D 27125 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2006

IT 04 506—DATA MODELLING OF DESIGN

(2004 admissions)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

1. (a) Define Abstraction and Encapsulation.
   (b) Explain Typing and Binding with examples.
   (c) Differentiate composition with aggregation.
   (d) Give an example for navigation diagrams.
   (e) Define class cohesion-with examples.
   (f) How does "class" differ from "type" ? Explain with examples.
   (g) Discuss the problems of inheritance.
   (h) Consider the "Banking" system. Bring out the inheritance and polymorphic features present in it.

   (8 × 5 = 40 marks)

2. (a) Discuss in detail the features of object oriented programming paradigm. (15 marks)

   Or

   (b) (i) Consider the class for complex number objects. Perform addition and multiplication of complex number objects through a program. (8 marks)

   (ii) Explain message passing with examples. (7 marks)

3. (a) (i) Explain collaboration diagram. (8 marks)

   (ii) Define association with four examples. (7 marks)

   Or

   (b) Explain state transition diagram in detail. (15 marks)

4. (a) (i) Define class invariants with examples. (7 marks)

   (ii) For a system like "Travel Information System", provide suitable class diagrams. (8 marks)

   Or

   (b) For any example of your choice, discuss how object orientation can be applied. (15 marks)

Turn over

5. (a) (i) Explain function overloading and over-riding. (7 marks)

(ii) Highlight the features of components. (8 marks)

Or

(b) (i) Differentiate lightweight and heavyweight components. (8 marks)

(ii) Explain runtime polymorphism with examples. (7 marks)

[4 × 15 = 60 marks]