

[illegible]

Question Paper Code : 30040

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Second Semester

Computer Science and Engineering

CS25C07 — OBJECT ORIENTED PROGRAMMING

(Common to: Computer Science and Design/Computer Science and Engineering (Artificial Intelligence and Machine Learning)/Computer Science and Engineering (Cyber Security)/Computer Science and Engineering (Data Science)/Computer Science and Engineering (IoT)/Computer and Communication Engineering/Robotics and Artificial Intelligence/Computer Science and Business Systems)

(Regulations 2025)

Time : Three hours

Maximum : 100 marks

CO – Course Outcomes

CO1	Understand the core OOP concepts and applications.
CO2	Apply Object Oriented Paradigms to solve problems using C++
CO3	Design and Analyze solutions involving code reusability and complexity management
CO4	Demonstrate life-long learning skills through application development

BL – Bloom's Taxonomy Levels

(L1-Remember, L2-Understand, L3-Apply, L4-Analyze, L5-Evaluate, L6-Create)

Answer ALL questions.

PART – A (Total Marks = 40)

[Q. No. 1 to Q. No. 10 ; $10 \times 1 = 10$ Marks (Multiple Choice Questions)]

Q. No. 11 to Q. No. 20; $10 \times 3 = 30$ Marks]

Q.No.	Questions	Marks	CO	BL
1.	Which operator is used for increment? (A) ++ (B) -- (C) ** (D) %%	1	1	L1

2.	Which keyword is used to exit from a loop? (A) continue (B) stop (C) break (D) pass	1	1	L1
3.	A constructor has the same name as: (A) object (B) datatype (C) class (D) function	1	2	L2
4.	Friend functions can access: (A) public members only (B) protected members only (C) private members (D) local variables only	1	2	L2
5.	Operator overloading is an example of: (A) runtime polymorphism (B) compile time polymorphism (C) abstraction (D) encapsulation	1	3	L2
6.	Multiple inheritance means: (A) one class inherits one class (B) one class inherits multiple classes (C) many classes inherit one class (D) no inheritance	1	3	L2
7.	Late binding occurs during: (A) compilation (B) execution (C) preprocessing (D) linking	1	4	L2
8.	A pure virtual function is declared using: (A) =1 (B) =0 (C) ==0 (D) !=0	1	4	L2
9.	Which stream class is used for file input? (A) ofstream (B) ifstream (C) fstream (D) ostream	1	4	L1

10.	Function templates are used to (A) overload classes (B) create generic functions (C) allocate memory (D) handle files	1	4	L2
11.	Write a note on namespaces in C++.	3	1	L2
12.	Write a short note on looping statements.	3	1	L2
13.	Write a note on destructors.	3	2	L2
14.	Write a note on array of objects.	3	2	L2
15.	What are single and multilevel inheritance?	3	3	L2
16.	Write a note on function overloading.	3	3	L2
17.	What is late binding in C++?	3	4	L2
18.	Write a note on this pointer.	3	4	L2
19.	Differentiate formatted and unformatted I/O.	3	4	L2
20.	Write short notes on class templates in C++.	3	4	L2

PART B — (5 × 12 = 60 marks)

Q.No.		Questions	Marks	CO	BL
21.	(a)	Compare Procedure Oriented Programming and Object-Oriented Programming in detail.	12	1	L3
		OR			
	(b)	Discuss flow control and decision-making statements in C++ with suitable programs.	12	1	L3
22.	(a)	Explain inline functions and friend functions with suitable examples.	12	2	L3
		OR			
	(b)	Discuss constructors, destructors, and their types with example programs.	12	2	L3

23.	(a)	Explain unary and binary operator overloading with example.	12	3	L3
	OR				
	(b)	Discuss compile time polymorphism using function overloading and operator overloading.	12	3	L3
24.	(a)	Explain virtual functions, pure virtual functions, and abstract classes with examples.	12	4	L3
	OR				
	(b)	Create a base class employee with a virtual function calculate_salary(). Derive two classes FulltimeEmp and ParttimeEmp from the base class and override the calculate_salary() in both derived classes. Use a base class pointer to call the overridden functions and display the salary details.	12	4	L3
25.	(a)	Write a C++ program using class template to perform operations on two values of different data types. Create a template class calculates with member functions to : * add two values * find the larger value * swap the values Demonstrate the template class using integer and floating-point data types.	12	4	L5
	OR				
	(b)	Write a C++ program to maintain student records using file handling and exception handling create a class student with data members such as rollno, name and marks. Perform the following operations. * Write student details into a file * Read and display the student details from the file. * Use exception handling to handle errors such as file opening failure and invalid marks entered by the user.	12	4	L5