Lecture 3

1. Which method from the Object class is commonly overridden to provide a string representation of an object?  
   A) getString()  
   B) toString()  
   C) print()  
   D) describe()  
   Answer: B
2. What is polymorphism in the context of inheritance?  
   A) The ability to create multiple objects of the same class  
   B) The ability to override methods in a subclass  
   C) The ability for a superclass reference to call the appropriate subclass method  
   D) The ability to have multiple constructors in a class  
   Answer: C
3. Which statement about private methods is true?  
   A) They can be overridden in subclasses  
   B) They are implicitly final  
   C) They are always visible to subclasses  
   D) They must be implemented in subclasses  
   Answer: B
4. What happens if you don't provide a constructor for a class?  
   A) The compiler throws an error  
   B) The class becomes abstract  
   C) The compiler provides a default no-arg constructor  
   D) The class cannot be instantiated  
   Answer: C
5. Which of the following is NOT a valid way to call a superclass constructor?  
   A) super();  
   B) super(args);  
   C) this(super());  
   D) super.super();  
   Answer: D
6. What is the output of System.out.println(new Student()); if Student overrides toString()?  
   A) The memory address of the Student object  
   B) The string "Student@<hashcode>"  
   C) The result of the overridden toString() method  
   D) A compilation error  
   Answer: C
7. Which statement about the 'final' keyword is true when applied to a method?  
   A) The method cannot be called  
   B) The method cannot be overridden in subclasses  
   C) The method must be static  
   D) The method can only be called once  
   Answer: B
8. What is the correct way to call a superclass method from a subclass?  
   A) this.methodName();  
   B) super.methodName();  
   C) parent.methodName();  
   D) superclass.methodName();  
   Answer: B
9. In Java, can a class extend multiple classes?  
   A) Yes, always  
   B) No, Java doesn't support multiple inheritance of classes  
   C) Yes, but only if all superclasses are abstract  
   D) Yes, but only for inner classes  
   Answer: B
10. What is the main difference between overloading and overriding?  
    A) Overloading is in the same class, overriding is in subclasses  
    B) Overloading changes return types, overriding doesn't  
    C) Overriding is in the same class, overloading is in subclasses  
    D) There is no difference, they are the same concept  
    Answer: A
11. What is the primary motivation for using inheritance in object-oriented programming?  
    A) To create multiple instances of a class  
    B) To keep common behavior in one class and split different behavior into separate classes  
    C) To override all methods in a superclass  
    D) To create private variables  
    Answer: B
12. In a UML diagram, how is inheritance represented?  
    A) A dashed line with an open arrow  
    B) A solid line with a closed arrow  
    C) A solid line with a hollow triangle  
    D) A dashed line with a hollow diamond  
    Answer: C
13. What is the correct order of object construction in inheritance?  
    A) Subclass to superclass  
    B) Superclass to subclass  
    C) Random order  
    D) Depends on the programmer's choice  
    Answer: B
14. Which of the following is true about the 'super()' call in a constructor?  
    A) It must be the last line in the constructor  
    B) It must be the first line in the constructor  
    C) It can be placed anywhere in the constructor  
    D) It is optional in all cases  
    Answer: B
15. How can a subclass initialize a private variable in its superclass?  
    A) By directly accessing the variable  
    B) By using a public setter method  
    C) By passing the value to the superclass constructor  
    D) It's not possible to initialize private superclass variables  
    Answer: C
16. What is polymorphism in the context of inheritance?  
    A) The ability to create multiple objects of the same class  
    B) The ability to override methods in a subclass  
    C) The ability for a superclass reference to call the appropriate subclass method  
    D) The ability to have multiple constructors in a class  
    Answer: C
17. What happens if you don't provide a constructor for a class in Java?  
    A) The compiler throws an error  
    B) The class becomes abstract  
    C) The compiler provides a default no-arg constructor  
    D) The class cannot be instantiated  
    Answer: C
18. Which method from the Object class is commonly overridden to provide a string representation of an object?  
    A) getString()  
    B) toString()  
    C) print()  
    D) describe()  
    Answer: B
19. What is the difference between method overloading and method overriding?  
    A) Overloading is in the same class, overriding is in subclasses  
    B) Overloading changes return types, overriding doesn't  
    C) Overriding is in the same class, overloading is in subclasses  
    D) There is no difference, they are the same concept  
    Answer: A
20. Which statement about private methods is true?  
    A) They can be overridden in subclasses  
    B) They are implicitly final  
    C) They are always visible to subclasses  
    D) They must be implemented in subclasses  
    Answer: B

