22232

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following : **10**

(a) Differentiate between OOP and POP. (Write any 2 points)

(b) Define object w.r.t. class.

(c) Define Abstract Data type.

(d) Explain node in the linked list.

(e) Explain the syntax of derived class.

(f) Explain front and rear end of queue with suitable diagram.

(g) List two memory management operators available in C++. Also state its use.

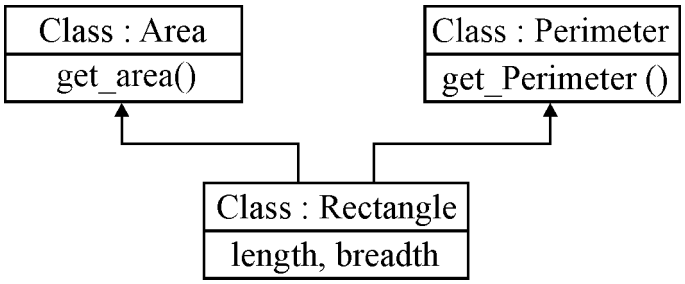
2. Attempt any THREE of the following : **12**

(a) Write a C++ code to print the table of 5 using do-while loop.

(b) Write a C++ code to declare a class 'Student' having data members as roll_no and percentage. Write constructor to initialize these data members. Accept and display this data for one object of a class.

(c) Write a C++ code of deleting an element from an 1-d array.

(d) Write a C++ code for given multiple inheritance.



3. Attempt any THREE of the following : **12**

(a) Define Constructor. Explain types of constructors with example.

(b) What is inheritance ? Give different types of inheritance with suitable diagram.

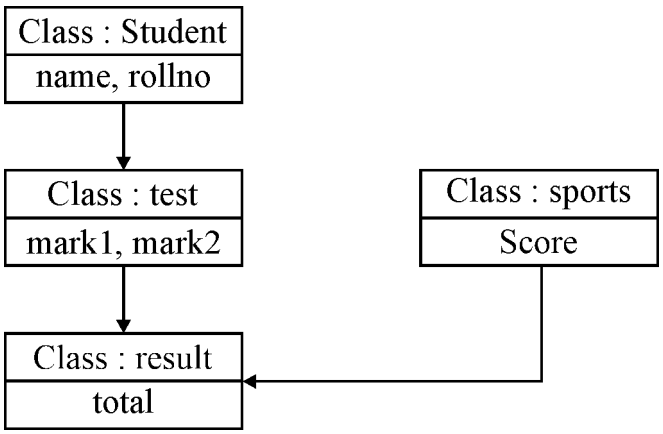
(c) Explain step-by-step procedure to delete a node from the beginning of the single linked list.

(d) Show the effect of PUSH and POP operations on to the stack of size 10. The stack contains 40, 30, 52, 86, 39, 45, 50 with 50 being at top of the stack. Show diagrammatically the effect of : (i) PUSH 59 (ii) PUSH 85 (iii) POP (iv) POP (v) PUSH 69 (vi) POP. Sketch the final structure of stack after performing the above operation.

4. Attempt any THREE of the following : **12**

(a) Explain the insertion & extraction operators in C++.

(b) Write a C++ code for Hybrid inheritance.



(c) Explain the working of Binary Search with an example.

(d) Describe how memory is allocated to objects of class with suitable diagram.

5. Attempt any TWO of the following : **12**

(a) Explain two methods of defining member functions with example.

(b) Explain the working of selection sort method. Also sort given input list in ascending order using selection sort. Input list : 45, 20, 4, 14, 32

(c) Write a C++ code to overload unary '–' operator to negate values of data members of class.

6. Attempt any TWO of the following : **12**

(a) Create a singly linked list using data fields 70, 35, 28, 37, 61. Search a node 28 from SLL and show procedure step-by-step with the help of suitable diagram from start to end.

(b) Write a C++ code to define a class 'employee' having data members as account-no, name & balance. Accept the data for 10 employees & display this information for the employees whose balance is greater than 10000.

(c) Explain two types of queues with proper example.