Reg. No.												

Question Paper Code	12253

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Seventh Semester

Information Technology

(Common to Artificial Intelligence and Data Science, Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering & Electronics and Instrumentation Engineering)

20ITEL901 - ADVANCED C++ FOR EMBEDDED PROGRAMMING

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Write short notes on inline functions.	*2,K1,CO1*
2.	What is the use of operator overloading?	*2,K1,CO1*
3.	Define function overriding.	*2,K1,CO2*
4.	What is the use of super keyword in C++?	*2,K1,CO2*
5.	Compare late binding and early binding.	*2,K1,CO3*
6.	Define Message Passing.	*2,K1,CO3*
7.	State the advantages of Standard template library in C++	*2,K1,CO4*
8.	Write the syntax to access set using STL.	*2,K1,CO4*
9.	What is multithreading?	*2,K1,CO5*
10.	Draw the life cycle of thread and label it.	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	What is typecasting in C++? Illustrate explicit and implicit type conversions in detail.	*13,K2,CO1*
		OR	
	b)	Write in detail about overloading post and pre increment operators with example.	*13,K2,CO1*
12.	a)	Discuss the use of public, private and protected access specifiers and their visibility in the inherited classes.	*13,K2,CO2*
		OR	
	b)	Write a C++ program involving the handling of exceptions in constructors and destructors.	*13,K2,CO2*

13. a) Compare and contrast early binding and late binding with an example program. *13,K2,CO3*

OR

b) Write a C++ program demonstrating the purpose of pure virtual functions in base and derived classes. *13,K2,CO3*

14. a) Write a C++ program to implement array representation of a stack for integers, characters and floating point numbers using class template. *13,K2,CO4*

OR

b) Write a C++ program using STL to add & remove Hotel orders – New orders should be added in last and completed orders should be removed from top/ first. Create 2 functions to Add and Remove orders. *13,K2,CO4*

15. a) What are the 6 synchronization primitives available in Multithreading? Explain in detail. *13,K2,CO5*

OR

b) Write a program in CPP to create multiple threads and compile the program with lpthread library. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Illustrate how to interface a LED to raspberry pi and write a program to blink. *15,K3,CO6*

OR

b) Write a CPP program to simulate decimal number representation with LEDs interfaced with Eight GPIO pins on Raspberry Pi. $2_{(10)}$ - $0010_{(2)}$ Blink LED connected to Raspberry Pi (GPIOs). *15,K3,CO6*