



B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Third Semester

INFORMATION TECHNOLOGY

U18ITI3203: Object Oriented Programming

COURSE OUTCOMES

- CO1:** Interpret the need of various OOPS concept
CO2: Apply the OOPS concepts for developing application
CO3: Apply the concepts of packages and interfaces to write simple applications
CO4: Explore the importance of strings and stream classes
CO5: Summarize the importance of exception handling and threads
CO6: Apply the concepts of collections for handling data

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

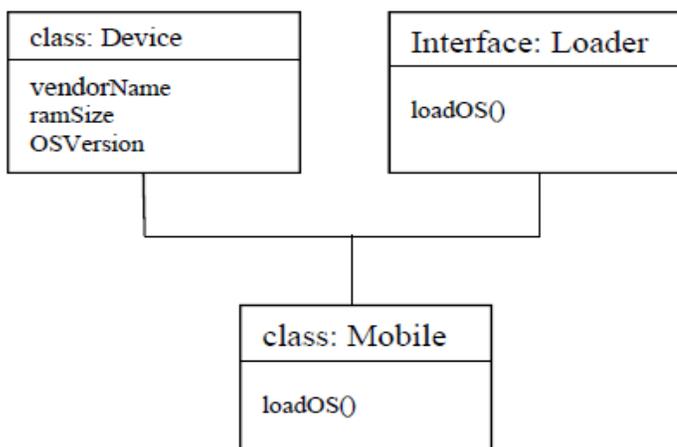
(Answer not more than 40 words)

- | | |
|---|-----------------------|
| 1. List the properties of a constructor. | CO1 [K ₂] |
| 2. What is garbage collection in Java? | CO1 [K ₂] |
| 3. Differentiate method overloading and method overriding. | CO2 [K ₂] |
| 4. Find the output:
<pre>public class Parent{ static { System.out.println("Inside Parent static");} public Parent(){ System.out.println("Parent");} public static void main(String[] args){ new MyChild();} } class MyChild extends Parent { static{ System.out.println("Inside Child static"); } public MyChild(){ System.out.println("Child"); } }</pre> | CO2 [K ₃] |
| 5. Give the significance of autoboxing and unboxing. | CO3 [K ₂] |
| 6. What are the differences between String and StringBuffer classes in Java? | CO4 [K ₂] |

- | | | | |
|-----|---|-----|-------------------|
| 7. | How does a Byte Stream differ from a Character Stream? | CO4 | [K ₂] |
| 8. | Give the life cycle of a Thread. | CO5 | [K ₂] |
| 9. | Summarize the importance of Collection classes in Java. | CO6 | [K ₂] |
| 10. | Compare ArrayList and LinkedList classes. | CO6 | [K ₂] |

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

- | | | | | | |
|-----|----|---|---|-----|-------------------|
| 11. | a) | Discuss the features of Java. | 8 | CO1 | [K ₂] |
| | b) | Write a Java program to find the occurrence of a character in the given string. | 8 | CO4 | [K ₃] |
| 12. | a) | Explain the 4 access specifiers in Java with an example. | 8 | CO3 | [K ₂] |
| | b) | Implement the following inheritance: | 8 | CO3 | [K ₃] |



Display the details of devices from loadOS() method of Mobile class.

- | | | | | | |
|-----|----|--|---|-----|-------------------|
| 13. | a) | Define a class Electbill that contains consumer details as follows: -
Data members/Instance variable:
cno (long) //consumer number
cname (String) // consumer name
cadd (String) // consumer address
NOU (long) // to store number of units consumed
Member functions / Methods:
(i) Electbill(...) : Parameterized constructor to assign values to consumer number, consumer name, address and units consumed
(ii) void display () : Display consumers details
(iii) void calculate () : Calculate the monthly bill of consumer according to following slabs and it should also display the total amount to be paid. | 8 | CO2 | [K ₃] |
|-----|----|--|---|-----|-------------------|

Number of units consumed	Rate
1 – 100	Rs 500/-rental charges only
101 - 200	Rs 1.00 per call + rental charges of Rs. 500
201 - 300	Rs 1.20 per call + rental charges of Rs. 500
Above 300	Rs 1.50 per call + rental charges of Rs. 500

- b) Explain the Exception Handling mechanism in Java with a suitable example. 8 CO5 [K₂]
14. a) How to achieve Interthread Communication among Threads? Explain with the Producer Consumer Problem. 16 CO5 [K₂]
15. a) Write a Java program to count the number of lines and words from a text file using stream classes. 8 CO4 [K₃]
- b) Explain the different types of inheritance in Java. 8 CO2 [K₂]
16. a) Write a Java program to create a vector with five elements as (5, 15, 25, 35, 45). Insert new element at 2nd position. Remove 1st and 4th element from vector. 8 CO6 [K₃]
- b) Discuss the need for Generics in Java. Illustrate with a suitable example. 8 CO6 [K₂]
