Bapuji Educational Association®
Bapuji Institute of Engineering and Technology, Davanagere
An Autonomous Institute Affiliated to VTU

Third Semester BE/B Tech Degree

MODEL QUESTION BANK

`Course: Object Oriented Programming with C++ and JAVA(BCSESC305A)

Q. No.	Question	Marks	CO	RL
	Module 1			
1	What is object oriented programming? Discuss the main features of C++?	6	1	L2
2	List the difference between C and C++?	6	1	L1
3	Describe the basic structure of a C++ program with a suitable example.	6	1	L2
4	Discuss various C++ tokens and provide examples for each.	6	1	L2
5	Describe reference variables and demonstrate their usage with an example program.	6	1	L2
6	Discuss the need and syntax of function prototypes in C++ with examples.	6	1	L2
7	Discuss how function overloading works in C++ with proper examples.	6	1	L2
8	Describe how to define a class and its objects in C++ with proper syntax and examples.	6	1	L2
9	Describe how to access class members in c++ with syntax and examples.	6	1	L2
10	Describe the different storage classes in C++ with suitable examples.	6	1	L2
11	Describe the concept of arrays of objects in C++ with suitable examples.	6	1	L2
12	Discuss how to define and use functions that return objects in C++ with examples.	6	1	L2
13	Discuss how constructors and destructors are defined and used in C++ with examples.	6	1	L2
14	Explain the hierarchy and purpose of stream classes in C++.	6	1	L1
15	Describe unformatted input/output operations in C++ with proper syntax and examples.	6	1	L2
16	Illustrate the definition of member functions in C++ with proper syntax and sample programs.	6	1	L2
17	Write a c++ a program to find the largest of three numbers.	6	1	L3
18	Write a c++ program to check if a number is even or odd.	6	1	L3
19	Write a c++ program to swap the values of a pair of integers using reference variables.	6	1	L3
20	Write a c++ program to compute the area of triangle, square, rectangle and circle by overloading the area() function.	6	1	L3

Q. No.	Question	Marks	CO	RL
21	Discuss the purpose and use of static data members and static member functions in C++ with examples.	6	1	L2
22	Discuss the different formatted I/O functions in C++ along with examples and syntax.	6	1	L2
23	Write a C++ program to count how many times a function is called using a static data member.	6	1	L3
24	Write a C++ program to demonstrate that a static member function can be called without creating an object.	6	1	L3
25	Write a C++ program using a class 'BankAccount' that uses a static data member to track the total number of accounts created.	6	1	L3
	Module 2			
1	What are templates in C++? Why are they used?	4	2	L2
2	What is generic programming? How do templates help in achieving it?	4	2	L2
3	Write a C++ program to implement a class template for a stack.	6	2	L3
4	Write a class template that accepts two different data types.	7	2	L3
5	Give an example of using class templates with multiple parameters.	7	2	L3
6	Explain how template parameters are specified when creating an object.	4	2	L2
7	What are function templates? How do function templates work with different data types?	6	2	L2
8	Write a C++ program to swap two values using a function template.	7	2	L3
9	What are the rules for creating and calling a function template?	5	2	L1
10	Write a C++ program for Bubble sort using a function template.	7	2	L3
11	Explain the difference between type and non-type template arguments.	5	2	L2
12	Explain components of STL with an appropriate diagram.	5	2	L2
13	Discuss three major categories of containers.	6	2	L2
14	Explain categories of algorithm with three operations for each of them.	6	2	L2
15	What is an iterator ? Explain Functionality Venn diagram of iterators.	6	2	L2

