



**GENERAL INSTRUCTIONS TO THE CANDIDATES**

- Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level (K<sub>1</sub> to K<sub>6</sub>)
- Candidates are strictly instructed not to write anything in the question paper other than their roll number.
- Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
- Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
- Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

**B.TECH DEGREE EXAMINATIONS: DEC 2015**

(Regulation 2014)

Third Semester

**INFORMATION TECHNOLOGY**

U14ITT303: Object Oriented Programming Using C++

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

- Assertion (A):** Consider the following statements CO1 [K2]

```
float f=10.0
int i=10;int j;
j=f/3;
```

In the above statement float will be converted into integer automatically

**Reason (R):** In C++ variable of lower order data type will be automatically converted into higher order data type

a) both A and R are individually true and R is the correct explanation of A      b) both A and R are individually true but R is not the correct explanation of A

c) A is true but R is false      d) A is false but R is true.
- Match the types of Programming style (List I) with their abstraction (List II) CO1 [K2]

Programming Style	Abstraction Employed
A. Procedure Oriented	1. If then else rules
B. Logic Oriented	2. Invariant Relationship
C. Rule Oriented	3. Algorithms
D. Constraint Oriented	4. Goals, often expressed in predicate calculus

- a) A→2 B→1 C→3 D→4                      b) A→3 B→4 C→2 D→1  
 c) A→2 B→4 C→1 D→3                      d) A→4 B→1 C→2 D→3

3. Which of the following statements are incorrect? CO2 [K3]

- I. Members of structure in C++ are private by default  
 II. A class can have functions with same name as long as they differ in return type  
 III. A class can have more than one or more constructors and destructors

- a) I only    b) I,II and III only  
 c) II and III only                                d) III only

4. Match the types of functions (List 1)with its related symbol notation (List II) CO2 [K2]

Function type	Symbol
A. Static function	1. Dot operator (.)
B. Reference Variables	2. Tilde symbol (~)
C. Destructor	3. Ampersand symbol(&)
D. Member function	4. Scope resolution operator ::

- a) A→1 B→2 C→3 D→4                      b) A→4 B→3 C→2 D→1  
 c) A→2 B→1 C→3 D→4                      d) A→2 B→3 C→1 D→4

5. Which of the following statements are correct? CO3 [K3]

- I. Operator overloading supports Compile time polymorphism  
 II. New operator can be used allocate dynamic memory allocation  
 III. When base class is inherited in protected mode, public members of the base class becomes protected members in derived class

- a) II & III only                                    b) I & III only  
 c) I & II only                                      d) I,II & III only

6. Assume class B is inherited from A. If a object is created for B identify the correct sequence of invocation of constructors and destructors CO3 [K3]

- 1) A's constructor is invoked  
 2) B's constructor is invoked  
 3) A's destructor is invoked  
 4) B's destructor is invoked

- a) 1-2-4-3                                        b) 1-2-3-4  
 c) 1-3-2-4                                        d) 2-4-1-3

7. **Assertion (A):** An abstract class is one which contains a pure virtual function CO4 [K2]

**Reason(R)** : A pure virtual function is a function which has its implementation/definition in the base class and can be equated to 0.

- a) both A and R are individually true and R is the correct explanation of A    b) both A and R are individually true but R is not the correct explanation of A  
 c) A is true but R is false                      d) A is false but R is true.

8. The ambiguity caused by multipath inheritance can be solved by using \_\_\_\_\_ CO4 [K2]

- a) Abstract classes                                b) Base classes  
 c) Virtual Base classes                            d) Virtual fucntions



24. i) Create a bank account for a customer with personal details (name, address, account no) as a base class. The base class should have necessary methods for getting the input and displaying it (10) CO4 [K3]  
 A customer can have two types of account namely savings account and current account.  
 Savings account class must contain information such as account number, balance and methods for performing withdraw and deposit operations.  
 Current account class must contain information such as account number, credit limit and a operation for withdraw and deposit operations().A customer should maintain a minimum balance of Rs. 10000 in the current account  
 Identify, mention the type of inheritance, draw the hierarchical diagram & write a C++ program to implement the runtime polymorphism.
- ii) Demonstrate the need of virtual destructors in C++ with a example. (4) CO4 [K2]
25. A marketing company named SOLITRON has various employees working as marketing persons. CO3 [K3]
- I. Create a class called SOLITRON which contains information for getting the name of the employee, designation and employee id and displaying it.
  - II. Create other class called sales that hold an array so that it records the sales of particular marketing person for the past three months and display the total sales. Every salesman working in a company has a target of selling 100 items per month.
  - III. Create another class called salary which contains information for salary calculation. Salary is calculated based on the average sales of three months.
    - a) If the average sale of one month exceeds 100 items the total salary will be calculated on the number of items sold. For each item that he sold, he can earn Rs 200.
    - b) Otherwise the total salary is Rs 15000.
- Display the whether the target is achieved by the salesman, percentage in deviation of target (if any), total salary for each of the salesman and the best sales done among three salesman.  
 Identify, mention the type of inheritance, draw the hierarchical diagram & write a C++ program to implement the above information.
26. (i) Interpret the need of various keywords and the mechanism involved in exception handling of C++ with a suitable example. (8) CO5 [K2]
- (ii) Discuss about the five ios class member functions used for formatting with their functionalities and a suitable example (6) CO5 [K2]

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