Lecture 4

1. Which of the following is NOT a way to combine regular expressions?  
   a) Repetition  
   b) Concatenation  
   c) Alternation  
   d) Multiplication
2. What does the \* symbol mean in a regular expression?  
   a) One or more occurrences  
   b) Zero or more occurrences  
   c) Exactly one occurrence  
   d) Optional occurrence
3. How can you represent a range of characters in a regex?  
   a) (a-z)  
   b) {a-z}  
   c) [a-z]  
   d) <a-z>
4. Which method is used to find the length of a String in Java?  
   a) size()  
   b) length()  
   c) count()  
   d) characters()
5. What is the purpose of the toCharArray() method in String class?  
   a) To convert a String to lowercase  
   b) To convert a String to uppercase  
   c) To convert a String to an array of characters  
   d) To reverse the String
6. In the context of the lecture, what does "interned Strings" refer to?  
   a) Strings that are concatenated  
   b) Strings that share the same memory location  
   c) Strings that are split  
   d) Strings that are converted to char arrays
7. Which of the following is true about the == operator when comparing Strings?  
   a) It compares the content of the Strings  
   b) It compares the memory addresses of the Strings  
   c) It always returns true for identical Strings  
   d) It is the preferred method for String comparison
8. What is the purpose of the indexOf() method in String class?  
   a) To find the index of a specified character or substring  
   b) To insert a character at a specific index  
   c) To remove a character at a specific index  
   d) To replace a character at a specific index
9. In regular expressions, what does the | symbol represent?  
   a) AND operation  
   b) OR operation  
   c) NOT operation  
   d) XOR operation
10. Which of the following is a correct way to create a new String object?  
    a) String str = String("Hello");  
    b) String str = new String("Hello");  
    c) String str = create("Hello");  
    d) String str = make("Hello");
11. What does the trim() method do to a String?  
    a) Removes leading and trailing whitespace  
    b) Removes all whitespace  
    c) Capitalizes the first letter  
    d) Reverses the String
12. Which method would you use to convert a String to lowercase?  
    a) toLower()  
    b) lowercase()  
    c) toLowerCase()  
    d) makeLowercase()
13. What is the purpose of the concat() method in String class?  
    a) To compare two Strings  
    b) To join two Strings  
    c) To split a String  
    d) To reverse a String
14. In regular expressions, what does the . (dot) symbol represent?  
    a) Any single character  
    b) A literal dot  
    c) End of the String  
    d) A digit
15. Which of the following is NOT a factor in calculating the Flesch Score?  
    a) Number of words per sentence  
    b) Number of syllables per word  
    c) Number of paragraphs  
    d) Total number of words
16. What does the substring() method do?  
    a) Replaces a part of the String  
    b) Extracts a part of the String  
    c) Splits the String  
    d) Reverses a part of the String
17. In Java, what is the default value of an uninitialized String variable?  
    a) ""  
    b) null  
    c) " "  
    d) undefined
18. Which method would you use to replace all occurrences of a character in a String?  
    a) replace()  
    b) replaceAll()  
    c) substitute()  
    d) change()
19. What is the purpose of the matches() method in String class?  
    a) To compare two Strings  
    b) To check if the String matches a regular expression  
    c) To find a substring  
    d) To split the String
20. In regular expressions, what does \d represent?  
    a) Any letter  
    b) Any digit  
    c) Any whitespace  
    d) Any non-digit character