

DipIETE – CS (OLD SCHEME)

Code: DC12
Time: 3 Hours

Subject: OBJECT ORIENTED PROGRAMMING THROUGH JAVA
Max. Marks: 100

JUNE 2011

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2 × 10)

- a. Which of the following tool is used to run Java programs?
- (A) javac (B) java
(C) jdb (D) UNICODE
- b. Multiple inheritance in Java is implemented by the use of
- (A) packages (B) interfaces
(C) extends keyword (D) applets
- c. A character type variable in Java uses _____ bytes of memory.
- (A) one (B) two
(C) four (D) eight
- d. A constant in Java is declared with the keyword
- (A) const (B) CONST
(C) final (D) FINAL
- e. If m and n are int type variables, what will be the result of the expression $m \% n$ when $m = 14$ and $n = 3$
- (A) 4 (B) 2
(C) -2 (D) -4
- f. Which of the following will produce a value of 22 if $x = 22.9$
- (A) $\text{ceil}(x)$ (B) $\text{round}(x)$
(C) $\text{abs}(x)$ (D) $\text{floor}(x)$

- g. A package is a collection of
- (A) classes (B) interfaces
(C) methods (D) classes & interfaces
- h. Which of the following keyword is used to explicitly throw an exception?
- (A) throw (B) throwing
(C) throws (D) thrown
- i. With javadoc, which of the following denotes a javadoc comment?
- (A) `##` (B) `/*`
(C) `/**` (D) `/***`
- j. Which of the following statements are valid array declaration?
- (A) `counter int[];` (B) `float average[];`
(C) `double[] marks;` (D) both (B) & (C)

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Briefly explain the Java Environment along with the various tools available in the Java development toolkit that are used for developing and running Java programs. (5)
- b. Differentiate between process-oriented model and object-oriented model. (5)
- c. What are the steps of defining an array in Java? (6)
- Q.3** a. Define the following terms:-
(i) Platform independent language
(ii) Type casting (4)
- b. Write a program in Java to convert a temperature from Centigrade to Fahrenheit.
Given $^{\circ}\text{C} = \frac{5}{9}(\text{F} - 32)$ (6)
- c. With the help of examples, differentiate between break and continue statements. (6)
- Q.4** a. Write a program in Java to generate the first ten terms of the Fibonacci series. Given a Fibonacci series of the form 1 1 2 3 5 8 13 21 ----- (6)
- b. What do you mean by scope and life time of a variable? Briefly explain the various types of variables in Java. (6)
- c. What is method overloading? How is it different from method overriding? (4)

- Q.5** a. Define a class circle with appropriate data members and two methods area() and circum() to calculate the area and circumference of the circle. Also create a constructor to initialize the radius of the circle. Finally create a main class and create an object of the circle class and test the various methods created. (8)
- b. What is inheritance? Briefly explain various types of inheritance. (8)
- Q.6** a. Briefly explain the purpose of constructors and finalize() method in Java along with their syntax. (6)
- b. Briefly explain static variables and static methods along with their syntax. (6)
- c. What are abstract classes? How are they different from final classes? (4)
- Q.7** a. What do you understand by access modifiers? Briefly explain the various access modifiers available in Java? (8)
- b. Briefly explain packages in Java along with its benefits? How can we create and access our own packages? Explain. (8)
- Q.8** a. What are interfaces? How are they different from classes? How can you implement multiple inheritance using the concept of interfaces? (6)
- b. Write a program in Java to accept a number from the user and find out whether it is Even or Odd. (6)
- c. When creating files and performing I/O operations on them, the system generates I/O related exceptions. Briefly explain any four exceptions that may be raised. (4)
- Q.9** a. What is an exception? What are the various tasks involved in exception handling? Briefly explain the purpose of the try and catch blocks used in exception handling along with their syntax? (8)
- b. What are streams? How are byte streams different from character streams? Briefly explain the three predefined streams in Java. (8)