

Reg. No. _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2017

Course Code: **CS206**

Course Name: **OBJECT ORIENTED DESIGN AND PROGRAMMING (CS)**

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions.

1. Write short notes on any two Object Oriented concepts. (3)
2. Differentiate between while and do-while iterative statements. (3)
3. What are the roles of a constructor? (3)
4. Compare private, protected, and public access modifiers. (3)

PART B

Answer any two questions.

5. a. What is the role of a Java Virtual Machine? (3)
b. Describe any six features of Java language. (6)
6. a. Summarize the different data types in Java. (4.5)
b. Implement the following entities as Java classes with suitable instance variables and methods: i) Bank Account; ii) Vehicle. (4.5)
7. a. Implement the following entities as Java classes with suitable instance variables and methods: i) Student. (4.5)
b. Describe the control statements in Java. (4.5)

PART C

Answer all questions.

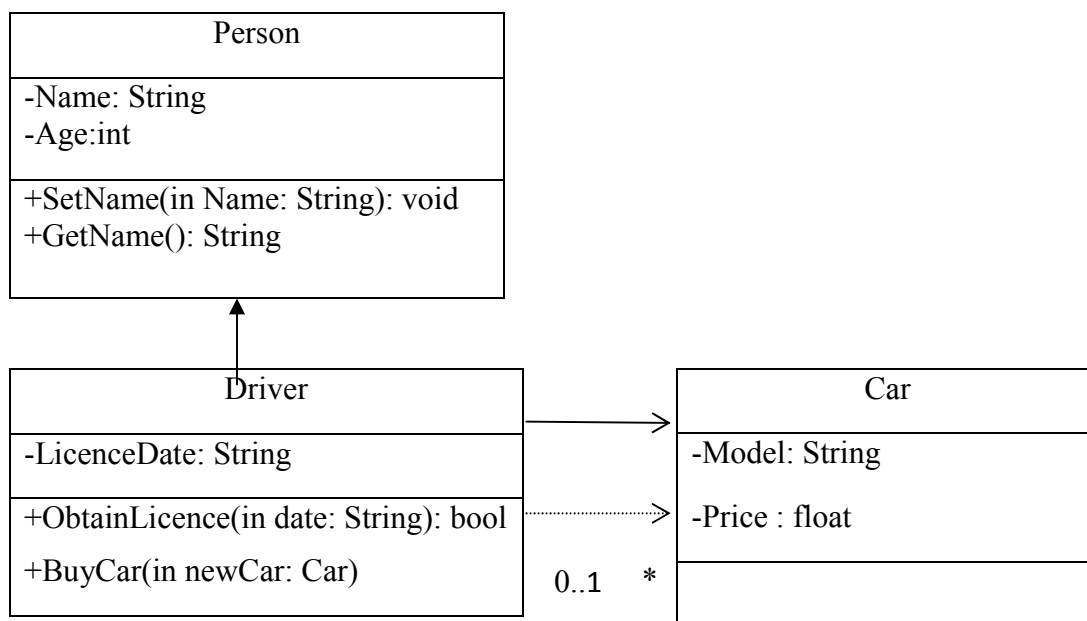
8. Explain the concept of method overriding with an example. (3)
9. What happens if exceptions are not handled? (3)
10. Write the Java code for reading the contents of a file. (3)
11. Show using Java code how three threads can be created using Runnable interface. (3)

PART D

Answer any two questions.

