

**D 51645**

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Name.....

Reg. No.....

**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
DECEMBER 2008**

**IT 04 506—DATA MODELLING AND DESIGN**

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

- I. (a) Define : class and object with examples.  
(b) What is meant by 'class hierarchy' ? Explain.  
(c) Define association. Also, explain various cardinalities present in association.  
(d) Explain interface diagram with example.  
(e) Describe the structure of Encapsulation.  
(f) What are class invariants ? Explain.  
(g) Explain over-riding with examples.  
(h) Differentiate light weight and heavy weight components.

(8 × 5 = 40 marks)

- II. (a) Compare object oriented programming with procedure oriented programming with examples.  
(15 marks)

*Or*

- (b) Define :  
Abstraction ; Encapsulation ; Message passing ; Dynamic Binding ; Reusability.  
(15 marks)

- III. (a) (i) Explain collaboration diagram with an example. (8 marks)  
(ii) Explain the concept of 'package'. (7 marks)

*Or*

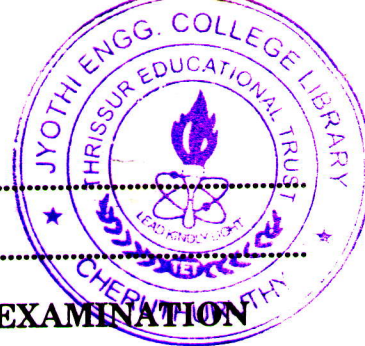
- (b) Discuss the significance of :  
Deployment diagram ;  
Navigation diagram  
with proper examples.  
(15 marks)

- IV. (a) Explain :  
Class cohesion ; Principles of Type conformance ; Principles of closed behaviour.  
(15 marks)

*Or*

- (b) Consider ATM example. Provide class diagram and state transition diagram with neat diagram.  
(15 marks)

**Turn over**



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(8 marks)

(7 marks)

- (a) (i) Compare components with objects.  
(ii) Explain polymorphism with example.

Or

(8 marks)

- (b) (i) Write note on various types of inheritances.  
(ii) Consider reservation of tickets in a railway station. Provide use case diagram and also various classes with their definitions.

(7 marks)

[4 × 15 = 60 marks]