

**TCS/TIT-501**

**B. TECH. (CS/IT)**  
**(FIFTH SEMESTER)**  
**END SEMESTER EXAMINATION, 2018**  
**JAVA PROGRAMMING**  
**Time : Three Hours**  
**Maximum Marks : 100**

**Note :** (i) This question paper contains five questions with alternative choice.

(ii) All questions are compulsory.

(iii) Each question carries three Parts (a), (b), and (c). Attempt any *two* parts from each question.

(iv) Each Part carries ten marks. Total marks assigned to each question are **twenty**.

1. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)

(a) What do you mean by strings in Java ? Differentiate between mutable and immutable string in java with the help of a program.

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- (b) What do you mean by super and this keywords in java ? Demonstrate both with the help of a practical example. (Complete Program)
- (c) Discuss the following :
- (i) "Abstraction and Encapsulation are complementary to each other." Justify the statement.
  - (ii) "JVM facilitates the platform independence for java applications." Comment with the help of an example.
2. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) Explain the following :
- (i) Import and static import
  - (ii) Why is main method static ?
- (b) Create a program to accept a user name and age from the user as command line arguments. Generate a password using these two values by the following the below procedure :
- Calculate the remainder between the current year and the age of the user. (Till you get a single digit). Convert the string

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- to password by adding this single digit number to each character of the string. (Special characters and numbers should not be changed).
- Example  
String : Graphic.  
Age : 32  
Current Year 2018  
Number for Remainder is  $2018 \% 32$  .....  
2 (if remainder is two digits than repeat the step to get single digit  
Output ..... G1r1a1p1h1i1c
- (c) What do you mean by run time polymorphism ? How "*one interface multiple method*" form of polymorphism can be achieved ? Explain.
3. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) Create a user defined exception "Null String Exception". Create a java program to generate and handle the above created exception when the string is empty. Write full java program including main for the same.

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- (b) Write a program to create two threads, one thread will print odd numbers and second thread will print even numbers between 1 to 20 numbers.
- (c) Write a program to demonstrate producer-consumer problem using the concept of inter thread communication (i. e. multi-threading).
4. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) What is Java Layout Manager ? Explain each with suitable example.
- (b) Explain the following :
- Object Serialization
  - Adapter Classes
- (c) Calculate shipment cost for an order which may either be placed by a wholesaler *or* a retailer. For a customer, the cost is calculated as :

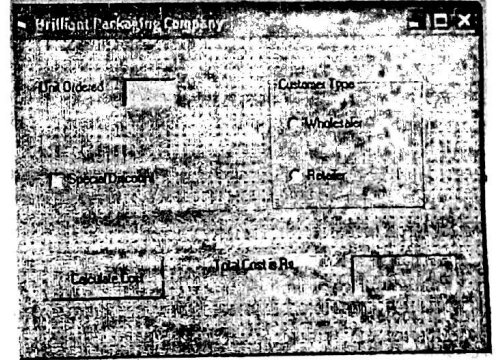
For Units	Price for Wholesalers (per unit)	Price for Retailers (per unit)
1—15	₹ 50	₹ 60
16—20	₹ 45	₹ 55
21—30	₹ 40	₹ 50
31—50	₹ 35	₹ 45
> 50	₹ 30	₹ 40

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Special customer are given a discount of 10%.



5. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)
- (a) Write a program that counts the numbers of characters, number of words and number of lines in a file.
- (b) Explain the concept of I/O streams and different streams including character stream, byte stream and file stream. Explain the concept of I/O streams and different streams including character stream, byte stream and file stream.
- (c) Explain the following keywords with suitable practical example :
- Final
  - Finally
  - Finalize

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