12. a. List any six built-in packages in Java. (2)
b. Explain the role of access modifiers when packages are used in Java. (2.5)
c. Differentiate between try-catch and throws statements. (4.5)
13. a. Describe the concept of interface in Java. (1)

- b. Give an outline of the java implementation of the class diagram shown below.(3.5)



- c.) What are the various ways of using import statement? (4.5)
 14. Summarize the Character stream classes with the help of class hierarchy diagram. (9)

PART E

Answer any four of the following questions

15. a. Write short notes on any four methods of String class. (8)
 b. What is the difference between using “==” and *equals()* method when comparing string type? (2)
16. a. Differentiate between an Applet and a Frame. (5)
 b. Write a java program using JDBC API to verify the login credentials of a user. (5)
17. a. Explain the Delegation Event Model. (5)
 b. Identify two event types each generated by a Button, TextField, Checkbox, and Frame. (5)
18. Write an AWT based Java program to implement a basic calculator. (10)
19. a. Summarize any three features of Swing API. (5)
 b. List any four Containers and Component classes of Swing API. (4)
20. a. Write an applet based java program to add two numbers. (5)
 b. Explain the steps using Java code for correcting a Java program to a data base using JDBC API. (5)

Total Pages: 2

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017

Course Code: CS206

Course Name: OBJECT ORIENTED DESIGN AND PROGRAMMING (CS)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions. Each carries 3 marks.

- 1 What are advantages of using UML? (3)
- 2 Illustrate the steps involved in Java compilation. (3)
- 3 Differentiate between a class and an object. (3)
- 4 Explain briefly about method overloading with an example. (3)

PART B

Answer any two questions. Each carries 9 marks.

- 5 Represent the following entities using UML class diagram (9)
i) Book ii) Employee iii) Vehicle
- 6 Construct Use Case diagrams for the following (9)
i) ATM ii) Library iii) Railway reservation
- 7 Write a Java program to calculate the area of different shapes namely circle, (9)
rectangle, and triangle using the concept of method overloading.

PART C

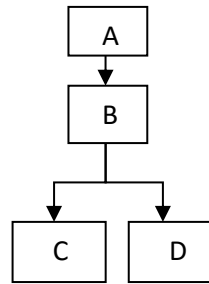
Answer all questions. Each carries 3 marks.

- 8 Differentiate between abstract class and an interface. (3)
- 9 What is an exception? How is it handled? (3)
- 10 Illustrate the character stream class hierarchy. (3)
- 11 What are the uses of synchronized keyword in Java? (3)

PART D

Answer any two questions. Each carries 9 marks.

- 12 a) What is a package? (2)
- b) What are the advantages of using a package? (3)
- c) Write the steps and java code for creating a package named "AdMath" containing (4)
a method to calculate the factorial of a number passed to it.
- 13 a) What are the advantages of inheritance? (3)
- b) Show how the following inheritance hierarchy can be implemented in Java. (3)



- c) Does Java support multiple inheritance? Justify your answer. (3)
- 14 a) What are the advantages of multi-threading in Java? (3)
- b) Illustrate the two ways of creating threads in Java with the help of examples? (6)

PART E

Answer any four questions. Each carries 10 marks.

- 15 a) Explain the working of the Delegation Event Model. (5)
- b) Write down the various event sources and their corresponding listeners. (5)
- 16 a) What are the features of an applet? (5)
- b) Illustrate the different parts of an applet tag. (5)
- 17 Write a Java program to check whether a given string is palindrome or not without using built in methods. (10)
- 18 Write a GUI based Java program to check whether a given number is prime or not. Use appropriate AWT components and event handling. (10)
- 19 a) What are the advantages of using Swing API? (5)
- b) List any five Containers and Components available in Swing API. (5)
- 20 Explain the steps using java code for connecting a Java program to a database using JDBC API. (10)

Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CS206

Course Name: OBJECT ORIENTED DESIGN AND PROGRAMMING (CS)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks

		Marks
1	Briefly explain the primitive data types used in Java.	(3)
2	Why Java is called pure object-oriented language?	(3)
3	Explain how access modifiers are used to control the visibility of identifiers.	(3)
4	Write a note on Java Virtual Machine.	(3)

PART B

Answer any two full questions, each carries 9 marks

5	a) Draw the Use case diagram of a movie reservation system.	(4)
	b) Write a program to check whether a string is palindrome or not. The input is to be accepted through command line parameter.	(5)
6	a) Describe the following statements in Java.: i) <i>switch</i> and <i>for</i> ii) <i>break</i> and <i>continue</i>	(4)
	b) Define a Java class having overloaded methods to calculate area of rectangle and circle.	(5)
7	a) What is the use of constructor in Java? Give examples.	(4)
	b) Is it possible to create an object for class A using, A ob = new A(); if the class contains only parameterized constructor? Why?	(5)

