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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 110403 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

OBJECT ORIENTED PROGRAMMING WITH C++

Time : 3 Hours *Total Marks : 100*

Note : Attempt questions from all Sections as per instructions.

SECTION–A

1. Attempt **all** parts : **(10×2=20)**

   (a) How does a main () function in C++ differ from main() in C ?

   (b) What is the use of scope resolution operator ?

   (c) What is the purpose of using a derived class ?

   (d) What is Polymorphism ?

   (e) What do you understand by Data Abstraction ?

   (f) Write the name of the function in C++ used for opening a file for input only.

   (g) What is the use of friend function in C++ ?

   (h) What is the purpose of constructors in C++ ?

   (i) What do understand by dynamic modelling ?

   (j) What is a Candidate Key ?

SECTION–B

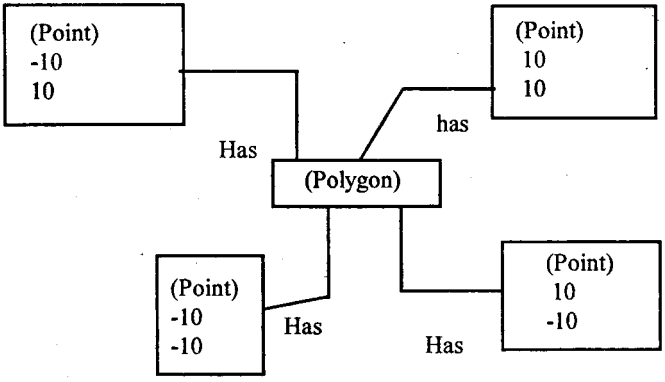
2. Attempt any **three** parts : **(10×3=30)**

   (a) Explain different Object Modelling Technique (OMT)

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models ? Prepare a class diagram from the instance diagram. Explain your multiplicity decision. Each point has a X-coordinate and Y-coordinate. What is the smallest number of points required to construct a polygon ?



(b) Differentiate between Object Oriented Programming and Procedural Programming ? Write a program in C++ by creating a class of integers and write a function that prints all the Prime numbers from the class.

(c) What is the purpose of levels in DFD ? Explain by drawing a DFD for the automation of Library in your college. Draw upto 3 levels of DFD.

(d) Write a program in C++ to add, multiply, divide and subtract two complex numbers using the concept of operator overloading.

(e) A File contains a list of telephone numbers in the following form :

Name	Phone
Amit	9213654291
Laptop	9659213008
.....	.....
.....	.....

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The name contains only one word and the names and telephone numbers are separated by white spaces. Write a program in C++ to read the file and output the list in two columns as shown above.

SECTION–C

Attempt **all** questions. **(5×10=50)**

3. Attempt any **two** parts :

   (a) What is the difference between link and association ? Draw an object diagram to explain.

   (b) Explain pattern and metadata with suitable example ?

   (c) Define the term multiplicity and quantification with suitable examples.

4. Attempt any **two** parts :

   (a) Differentiate between the following :

      (i) Aggregation and Association

      (ii) Generalization and Specialization.

   (b) What are Nested State diagrams ? Why are they useful ? Explain with suitable examples.

   (c) Describe events and states. How is a state diagram prepared ? Explain by suitable examples.

5. Attempt any **two** parts :

   (a) Define UML. Draw a UML diagram for the automation of training and placement office of any college. Make suitable assumptions if required and explain them clearly.

   (b) What is Exceptions. Explain with suitable examples.

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(c) Explain the following for functional modelling :

(i) Data store

(ii) Context diagram.

6. Attempt any **two** parts :

(a) What do you understand by inheritance ? Explain the different types of inheritance by taking a suitable example.

(b) Write a program in C++ to differentiate between function overloading and function overriding.

(c) Explain the following concepts in C++ by taking suitable example :

(i) String class

(ii) Arrays of Objects

7. Attempt any **two** parts :

(a) How File handling is done in C++. Explain by taking a suitable example.

(b) Write a program in C++ using class and objects. Take array of objects and explain how it can be used.

(c) Write short notes on the following :

(i) C++ streams

(ii) Class Templates.

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