MCKV Institute of Engineering

Paper Code: PC-IT503

Paper Name: Object Oriented Programming

Time Allotted: **3 Hours** ***Full Marks:*** **70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ***ten*** of the following: 10×1=

(i) Which one of the following is not a Java feature?

a) Object-oriented b) Use of pointers
c) Portable d) Dynamic and Extensible

(ii) Which of this keyword must be used to inherit a class?

a) super b) this c) extent d) extends

(iii) Which of these statements is incorrect about Thread?

a) start() method is used to begin execution of the thread
b) run() method is used to begin execution of a thread before start() method in special cases
c) A thread can be formed by implementing Runnable interface only
d) A thread can be formed by a class that extends Thread class

(iv) Which one of the following is not an access modifier?

a) Protected b) Void c) Public d) Private

(v) What is true about constructor?

a) It can contain return type
b) It can take any number of parameters
c) It can have any non-access modifiers
d) Constructor cannot throw an exception

(vi) What is the process of defining two or more methods within same class that have same name but different parameters declaration?

a) method overloading b) method overriding
c) method hiding d) none of the mentioned

(vii) What is it called where child object gets killed if parent object is killed?

a) Aggregation b) Composition c) Encapsulation d) Association

(viii) When does Exceptions in Java arises in code sequence?

a) Run Time b) Compilation Time

c) Can Occur Any Time d) None of the mentioned

(ix) Which of this method is given parameter via command line arguments?

a) main() b) recursive() method

c) Any method d) System defined methods

(x) Which of these functions is called to display the output of an applet?

a) display() b) paint() c) displayApplet() d) PrintApplet()

(xi) Which function is used to perform some action when the object is to be destroyed?

a) finalize() b) delete() c) main() d) none of the mentioned

(xii) Which of these package is used for graphical user interface?

a) java.applet b) java.awt c) java.awt.image d) java.io

Group – B

(Short Answer Type Questions)

Answer any ***three*** of the following 3×5=15

2. What is JVM (Java Virtual Machine)? What is its role in context of Java programming? [Module 2/CO3/Understand-IOCQ] 1+4

3. Explain the necessity of each keyword in "public static void main(String args[])". [Module 2/CO3/Understand-IOCQ] 5

4. What are the applications of 'super' keyword? Clarify with java program code. [Module 2/CO3/Apply-IOCQ] 2+3

5. What is a constructor? What do you mean by "default constructor"? [Module 2/CO2/ Remember-IOCQ] 2+3

6. What is polymorphism in Object Technology? What do you mean by static polymorphism and dynamic polymorphism? [Module 2/CO2/ Remember-IOCQ] 1+2+2

Group – C
(Long Answer Type Questions)

Answer any ***three*** of the following 3×15=45

7. a) What are the limitations of Procedural Programming Languages that lead to shift towards Object Oriented Paradigm? [Module 1/CO1/Understand-IOCQ] 3

b) How can we call the base method without creating an instance? With suitable java program explain the concept. [Module 2/CO2/ Apply-IOCQ] 5+7

8. a) Differentiate between throw and throws. [Module 3/CO2/Understand-IOCQ]

b) Why multiple inheritance is prohibited in java? How can it be bypassed? Explain with suitable java programme. [Module 3/CO2/ Apply-IOCQ] 5+10

9. a) Describe the life cycle of a thread specifying the methods associated with the state transitions. [Module 3/CO2/ Remember-IOCQ]

b) Write a program to create two threads; one will print from 1 to 10, another will print from 10 to 1. In the second thread, if value is 6 then it will sleep for 1000ms. [Module 3/CO2/ Apply-IOCQ]

c) Compare and contrast Java application program and applet program. [Module 3/CO2/ Understand-IOCQ] 5+6+4

10. (a) Why the methods defined in packages are made "public"? Name major API packages in Java. [Module 3/CO2/ Understand-IOCQ]

b) Distinguish between the following terms with examples :

(i) Exception and Error (ii) Method overloading and overriding

(iii) Final and Finally (iv) Instance variables and class variables.

[Module 2,3/CO2/Analyze-IOCQ]

c) Create an user defined exception and throw it from a method when it tries to subtract a bigger number from a smaller number. Handle it properly. [Module 3/CO2/ Apply-IOCQ] 5+4+6

11. Write short notes (any ***three***) 5×3=15

a) Major element of Object Oriented Paradigm [Module1/CO2/Remember-IOCQ]

b) Dynamic method Dispatch [Module 3/CO2/ Understand-IOCQ]

c) Usage of 'static' keyword in Java [Module 2/CO2/ Understand-IOCQ]

d) Abstract method and class [Module 3/CO2/ Understand-IOCQ]

e) Applets in Java [Module 4/CO2/ Understand-IOCQ]