PART C

Answer all questions, each carries 3 marks

8	What is the use of interface in Java? Give example.	(3)
9	With the help of examples, explain how inheritance is implemented in Java.	(3)
10	Write a note on byte stream and character stream related classes.	(3)
11	Define package. How is a class within a package compiled and executed?	(3)

PART D

Answer any two full questions, each carries 9 marks

12	a) Explain the different ways of creating threads in Java.	(4)
	b) Write a Java program that accepts N integers through console and compute their average.	(5)
13	Develop a java package named <i>primepackage</i> , with a class Prime containing a static method that check whether a number is prime or not and returns that information. Import this package in another class and use to check a number is prime or not.	(9)

- 14 What is exception? List any four exception classes in Java. Briefly explain various exception handling keywords in Java, with examples. (9)

PART E

Answer any four full questions, each carries 10 marks

- 15 a) Explain event handling in Java. (5)
b) Compare swing and AWT in Java. (5)
- 16 a) List any five event sources and their corresponding event types and listeners used. (5)
b) What is applet? Describe the structure of applet. (5)
- 17 Develop an applet that allows to input velocity in Kilometers/Hour, convert and display in Meters/Second. Use AWT controls and event handling techniques. (10)
- 18 a) Explain the tag used to pass parameters to an applet. (3)
b) How do you establish connection between a java program and database? Explain the steps with sample code. (7)
- 19 a) Write an applet which displays the character when a key is typed. Use event handling mechanism. (7)
b) What is meant by dynamic query? (3)
- 20 Write a Java application program that simulates a simple dictionary. There exists a dictionary database and a table contain a set of English words and there meaning. The program accepts an English word from the user, look up in the database and retrieve the meaning, if available. The result is communicated back to the user. (10)

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: CS206

Course Name: OBJECT ORIENTED DESIGN AND PROGRAMMING (CS)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

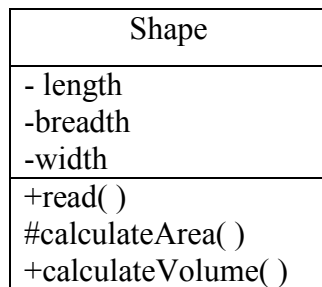
Marks

- | | | |
|---|--|-----|
| 1 | Draw the Use Case diagram of online railway ticket reservation system | (3) |
| 2 | Why are java programs said to be platform independent? | (3) |
| 3 | What is a constructor? What are its uses? | (3) |
| 4 | Why is the <i>main</i> method in java qualified as public, static, and void? | (3) |

PART B

Answer any two full questions, each carries 9 marks.

- 5 a) Represent the following class diagram as a java class. (5)



- b) Write briefly about any four features of Java. (4)
- 6 a) Write a java program to check whether a given number is prime or not. (4)
- b) Show the use of different types of shift operators in java with the help of suitable examples. (5)
- 7 a) Draw a table showing the visibility of all access specifiers available in java language with respect to; same class, same package sub-class, same package non sub-class, different package sub-class, different package non sub-class. (6)
- b) Is it possible create an object for a class A using, A ob = new A(); if the class contains only parameterized constructor? Justify. (3)

PART C

Answer all questions, each carries 3 marks.

- 8 Does importing a package makes available all classes, interfaces and sub-packages within it? Justify. (3)
- 9 What are the uses of “*finally*” statement in exception handling? (3)

- 10 List the sub-classes of Writer and Reader character oriented stream classes (3)
- 11 Draw the lifecycle of a thread showing the different states and methods invoked. (3)

PART D

Answer any two full questions, each carries 9 marks.

