b. Column                      c. Both Row and Column                      d. None of the mentioned
- 20- What will be printed using following code block?  
int[] a = {0,1,2,3,4,5,6,7}; System.out.println(a.length);  
a. 6                      b. 7                      c. 8                      d. 9

**Question Two: Put true or false (40 point)**

1. When a new object is created in a program a constructor gets invoked corresponding to the class.( )
2. If a user doesn't create a constructor implicitly a default constructor will be created.( )
3. The constructor can be overloaded.( )
4. If the user created a constructor with a parameter then he should create another constructor explicitly without a parameter.( )
5. Methods are attributes which define the state of a class.( )
6. Methods are the place where the exact business logic has to be done. It contains a set of statements (or) instructions to satisfy the particular requirement.( ).
7. Inheritance means one class can extend to another class. So that the codes can be reused from one class to another class.( )
8. Existing class is known as sub class whereas the derived class is known as a Super class. ( )
9. A single object can refer the super class or sub-class depending on the reference type which is called encapsulation. ( )



10. The key benefit of overriding is that the Sub class can provide some specific information about that sub class type than the super class. ( )
11. Java support unsigned types ( ).
12. The most commonly used integer data type is double ( ).
13. floating point numbers are also known as real numbers ( ).
14. boolean data type is used to represent number ( ).
15. Operators are special symbols used for mathematical functions only ( ).
16. Polymorphism means one name one forms ( )
17. Method Overloading is a feature that allows a class to have two or more methods having same name ( ).
18. Method overloading is also known as dynamic Polymorphism. ( )
19. The name of the constructor must not be the same as the name of the class. ( )
20. If there is no constructor in a class, compiler automatically creates a default constructor ( )

**Question Three : ( 10 points)**

(A) We are declaring 'a' as an integer variable and it should not be negative. If someone changes the exact variable as "a = -5" then it is bad.

```
1 public class Addition () {  
2 int a=5;  
3 }
```

In order to overcome the problem we need to follow some steps, write this steps and rewrite the correct code.

(B) For method overloading, subclass method should satisfy conditions with the Super class method (or) methods in the same class itself, write it.

**Question four : ( 40 points)**

**write the definition**

- 1) .....: provides a common root for a group of classes, nicely tied together in a package.
- 2) .....: contains many useful methods for string processing applications.
- 3) .....: A named sequence of statements that can be executed together to perform a particular action.

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- 4) ..... ..is a software application which enables users to more easily write and debug Java programs.
- 5) ..... is "To represent the essential feature without representing the background details.
- 6) ..... Binding (or wrapping) code and data together into a single unit .
- 7) ..... When one object acquires all the properties and behaviors of parent object.
- 8) ..... is a block of code similar to a method that's called when an instance of an object is created.
- 9) .....: is a grouping of related types (classes and interfaces) providing access protection and name space management.
- 10) .....: An executable command to the computer.
- 11) ..... : A statement to instruct the computer to print a line of output on the console.
- 12) ..... is group of like-typed variables that are referred to by a common name.
- 13) ..... This is an input event that occurs when a mouse is clicked.
- 14) ..... This is an event related to window showing/hiding actions.
- 15) .....Contains classes to add transition based animations such as fill, fade, rotate, scale and translation, to the JavaFX nodes.
- 16) ..... This package holds the top level container classes for JavaFX application.
- 17) ..... This package provides classes and interfaces to support the scene graph.
- 18) ..... contains all the objects of a JavaFX application.
- 19) .....is a tree-like data structure (hierarchical) representing the contents of a scene.
- 20) ..... This method internally calls the start() method of the Application class.

انتهت الاسئلة

*With my best wishes  
Dr. Omnia El barbary*

	DEPARTMENT OF MATHEMATICS TANTA UNIVERSITY FACULTY OF SCIENCE (Computer Science Division)		
	EXAMINATION FOR PROSPECTIVE STUDENTS (3 <sup>RD</sup> YEAR)		
DATE: 23-03-2021	TERM:1	TOTALASSESSMENTMARKS:150	COURSE CODE: CS3101 TIME ALLOWED:2HOURS

**Question 1: (35 Marks)**

- a- List the two steps for the executing of the loop instruction? (2 marks)
- b- The central processor unit (CPU) contains registers, define the other basic elements? (6 marks)
- c- Define CF, ZF, an assembler, and machine language? (8 marks)
- d- Declare a string variable containing the word "the" repeated 100 times? (4 marks)
- e- Define MOVZX instruction and MOVSB instruction (give an example of each one) (10 marks)
- f- List the rules for operands in the XCHG instruction? (5 marks)

**Question 2: (30 Marks)**

- a- What are the three modes of operation for IA-32 processors? (4 marks)
- b- Write this number "+ 1001.1011" in encoded Real form. (6 marks)
- c- The MOV instruction gives error results for copying an integer from a smaller operand to a larger one, show the solution for unsigned and signed integers with examples. (10 marks)
- d- Write the statements for exchanging the contents of two memory operands A and B (5 marks)
- e- Write the steps for adding the even numbers between one and ten in AX. (5 marks)

**Question 3: (55 Marks)**

- a- Write a program for copying a string in another a string (10 marks)
- b- Write the descriptions of these Procedure *RandomRange* and *Readstring* (give an example for each one) (15 marks)
- c- Write the code in assembly and show the result for Subtracting 3 from 5 (10 marks)
- d- list BYTE 11h, 23h, 36h, 40h, write a single instruction that moves the last two bytes to the EAX register. (10 marks)
- e- Implement the following expression in assembly language:  
DX=2+ BX-h\*5. (10 marks)

**Question 4: (30 Marks)**

- a- Put (✓) or (X) in end of each of the following sentences:(correct the error) (18 marks)
  - 1- *ReadChar* procedure reads a single character from standard input and returns the character in the AX register
  - 2- The **TYPE** operator returns the size (in bytes) of each element in an array.
  - 3- Mov mem, mem

Look at next page

- 4- The **SAHF** instruction copies **AL** into the low byte of the **EFLAGS** register.
- 5- The **AX** register has an 16-bit upper half named **AH** and an 16-bit lower half named **AL**.
- 6- High-level languages (C++,Java) have a many-to-one relationship with assembly language and machine language

**b- Choose the correct answer: (12 marks)**

- 1- The \_\_\_\_\_ transfers instructions and data between the CPU and memory.  
a) data bus    b) mov instruction    c) fetch
- 2- Pipelining technique, processor can execute steps in parallel.  
a) True    b) false
- 3- The upper 16 bits of the **EAX** register can be referenced by the name **AX**.  
a) True    b) false
- 4- This form **[sign] integer . integer [exponent]** represents real number  
Constants in assembly language  
a) True    b) false
- 5- A string constant is a sequence of characters (including spaces) enclosed in \_\_\_\_\_  
a) single quote    b) double quote    c) a or b
- 6- A symbol defined with **EQU** can be redefined in the same source code file.  
a) True    b) false

With my best wishes

EXAMINERS	DR/ HANAA ESSA	
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