OBJECT ORIENTED PROGRAMMING
(INF2201)

Time Allotted : 2½ hrs **Full Marks : 60**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 4 (four) from Group B to E, taking one from each group.

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

Group – A

1. Answer any twelve: **12 × 1 = 12**

Choose the correct alternative for the following

(i) Which feature of OOP indicates code reusability?
(a) Abstraction (b) Polymorphism
(c) Encapsulation (d) Inheritance.

(ii) Which of the following best defines aggregation in Java?
(a) A stronger relationship than composition, indicating total dependency
(b) A form of inheritance where one class inherits properties from multiple parent classes
(c) A 'has-a' relationship between two classes where one class contains reference to another
(d) Strictly a 'uses-a' relationship indicating only method utilization and no property sharing.

(iii) What happens if non static members are used in static member function?
(a) Executes fine
(b) Compile time error
(c) Executes if that member function is not used
(d) Runtime error.

(iv) Under what situation default constructor is used?
(a) If there is constructor overloading (b) If no constructor is defined
(c) If there is only one constructor (d) None of the above.

(v) Which type of members can't be accessed in derived classes of a base class?
(a) All can be accessed (b) Protected
(c) Private (d) Public.

(vi) A try can have
(a) only a single catch block (b) multiple catch block
(c) both (a) and (b) (d) no catch block

(vii) Child thread can be created by
(a) By extending Thread class (b) By implementing Runnable interface
(c) Both (a) and (b) (d) None of the above

(viii) Which of the following are not the methods of the Thread class?
(a) yield() (b) sleep(long msec)
(c) go() (d) stop()

(ix) What is the full phrase of AWT?
(a) Absolute Window Toolkit (b) Abstract Window Toolkit
(c) Absolute Window Tools (d) Abstract Window Tools

(x) How can you close a file after operation?
(a) By using the `terminate()` method
(b) By using the `readLine()` method
(c) By using the `close()` method of the file stream
(d) By using the `exit()` method

Fill in the blanks with the correct word

(xi) _____ functions is called to display the output of an applet.

(xii) _____ method starts the execution of a new thread.

(xiii) _____ keywords is used to manually throw an exception.

(xiv) _____ keyword is used to call the superclass method in the overridden method.

(xv) _____ keyword is used to implement an interface.

Group - B

2. (a) "JAVA's platform independence achieved through BYTE Code" — Justify the statement. *[(CO1)(Evaluate/HOCQ)]*
(b) Compare between constructor and method with an example. *[(CO4)(Analyse/IOCQ)]*
(c) "Finalize method triggers just before Garbage collection" — Justify the statement. *[(CO1)(Evaluate/HOCQ)]*

3 + 5 + 4 = 12

3. (a) What is association? With the help of a Java program briefly explain association. *[(CO2)(Understand/LOCQ)]*
(b) Define different types of inheritance. Establish the relationship between class and object. *[(CO2)(Remember/LOCQ)]*

(2 + 4) + 6 = 12

Group - C

4. (a) Differentiate between method overloading and method overriding with example. *[(CO3)(Analyse/IOCQ)]*
(b) Write a program to implement object passing as parameter. *[(CO2)(Apply/HOCQ)]*

(c) With the help of JAVA program explain the use of static variable, static method, and static block. *[(CO2)(Understand/LOCQ)]*

4 + 4 + 4 = 12

5. (a) Describe the use of 'super' keyword in context of inheritance with proper example. *[(CO3)(Understand/LOCQ)]*

(b) Create a class called Shape, it contains two methods getDim() and showDim() for accepting dimension and to display the same. Create a sub class Rectangle. It also contains a method to display the length and breadth of the Rectangle called showDim(). Write proper driver class. Use the concept of method overriding. *[(CO3)(Create/HOCQ)]*

5 + 7 = 12

Group - D

6. (a) Implement a java program to
   (i) Print the name, priority, and Thread group of the thread.
   (ii) Change the name of the current thread to "MyThread".
   (iii) Display the details of current thread. *[(CO4)(Apply/IOCQ)]*

(b) Explain the use of synchronized block. *[(CO4)(Understand/LOCQ)]*

(c) Differentiate between notify and notifyAll. *[(CO4)(Analyse/IOCQ)]*

6 + 3 + 3 = 12

7. (a) Explain the use of throw, throws, finally in java with example. *[(CO4)(Remember/LOCQ)]*

(b) Write a multithreaded program that continuously prints the strings "Ping"and "PONG"in the console in random distance at intervals of one second. Use two threads, one for "Ping" and the other for "PONG". *[(CO4)(Create/HOCQ)]*

(2 + 2 + 2) + 6 = 12

Group - E

8. (a) Design a Java program which will copy the content of one file to another file. Take filename as user input. *[(CO5)(Create/HOCQ)]*

(b) What is wrapper class? Explain with example. *[(CO5)(Understand/LOCQ)]*

(c) Discuss the use of BufferedReader. *[(CO5)(Understand/LOCQ)]*

6 + 3 + 3 = 12

9. (a) Design a Swing program which will take input in a text box and display whether the number palindrome or not in message box. *[(CO6)(Create/HOCQ)]*

(b) Draw and explain Applet Life cycle model. Can init() method be called twice? - Justify your answer. *[(CO)(Justify/HOCQ)]*

4 + (5 + 3) = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	37.50	18.75	43.75