12

- a) Differentiate between Abstract class and Interface (4)
- b) Explain the scenario under which the following three exceptions occur, NumberFormatException, ArithmeticException, and ArrayIndexOutOfBoundsException. (5)
- 13 a) Write a java program to create two threads, one for writing odd numbers and another for writing even numbers up to 100 into two different files. (6)
- b) What are the uses of “synchronized” keyword? (3)
- 14 a) Demonstrate how polymorphism can be implemented using method overriding with suitable example. (6)
- b) What is an exception? Why it needs to be handled? (3)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Explain briefly about the Delegation Event model. (5)
- b) List any five event sources and their corresponding generated event type and listeners used. (5)
- 16 a) Describe the different character extraction methods of String class along with their syntax. (5)
- b) How does an applet differ from a java application? (5)
- 17 Write a java program to count the occurrence of a particular word within a sentence using string handling methods. (10)
- 18 Write a java AWT based program to display Fibonacci numbers in a List control up to a limit entered using TextField. The event handling as well as code for clearing the components must be provided. (10)
- 19 a) What are the advantages of using Swings? (4)
- b) Explain any three graphics related methods along with their syntax. (6)
- 20 Write the steps for connecting a java program to a database, executing a select query, and fetching the results with sample code. (10)

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019

Course Code: CS206

Course Name: OBJECT ORIENTED DESIGN AND PROGRAMMING (CS)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|---|---|-----|
| 1 | Explain the terms: Polymorphism and Encapsulation | (3) |
| 2 | Consider a Banking System. Identify three entities in the system which can be represented using classes and show the relationship between them using UML class diagrams | (3) |
| 3 | Explain how objects are passed as function parameters with a suitable example. | (3) |
| 4 | What are parameterized constructors? Is it possible to define a parameterized constructor for a class without defining a parameter-less constructor? | (3) |

PART B

Answer any two full questions, each carries 9 marks.

- | | | |
|---|---|-----|
| 5 | a) Draw Use case Diagram for online Pizza ordering system | (6) |
| | b) What is the role of Java Virtual Machine? | (3) |
| 6 | a) Explain Object Oriented System Development Life Cycle. | (4) |
| | b) Write a Java program that accepts two three digit numbers as command line arguments and find all palindrome numbers between them. | (5) |
| 7 | a) Explain method overloading with the help of an example. | (3) |
| | b) Define a class Queue for representing a queue data structure. The class must define a default constructor, a parameterized constructor and functions for enqueue, de-queue and display operations. Write a Java program to implement this. | (6) |

PART C

Answer all questions, each carries 3 marks.

- | | | |
|----|---|-----|
| 8 | What are packages? Explain how packages are created in Java. | (3) |
| 9 | What are interfaces? How interfaces are used in Java? | (3) |
| 10 | What are Checked Exceptions? Give an example. | (3) |
| 11 | What are thread priorities? How can you assign priority values for threads created in Java? | (3) |

PART D

Answer any two full questions, each carries 9 marks.

- 12 a) Discuss the different access specifiers used in java. (4)
b) Explain how inheritance is implemented in Java. What is the use of 'super' keyword? Illustrate its usage with suitable examples. (5)
- 13 a) Discuss about any two stream classes used in Java. (4)
b) Write a Java program to create two threads: One for displaying all odd numbers between 1 and 100 and second thread for displaying all even numbers between 1 and 100. (5)
- 14 a) What are abstract classes? (3)
b) Create a user defined Exception 'InvalidNumberException'. Write a Java program that computes the average of N positive numbers given as Command Line Arguments. Raise the Exception 'InvalidNumberException' on reading a negative number or zero as input. (6)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Explain Event Delegation model in Java. (6)
b) Discuss any four methods used for string processing in Java (4)
- 16 a) How can we pass parameters to an Applet? Explain with an example. (5)
b) Discuss how fonts are managed in AWT with suitable examples (5)
- 17 a) What are layout managers? Explain any one layout manager with an example. (5)
b) What are Adapter Classes? How do we make you adapter classes while handling window events? (5)
- 18 a) What are dynamic queries? Explain how they are processed with suitable examples? (5)
b) Explain the life cycle of an applet (5)
- 19 a) Discuss the different steps involved in establishing a JDBC connectivity and query processing with a suitable example. (7)
b) What are the differences between a Java applet and a Java application? (3)
- 20 a) What is the use of paint() method? How do we invoke it? (3)
b) Discuss any two AWT controls, the events generated by them and how they are handled with suitable code fragments. (7)

Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: CS206

Course Name: OBJECT ORIENTED DESIGN AND PROGRAMMING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|---|--|-----|
| 1 | Distinguish between structural and behavioural UML diagrams. | (3) |
| 2 | Illustrate how information hiding is achieved in Java. | (3) |
| 3 | Define Testing. What are the major differences between Verification and Validation Testing? | (3) |
| 4 | With a simple example, explain the argument passing mechanism used in Java to pass an instance of a class as argument to a method. | (3) |

PART B

Answer any two full questions, each carries 9 marks.

- | | | |
|---|---|--|
| 5 | a) What are the notations used to represent a public, private, protected and package scope members in a class diagram? (3)
b) What is the syntax for representing a method and a data member in a class diagram? (2)
c) Model a Java class in such a manner that it is restricted to have only one instance throughout the program in which it is used. (4) | |
| 6 | a) Illustrate the major functionalities of the 'Class Loader' component within the JVM architecture. (4)
b) Consider a scenario where a class 'Rectangle' with two data members 'Length', 'Breadth' has to be defined and initialized. Sometimes there would be a need that the instance initialization should happen by copying the value from an already initialized instance to the new instance. Model such a class with appropriate constructors and illustrate the working of the class. (5) | |
| 7 | a) Why is that, in Java the size of 'char' datatype is of 2 bytes while that in C is of 1 byte? (1)
b) Illustrate the different steps in the design phase of the Object Oriented Software Development Process. (3)
c) Write a Java program with a class 'Complex' to represent complex numbers. Model the class in such a way that it uses constructor overloading aspects to initialize its (5) | |

instances. Support the design with codes to demonstrate its working.

PART C

Answer all questions, each carries 3 marks.

- 8 State the benefits that can be achieved through the use of packages in Java. (3)
- 9 What is file? How files are represented in Java? (3)
- 10 Illustrate with an example, how a class in Java can be prevented from getting inherited? (3)
- 11 Write two subclasses for the 'InputStream' and 'OutputStream' classes in Java and specify its uses. (3)

PART D

Answer any two full questions, each carries 9 marks.

- 12 a) Can a class in Java implement more than one interfaces, if yes what is the syntax used? (1)
- b) Consider a scenario where there are two classes: 'BaseClass' and 'DerivedClass', such that 'DerivedClass' is inherited from 'BaseClass'. A function 'public void myFunction()' is defined in both classes. State just the code sequences that would lead to a method overriding scenario and why this scenario is known as run time polymorphism? (2)
- c) Write a Java program to create a new file named 'MyFile.txt' and write the statement "This is the University Exam for OODP. This a program to illustrate the use of files." into the file with each sentence in the statement representing a new line in the file. (6)
- 13 a) With a suitable example summarize how 0 to 100% abstraction can be achieved through the use of Abstract class in Java? (3)
- b) What is Thread Synchronization? With an example illustrate the working of any one technique used for Thread synchronization in Java. (6)
- 14 a) Define two user defined exception 'EvenNumberException' and 'OddNumberException'. Write a Java class which has a method which checks whether a given number is even or not. The method throws 'EvenNumberException' or 'OddNumberException' if the number is even or odd respectively. Illustrate the handling of the exception with suitable sequence of codes. (7)
- b) Illustrate the use of the byte stream classes 'DataInputStream' and (2)

‘DataOutputStream’.

