Reg. No.															

Question Paper Code	12854

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Sixth Semester

Computer Science and Engineering

(Common to Electronics and Communication Engineering, Electrical and Electronics Engineering, Information Technology & Artificial Intelligence and Data Science)

20CSEL901 - C++ FOR EMBEDDED SYSTEMS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Express what is meant by Object Oriented Programming?	2	K1	CO1
2.	Differentiate break and continue statements.	2	K2	CO1
3.	What are the different ways to define member functions of a class?	2	K1	CO2
4.	Recall the need of overloading operators and functions.	2	K1	CO2
5.	Distinguish between 'break' and 'continue' statements.	2	K2	CO3
6.	List the operators available in C++.	2	K1	CO3
7.	What is a class? Give an example.	2	K1	CO4
8.	What are destructors? When they are called?	2	K1	CO4
9.	Define dangling pointer.	2	K1	CO5
10.	Specify the uses of seekg() and seekp() functions.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Explain the basic concepts of OOPS (or) basic characteristics or elements of OOP. How do these make OOPS approach best suited to address real world problems? Explain benefits and applications of OOP.	13	K2	CO1
		OR			
	b)	What is the need of an array? Discuss different types of arrays with example programs.	13	K2	CO1
12.	a)	Identify how are structures in C different from a class? What is meant by dynamic initialization of a variable? Explain how memory is allocated to classes & objects?	13	K3	CO2
		OR			

b) Write a program which will ask the user to enter his/her marks (out of 100). Define a function that will display grades according to the marks entered as below: *13 K3 CO2*

Marks	Grade
91-100	AA
81-90	AB
71-80	BB
61-70	BC
51-60	CD
41-50	DD
<=40	Fail

13. a) Discuss about the need of operator overloading. Write C++ program to demonstrate use of unary and binary operator overloading. *13 K2 CO3*

OR

b) Interpret about Looping Statements with Examples. *13 K2 CO3*

14. a) Write a C++ program to print the sum, difference and product of two complex numbers by creating a class named 'Complex' with separate functions for each operation whose real and imaginary parts are entered by the user. Use Friend function. *13 K3 CO4*

OR

b) Illustrate with examples about the Constant class objects and member functions. *13 K3 CO4*

15. a) Explain String streams with example. *13 K2 CO5*

OR

b) What are various types of files? What are the various modes in which a file can be opened? Explain by giving examples. *13 K2 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Elaborate in detail about Exception dangers and downsides with suitable examples. *15 K3 CO6*

OR

b) A stack needs only one index to an array (top). A queue, on the other hand, must keep track of two indexes to an array: one to the tail, where new items are added, and one to the head, where old items are removed. *15 K3 CO6*

The tail follows the head through the array as items are added and removed. If either the tail or the head reaches the end of the array, it is reset to the beginning.

Write a C++ program to add exceptions to this queue example. Throw two exceptions: one if the capacity of the queue is exceeded, the other if the program tries to remove an item from an empty queue.