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Q. No.	Question	Marks	CO	RL
16	Write a c++ program using vectors to insert elements,remove the elements,display size and content.	8	2	L3
17	Write a c++ program using a list container that performs different list operations.	8	2	L3
18	Explain different functions used in maps.	6	2	L2
19	With code snippet, explain the use of function objects in algorithms.	7	2	L3
	Module 3			
1	Illustrate the three principles of Object-Oriented Programming with suitable examples.	8	3	L3
2	Develop a java program to find the area of circle and area of triangle.	6	3	L3
3	Solve the following expression (i) (5 << 2) + 3 (ii) 4 / 2 + (1 %2) * 7	6	3	L3
4	Explain the following operations with example. (i) >> (ii) >>> (iii) Ternary operator	8	3	L2
5	Explain the concept of a constructor and describe its types with suitable examples.	8	3	L2
6	Demonstrate how the this keyword is used in Java by writing a suitable example program.	4	3	L2
7	Explain the two paradigms	4	3	L2
8	List and Explain different Integer types.	6	3	L2
9	Define type casting. Explain two types of conversion.	6	3	L2
10	Explain the declaration and initialization of one and two dimensional arrays.	6	3	L2
11	Explain Increment and decrement operators with an example	6	3	L2
12	Solve the following expression where **a=true and b= false** (i) **c = (!a & b) | (a & ! b)** **(ii) d = (a | !b) & (!a | b)**	4	3	L2
13	With code snippets, explain jump statements in Java	6	3	L2
14	Explain syntax of for loop and for each loop loop with an example	6	3	L2
15	Explain four different types of if statements in JAVA with an example	6	3	L2
16	Explain the while and do-while statements in JAVA with an example	6	3	L2

Q. No.	Question	Marks	CO	RL
17	Explain Switch statement with statement with an example	**6**	**3**	**L2**
18	Explain Java Buzzwords	**6**	**3**	**L2**
	Module 4			
1	Demonstrate the use of the super keyword in an inheritance program with a suitable example.	**8**	**4**	**L2**
2	Explain the concept of method overriding in java with an example.	**6**	**4**	**L2**
3	Define Exception. Explain the Exception handling mechanism with an example.	**8**	**4**	**L2**
4	What is the importance of finally in java.	**6**	**4**	**L1**
5	Explain Multiple catch clauses in java.	**8**	**4**	**L2**
6	Explain the access modifiers in Java and Explain importing of packages in java.	**6**	**4**	**L2**
7	Develop a JAVA program to raise a custom exception (user defined exception) for DivisionByZero using try, catch, throw and finally.	**8**	**4**	**L3**
8	Explain method overloading with a suitable Java program.	**6**	**4**	**L2**
9	Differentiate between call by value and call by reference with examples.	**8**	**4**	**L2**
10	Explain the use of static keyword in Java with suitable examples.	**10**	**4**	**L2**
11	Write short notes on the final keyword in Java.	**8**	**4**	**L1**
12	What are inner classes in Java? Explain their types with examples.	**8**	**4**	**L2**
13	Write a Java program to demonstrate multilevel inheritance.	**8**	**4**	**L1**
14	What is inheritance? Explain with simple inheritance example	**6**	**4**	**L1**
	Module 5			
1	Explain the concept of importing packages in Java and provide an example demonstrating the usage of the import statement.	**7**	**5**	**L2**
2	What is thread? Explain two ways of creating a thread in java with an example.	**8**	**5**	**L2**

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3	What is the need of synchronization? Explain with an example how synchronization is implemented in JAVA.	6	5	L2
4	Define multithreading? Write a program to create multiple threads in JAVA.	6	5	L2
5	Explain the use of isAlive() and join() methods with the syntax.	6	5	L2
6	Define Package. Explain the different types of Packages with an Example.	6	5	L2
7	Explain Thread Priorities in java.	6	5	L2
8	Explain the way of suspending, Resuming and stopping the thread in java with an example	6	5	L2
9	Develop a JAVA program to create a package named mypack and import & implement it in a suitable class.	8	5	L3
10	Develop a Java program to demonstrate producer consumer problem using synchronized threads.	8	5	L3
13	Explain how interfaces achieve multiple inheritance in Java.	8	5	L2
14	Explain the life cycle of a thread with a neat diagram.	10	5	L2
15	Examine the various levels of access protections available for packages and their implications with suitable examples.	10	5	L2
16	Distinguish between a package and an interface.	6	5	L2
17	Develop a Java program that prints odd and even numbers alternately using two threads.	6	5	L3
18	Develop a custom bounded buffer class that supports concurrent producer and consumer threads safely.	8	5	L3
12	Develop a Java program to demonstrate inter-thread communication for the producer–consumer problem using wait() and notify().	8	5	L3

Q. No.	Question	Marks	CO	RL
13	Develop a program to illustrate creation of threads using runnable class. (start method start each of the newly created thread. Inside the run method there is sleep () for suspend the thread for 500 milliseconds	8	5	L3