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Define Applet. Draw the life cycle of Applet in Java showing the different methods invoked. (5)
- b) Write a Java Applet based program which shows a label and a textbox on the html page. The label and the textbox should display some values which is provided to it from the html code representing the page. (5)
- 16 Write Java AWT/Swing based program to display a GUI to accept username and password from user. The GUI should contain the required UI elements and should have appropriate event handling aspects. (10)
- 17 a) Define Events in Java. Illustrate the events and the corresponding event listeners for the UI elements such as TextField, Button and Window. (4)
- b) State the advantages of using Adapter Classes (WindowAdapter, MouseAdapter ...) instead of the listener interfaces (WindowListener, MouseListener ...) for event handling in Java. (2)
- c) Write a simple GUI Java program which displays only a Window or a Frame. Provide the implementation of the event handling mechanism such that the Window or Frame is closed when the ‘Close (X)’ symbol on its top is clicked. (4)
- 18 a) With a diagram explain the overall architecture of the JDBC aspect in Java. (5)
- b) Illustrate the role of JDBC driver in the database handling process. What are the different types of JDBC driver available? (5)
- 19 a) What are the basic procedures that have to be followed to communicate with a database in Java using JDBC? (5)
- b) With an example, state the basic differences between the execution of the methods ‘executeQuery’ and ‘executeUpdate’. (5)
- 20 Write a Java program to store the marks of students corresponding to three subjects in database. The program should provide provision for the following. (10)
- i. Create a table in database corresponding to a particular class.
 - ii. Find student who topped the class.
 - iii. Find the average class marks for a given subject.

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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth semester B.Tech examinations (S), September 2020

Course Code: CS206**Course Name: OBJECT ORIENTED DESIGN AND PROGRAMMING (CS)**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 3 marks.*

Marks

- | | | |
|---|--|---|
| 1 | Why java programs are said to be robust? | 3 |
| 2 | Represent the entities 'Student' and 'Course' and their relationship using a Class diagram | 3 |
| 3 | Explain the properties of a Constructor. | 3 |
| 4 | Write a Java program to perform concatenation of two strings read as Command line arguments. | 3 |

PART B*Answer any two full questions, each carries 9 marks.*

- | | | |
|---|---|---|
| 5 | With the help of a neat sketch, explain the Object Oriented Software Development Life cycle model. | 9 |
| 6 | a) Construct Use-case diagram for an Online Shopping Application | 5 |
| | b) Explain any four data types in Java | 4 |
| 7 | a) Create a class called Box with member variables length, breadth and height, and a default and parameterized constructor. a member function to display the volume of a box. Write a Java program to test the class. | 6 |
| | b) Write a Java program to sort an array of integers. | 3 |

PART C*Answer all questions, each carries 3 marks.*

- | | | |
|----|---|---|
| 8 | How can we prevent a class from instantiation? | 3 |
| 9 | Explain Dynamic Method Dispatch in Java | 3 |
| 10 | What are byte streams and character streams? Give examples of Java classes for each stream. | 3 |
| 11 | Explain the concept of thread synchronization | 3 |

PART D

Answer any two full questions, each carries 9 marks.

- 12 a) What are packages? Illustrate package hierarchy in java with the help of an example 6
b) Compare and contrast abstract classes and interfaces 3
- 13 a) Explain in detail how exception handling mechanism used in Java using 'throw' and 'throws' 5
b) Write a Java program to read characters from the console using BufferedReader class 4
- 14 a) Explain the different ways of creating a thread. 6
b) What are synchronized blocks? Explain with an example 3

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Discuss the security restrictions imposed on running Java applets 5
b) Write an applet program that accepts two input string as parameters, concatenate the strings and display it in status window. 5
- 16 a) Explain the working of Delegation Event Model. 6
b) List out the various event sources and their corresponding listeners. 4
- 17 a) Outline the lifecycle of an Applet. 6
b) Discuss the differences between Java Applets and Java Applications 4
- 18 a) Differentiate between String and StringBuffer classes. 5
b) Discuss with proper examples, how we can create new colors and fonts in an AWT program 5
- 19 Write an AWT program to create a Calculator with basic arithmetic operations 10
- 20 Explain the steps using for connecting a Java program to a database using JDBC API with a proper example. 10