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Object Oriented Programming

Time Allotted: **3 Hours** ***Full Marks:*** **70**

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Group – A

(Multiple Choice Type Questions)

1.Choose the correct alternatives for any ***ten*** of the following: 10×1=10

(i)Which one of the following is not a Java feature?

a) Object-oriented b) Use of pointers c) Portable d) Dynamic and Extensible

(ii) What is not the use of "this" keyword in Java?

a) Referring to the instance variable when a local variable has the same name

b) Passing itself to the method of the same class

c) Passing itself to another method

d) Calling another constructor in constructor chaining

(iii) Which of these statements is incorrect about Thread?

a) start() method is used to begin execution of the thread

b) run() method is used to begin execution of a thread before start() method in special cases

c) A thread can be formed by implementing Runnable interface only

d) A thread can be formed by a class that extends Thread class

(iv) Which one of the following is not an access modifier?

a) Protected b) Void c) Public d) Private

(v)What is true about constructor?

a) It can contain return type b) It can take any number of parameters

c) It can have any non-access modifiers d) Constructor cannot throw an exception

(vi) What is the process of defining two or more methods within same class that have same name but different parameters declaration?

a) method overloading b) method overriding

c) method hiding d) none of the mentioned

(vii) Which of this keyword can be used in a subclass to call the constructor of superclass?

a) super b) this c) extent d) extends

(viii) When does Exceptions in Java arises in code sequence?

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(ix) Which of these functions is called to display the output of an applet?

a) display() b) paint() c) displayApplet() d) PrintApplet()

(x) The default value of a static integer variable of a class in Java is

a) 0 b) 1 c) -1 d) Garbage value

(xi) The fields in an interface are implicitly specified as,

a) static only b) protected c) private d) both static and final

(xii) Which of these statements is incorrect?

a) By multithreading CPU idle time is minimized, and we can take maximum use of it

b) By multitasking CPU idle time is minimized, and we can take maximum use of it

c) Two thread in Java can have the same priority

d) A thread can exist only in two states, running and blocked

Group – B

(Short Answer Type Questions)

Answer any ***three*** of the following 3×5=15

2. How does constructor invoked in JAVA? What are its special properties? What is default constructor?

3. Why the methods defined in packages are made "public"? Name the major API packages in java.

4. Differentiate between static and dynamic polymorphism.

5. What are the keywords associated with exception handling? What are their usages?

6. Explain Applet life cycle with block diagram. Mention the methods associated with state transitions.

Group – C

(Long Answer Type Questions)

Answer any ***three*** of the following 3×15=45

7. a) What is JVM (Java Virtual Machine)? What is its role in context of Java programming?

b) What is a class and what is an object? How does class accomplish data hiding?

c) Write a class Cone that calculates the volume of a cone. Overload the constructor by passing height and radius of base as arguments and no argument respectively. 4+4+7

8. a) Explain the necessity of each keyword in "public static void main (String args [])".

b) How can we call the base method without creating an instance?

c) Create a class Calculator that has 4 static methods those perform addition, subtraction, multiplication and division of 2 integer numbers and print the result at main method. 4+3+8

9. a) When do we use the "super" keyword in Java programming? Explain with suitable example.

b) Compare and contrast method overloading and method overriding.

c) Define a class Dimension and create its two subclasses Rectangle and Triangle. By using the concept of method overriding, find out the area of a rectangle and a triangle. 4+4+7

10. a) Why wrapper classes are required in context of command line arguments?

b) Describe the life cycle of a thread with block diagram. Mention the methods associated with the state transitions.

c) Write a program in JAVA to create two threads; one will print from 1 to 20, another will print from 20 to 1. In the second thread, if value is 6 then it will sleep for 1000ms. 3+4+8

11.a) Why multiple inheritance is prohibited in Java? Explain with example code in JAVA how this problem can be by passed.

b) Define an interface called Volume in JAVA having the following variable and method

double pi = 3.14,

double CalVolume(double radius, double height).

Write two subclasses Cylinder and Cone those implement this interface to calculate their corresponding volumes. 3+4+8

```
class cone
{   double volume, radius, height;
    cone();
    {   v=0;
    }
    cone ( double r1, double h1)
    {   radius = r1;
        height = h1;
        volume = 0;
    }
double cal_vol()
{   v = (3.14 * r * r * h) / 3;
    return v;
}
}
class demo
```

```
double vl =
    obj2.
    cal_vol();
S.o.p("vol of
cone:" + vl);
}
```

MCKV Institute of Engineering

Paper Code: PC- IT503

Object Oriented Programming

Time Allotted: 3 Hours | *Full Marks:* 70

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Group – A

(Multiple Choice Type Questions)

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(i)Which one of the following is not a Java feature?

