



B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Third Semester

COMPUTER SCIENCE AND ENGINEERING

U18CSI3202: Object Oriented Programming

COURSE OUTCOMES

- CO1:** Analyze a problem and identify classes, objects and the relationships among them.
CO2: Develop applications using various types of Inheritance and Interfaces
CO3: Develop applications or programs using exception handling and multithreading.
CO4: Analyze an application and make use of object oriented concepts for its implementation.
CO5: Develop programs using collections, files and streams in java.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions: -

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

- | | | |
|-----------------------------------------------------------------------|-----|-------------------|
| 1. List any four features of java. | CO1 | [K ₁] |
| 2. Define class and object. | CO1 | [K ₁] |
| 3. Justify the purpose of packages. | CO2 | [K ₃] |
| 4. Mention the purpose of the Finally block of a try-catch statement. | CO2 | [K ₂] |
| 5. Differentiate between overloading and overriding | CO3 | [K ₂] |
| 6. State how thread priorities are set. | CO3 | [K ₂] |
| 7. How does the linked hash set differ from the TreeSet | CO4 | [K ₂] |
| 8. Define copy constructors for strings. | CO4 | [K ₁] |
| 9. List down the various file access modes. | CO5 | [K ₁] |
| 10. Define Serialization. | CO5 | [K ₁] |

Answer any FIVE Questions: -

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

- | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|-------------------|
| 11. a) Briefly discuss about the following terms related to object oriented programming.
o Abstraction
o Encapsulation
o Inheritance
o Access Control | 8 | CO1 | [K ₂] |
| b) Write a Java programme that uses constructors to create a student examination database system that prints students' mark sheets. Input the student's name and marks, which may vary between two or three subjects depending on their credit choice. This score should be somewhere between and 100. If the average of the marks is greater than 80, the grade is 'A'; otherwise, the grade is 'B'. The grade is then printed. If the average is 60 and greater than 40, the grade is C; otherwise, the grade is D. | 8 | CO1 | [K ₃] |

12. a) Brief on the difference in using throws clause and try-catch block for handling exceptions with suitable calculator application. 6 CO2 [K₂]
- b) Write a Java program, for the vehicle purchase management system using the concept of inheritance. Define 4 classes such as Vehicle as base class and sub classes as Honda, Hyundai and Maruti. The base class takes the input of vehicle name, model name, and additional specifications using instance methods getname(); getmodel(); and get spec(); of the base class. The sub-class computes the bill of the vehicle using the following conditions.
- Vehicle name: Honda
Model name: Amaze
Additional Specifications: 20% of the vehicle amount
- Vehicle Name: Hundai
Model Name: Verna
Additional Specifications: 25 % of the vehicle amount.
- (Note: take any value as the amount of the vehicle and generate the complete bill)
13. a) Three students want to enroll their roll numbers in technical event registration. Create individual threads for them and display the details obtained as input. The threads are implemented through implementing the Runnable Interface. Use a constructor to take the input of their roll number, name and department. 8 CO3 [K₃]
- b) Define polymorphism Discuss about compile time and runtime polymorphism and state the benefits of polymorphism. 8 CO3 [K₂]
14. a) Discuss about various string operations with suitable code 8 CO4 [K₂]
- b) Explain the concept of linked list with suitable code. 8 CO4 [K₂]
15. a) Differentiate between file input stream and file output stream. Write a simple program that takes the values from the file, perform any mathematical operation and update the file. 8 CO5 [K₂]
- b) Brief on various types of IO streams with suitable examples. 8 CO5 [K₂]
16. a) Write a Method overloading function to swap the values of
i)two integer numbers
ii)two float numbers
iii) two characters. 8 CO3 [K₃]
- b) A departmental store maintains the details of a few products including the product id, product name, packed date, quantity_available and rate_of_the_product. 8 CO4 [K₃]
- Create a hash set for the list of products and find the availability of a particular product based on the name of the product.
 - Write a method that identifies the product which has a minimum quantity of 5 or less.
