

Total No. of printed pages = 3

INT054104

Roll No. of candidate

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**2017**

**End Semester M.Sc. (IT) Examination**

**1<sup>st</sup> Semester**

**Object-Oriented Programming and Design**

Full Marks- 70

Time- 3 hours

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The figures in the margin indicate full marks.

**PART – A**

**Q.1. Answer all the questions:**

**16 x 1 = 16**

- a) Define polymorphism.
- b) Define encapsulation.
- c) Differentiate between a class and an object.
- d) Name the three different access specifiers in C++.
- e) What is multiple inheritance?
- f) What is an abstract class?
- g) What is a pure virtual function?
- h) What is an exception?
- i) Define UML.
- j) What is Software Development Life Cycle?
- k) What is the use of structural diagrams in UML?
- l) Where is a class diagram used?
- m) What is a use case diagram?
- n) Define a process and a thread.
- o) What is a deployment diagram?
- p) What is a component diagram?

**PART – B**

**Q.2. Answer all the questions:**

**3.5\*4=14**

- a) What is a friend function? What is the advantage of using a friend function?
- b) What is an abstract class? Give the properties of an abstract class.
- c) Write a note on purpose of class diagram.
- d) Write a note on purpose of use case diagram.

**PART – C**

**Q.3.**

**5+5=10**

- a) What do we mean by overloading of a function? Explain with an example when do we use this concept?
- b) What is unary operator overloading? Explain briefly taking a suitable example.

OR

- c) What is a constructor? Explain briefly taking a suitable example.
- d) What is a destructor? Explain briefly taking a suitable example.

**Q.4.**

**5+5=10**

- a) What is inheritance? With a neat diagram explain the different types of inheritance.
- b) What is a virtual function? Why do we need virtual function?

OR

- c) What is a virtual base class? Why is it required?
- d) What is runtime polymorphism? Explain briefly.

**Q.5.**

**5+5=10**

- a) With a neat diagram explain the architecture of UML.
- b) Write a note on Software Development Life Cycle Model.

OR

- c) What is the importance of a class diagram? For any application of your choice draw a neat UML class diagram.
- d) What is the importance of a object diagram? For any application of your choice draw a neat UML object diagram.

**Q.6.**

**5+5=10**

- a) What is the purpose of a use case diagram? For any application of your choice draw a neat UML use case diagram.
- b) What is the purpose of an interaction diagram? For any application of your choice draw a neat UML sequence diagram.

OR

- c) What is the purpose of a state chart diagram? For any application of your choice draw a neat UML state chart diagram.
- d) For any application of your choice draw a neat UML deployment diagram.

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