a) Object-oriented b) Use of pointers c) Portable d) Dynamic and Extensible

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a) Referring to the instance variable when a local variable has the same name

b) Passing itself to the method of the same class

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(xi) The fields in an interface are implicitly specified as,

a) static only b) protected c) private d) both static and final

(xii) Which of these statements is incorrect?

a) By multithreading CPU idle time is minimized, and we can take maximum use of it

b) By multitasking CPU idle time is minimized, and we can take maximum use of it

c) Two thread in Java can have the same priority

d) A thread can exist only in two states, running and blocked

Group – B

(Short Answer Type Questions)

Answer any ***three*** of the following 3×5=15

2. How does constructor invoked in JAVA? What are its special properties? What is default constructor?

3. Why the methods defined in packages are made "public"? Name the major API packages in Java.

4. Differentiate between static and dynamic polymorphism.

5. What are the keywords associated with exception handling? What are their usages?

6. Explain Applet life cycle with block diagram. Mention the methods associated with state tra. itions.

Group – C

(Long Answer Type Questions)

Answer any ***three*** of the following 3×15=45

7. a) What is JVM (Java Virtual Machine)? What is its role in context of Java programming?

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MCKVIE/B.TECH/IT/CA-1/2022-23/PC-IT503

MCKV Institute of Engineering

Paper Code: PC- IT503

Object Oriented Programming

Time Allotted: 1 **Hour** *Full Marks: 30*

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ***five*** of the following: 5×1

i. Which member can never be accessed by inherited classes?
   a) Private member function
   b) Public member function
   c) Protected member function
   d) All can be accessed

ii. When does method overloading determined?
   a) At run time
   b) At compile time
   c) At coding time
   d) At execution time

iii. Which concept of Java is achieved by combining methods and attribute into a class?
   a) Encapsulation
   b) Inheritance
   c) Polymorphism
   d) Abstraction

iv. Method overriding is combination of inheritance and polymorphism?
   a) True
   b) false

v. The default value of a static integer variable of a class in Java is,

a) 0
b) -1
c) Garbage value
d) Null

vi. Multiple inheritance means

a) one class inheriting from more super classes
b) more classes inheriting from one super class
c) more classes inheriting from more super classes
d) (a) and (b) above.

C . AB

Group – B

(Short Answer Type Questions)

Answer any *two* of the following 2×5

2. What is a class and what is an object? Clarify with example.

3. What are the specific characteristics of a constructor? What do you mean by "default constructor"?

4. What is polymorphism in Object Technology? Compare and contrast static polymorphism and dynamic polymorphism.

Group – C

(Long Answer Type Questions)

Answer any *one* of the following 1×15

5. (a) Explain the necessity of each keyword in "public static void main(String args[])".

(b) Write a Java program that incorporates a class namely Calculator in which 4 methods for performing the basic mathematical operations on 2 integer numbers are present. Create an object to verify the proper working of those methods.

(c) Write a class Volume in Java and overload a method to calculate the volume of a rectangular box, a cube and a cylinder. 3+6+6

6. (a) Why multiple inheritance is prohibited in Java?

(b) Explain the use of 'super' keyword with example.

(c) Write a superclass Rectangle (use constructor) that calculates the area of a rectangle and a subclass RectBox that calculates the volume of a rectangular box, which contains one face having the dimensions specified in its superclass. 3+6+6

MCKV Institute of Engineering

Paper Code: PC- IT503

Object Oriented Programming

Time Allotted: 1* Hour** ***Full Marks: 30

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Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ***five*** of the following: 5×1

i. Which of the e access specifier can be used for an interface?
   a) Public
   b) Protected
   c) private
   d) All of the mentioned

ii. Which of these keywords is used by a class to use an interface defined previously?
   a) import
   b) Import
   c) implements
   d) Implements

iii. When does Exceptions in Java arise in code sequence?
   a) Run Time
   b) Compilation Time
   c) Can Occur Any Time
   d) None of the mentioned

iv. All methods of an interface must be implemented.
   a) True
   b) false

v. Which of these keywords is not a part of exception handling?
a) try
b) finally
c) thrown
d) catch

vi. Which of these statements is incorrect?
a) By multithreading CPU idle time is minimized, and we can take maximum use of it
b) By multitasking CPU idle time is minimized, and we can take maximum use of it
c) Two thread in Java can have the same priority
d) A thread can exist only in two states, running and blocked

Group – B
(Short Answer Type Questions)

Answer any *two* of the following 2×5

2. Describe the life cycle of a thread specifying the methods associated with the state transitions.

3. With suitable example show that multiple inheritance can be bypassed by interfaces.

4. Name the keywords associated with exception handling. Specify their functions.

Group – C
(Long Answer Type Questions)

Answer any *one* of the following 1×15

5. (a) Can we declare constructor inside an interface?

(b) Write Distinguish between the following terms with examples:
(i) Exception and Error (ii) Final and Finally

(c) Write a Java program where error message will be shown when a bigger number is tried to be subtracted from a smaller number. 3+6+6

6. (a) What is thread? How thread can be implemented in JAVA.

(b) Why the methods defined in packages are made "public"? Name the major API packages in Java.

(c) Create a class named as FIRST and keep it in a package named MY_FIRST_PACKAGE. Create another class named as SECOND, this class should be able to access every method and variables declared within the FIRST class. 3+6+6

MCKV Institute of Engineering

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Object Oriented Programming

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Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ***five*** of the following: **5×1**

i. Which concept of Java is achieved by combining methods and attribute into a class?
   a) Encapsulation
   b) Inheritance
   c) Polymorphism
   d) Abstraction

ii. The default value of a static integer variable of a class in Java is,
   a) 0
   b) -1
   c) Garbage value
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iii. When does method overloading determined?
   a) At run time
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iv. Which member can never be accessed by inherited classes?
   a) Private member function
   b) Public member function
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   d) All can be accessed

v. Multiple inheritance means
a) one class inheriting from more super classes
b) more classes inheriting from one super class
c) more classes inheriting from more super classes
d) (a) and (b) above.

vi. Method overriding is combination of inheritance and polymorphism?
a) True
b) false

Group – B

(Short Answer Type Questions)

Answer any *two* of the following 2×5

2. Explain the necessity of each keyword in "public static void main(String args[])". [CO2/Remember/IOCQ]

3. Explain the use of 'static' keyword with example. [CO2/Remember/IOCQ]

4. How many types of inheritance structure is possible? Which are they? Provide the block diagrams. [CO2/Remember/LOCQ]

Group – C

(Long Answer Type Questions)

Answer any *one* of the following 1×15

5. (a) What is a class and what is an object? Clarify with example. [CO1/Analyze/IOCQ]

(b) What are the specific characteristics of a constructor? What do you mean by "default constructor"? [CO2/Remember/IOCQ]

(c) Write a Java program that will incorporate both parameterized and non-parameterized constructor. [CO2/Application/IOCQ] 4+5+6

6. (a) What is polymorphism in Object Technology? Compare and contrast static polymorphism and dynamic polymorphism. [CO2/Remember/IOCQ]

(b) What are the benefits of method overloading? [CO2/Analyze/IOCQ]

(c) Write a class Volume in Java and overload a method to calculate the volume of a rectangular box, a cube and a cylinder. [CO2/Application/IOCQ] 5+4+6

MCKV

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Group – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any ***five*** of the following: 5×1=5

(i) When does Exceptions in Java arise in code sequence?

a) Run Time

b) Compilation Time

c) Can Occur Any Time

d) None of the mentioned

(ii) Which of these keywords is used by a class to use an interface defined previously?

a) import

b) Import

c) implements

d) Implements

(iii) Which of these access specifiers can be used for an interface?

a) Public

b) Protected

c) private

d) All of the mentioned

(iv) Which of these keywords is not a part of exception handling?

a) try

b) finally

c) thrown

d) catch

(v)Which of these statements is incorrect?

a) By multithreading CPU idle time is minimized, and we can take maximum use of it

b) By multitasking CPU idle time is minimized, and we can take maximum use of it

c) Two thread in Java can have the same priority

d) A thread can exist only in two states, running and blocked

(vi) All methods must be implemented of an interface.

a) True

b) false

Group – B

(Short Answer Type Questions)

Answer any ***two*** of the following 2×5=10

2. With suitable example show that multiple inheritance can be bypassed by interfaces. [Module 2/CO2/Understand-IOCQ]

3. Describe the life cycle of a thread specifying the methods associated with the state transitions. . [Module 2/CO2/Remember-IOCQ]

4. Why the methods defined in packages are made "public"? Name the major API packages in Java. [Module 2/CO2/Understand-IOCQ]

Group – C

(Long Answer Type Questions)

Answer any ***one*** of the following 1×15=15

5. (a) What is thread? How thread can be implemented in JAVA.

(b) Distinguish between the following terms with examples:

(i) Exception and Error

(ii) Final and Finally [Module 3/CO2/Analyse-IOCQ]

(c) Write a Java program where error message will be shown when a bigger number is tried to be subtracted from a smaller number. [Module 3/CO2/Application-IOCQ] 3+6+6

6. (a) Name the keywords associated with exception handling. Specify their functions. [Module 3/CO2/Remember-IOCQ]

(b) Can we declare constructor inside an interface? [Module 3/CO2/Analyse-IOCQ]

(c) Create a class named as FIRST and keep it in a package named MY_FIRST_PACKAGE. Create another class named as SECOND, this class should be able to access every method and variables declared within the FIRST class. [Module 3/CO2/Application-IOCQ] 3+6+6