

***B. Tech Degree VII Semester (Supplementary) Examination,  
July 2009***

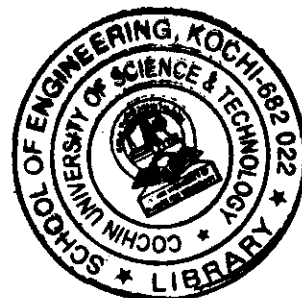
**CS 703 ANALYSIS AND DESIGN OF ALGORITHMS  
(2002 Scheme)**

Time : 3 Hours

Maximum Marks : 100

- I. Explain the criteria used for analysing algorithm and problem. (20)  
**OR**
- II. (a) Solve the recurrence equation  $T(n) = 2T(\sqrt{n}) + 1$ . (10)  
(b) Explain the following with examples  
(i) Recurrence Equation (ii) Graph  
(iii) Greedy algorithm (10)
- III. Explain Quick Sort algorithms with an example. Analyse the worst case, best case and average case behaviour of quick sort. (20)  
**OR**
- IV. (a) Explain insertion sort. Analyse its complexity. (12)  
(b) What is the use of hashing technique? (8)
- V. (a) Explain graph and graph traversal technique. (12)  
(b) Explain strongly connected component algorithm. (8)  
**OR**
- VI. Define Spanning Tree. Explain Kruskal's algorithm for finding the minimum cost spanning tree with an example. (20)
- VII. Explain Warshalls algorithm for finding transitive closure. (20)  
**OR**
- VIII. Explain Floyd's all pair shortest path algorithm with example. (20)
- IX. (a) Explain traveling salesperson's problem. (10)  
(b) Explain Widgerson's graph coloring algorithm. (10)  
**OR**
- X. Explain various Bin Packing strategy. Analyse the behaviour. (20)

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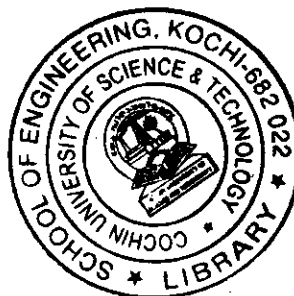
**CS 704 COMPUTER GRAPHICS**  
(1999 Scheme)

Time : 3 Hours

Maximum Marks : 100

- I. (a) With the help of a neat diagram explain raster scan system. (10)  
(b) Explain Bresenham's line drawing algorithm. (10)  
**OR**
- II. (a) What is the basic principle of seed filling algorithms? Explain different seed filling algorithms. (10)  
(b) Explain different logical classifications of input devices. (10)
- III. (a) What is homogeneous coordinate system? How it is useful in transformations? Explain with example. (10)  
(b) Explain window to view port transformation. (10)  
**OR**
- IV. (a) A polygon has 4 vertices located at A (20, 10), B (60, 10), C (60, 30) and D (20, 30). Find transformation matrix to double the size of the polygon with point 'A' located at the same place. (8)  
(b) Explain Sutherland – Hodgeman polygon clipping algorithm. (12)
- V. (a) Explain Bazier spline curves and surfaces. (10)  
(b) Explain any two fractal geometry methods in detail. (10)  
**OR**
- VI. (a) Explain three dimensional translation and rotation. (10)  
(b) Explain different projection techniques. (10)
- VII. (a) Explain the following visible surface detection algorithm :  
(i) Depth – buffer algorithm  
(ii) Scan – line algorithm  
(iii) A – Buffer algorithm. (3 x 5 = 15)  
(b) Compare image space and object space algorithms for visible surface detection. (5)  
**OR**
- VIII. (a) What is BSP tree? How it can be utilized for visible surface detection? (10)  
(b) Explain painters algorithm for visible surface detection. (10)
- IX. (a) Explain Goraud shading method. (8)  
(b) Explain any three colour models. (3 x 4 = 12)  
**OR**
- X. Write short notes on the following :  
(i) Morphing (ii) Animation  
(iii) VRML (iv) Ray tracing. (4 x 5 = 20)

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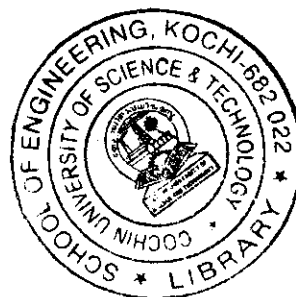
**CS 702 OBJECT ORIENTED MODELLING AND DESIGN  
(1999 Scheme)**

Time: 3 Hours

Maximum Marks: 100

- I Write Short note on: (4 x 5 = 20)  
i) Encapsulation  
ii) Polymorphism  
iii) Aggregation  
iv) Class hierarchy
- OR**
- II a) Differentiate between static binding and dynamic binding? (10)  
b) Describe object oriented system development life cycle? (10)
- III a) Explain different object modelling techniques. (10)  
b) Explain the basic building blocks of UML. (10)
- OR**
- IV a) What is UML dynamic modeling using a simple example? (10)  
b) Explain model management packages and model organization? (10)
- V a) Explain the analysis model using object oriented concept? (10)  
b) Define use cases and explain use case driven object oriented analysis? (10)
- OR**
- VI a) What are boundary objects and explain with suitable example? (10)  
b) What is business process modeling? (10)
- VII a) What is UML object constraint language? (8)  
b) What is interface specification concept and object constraint language? (12)
- OR**
- VIII a) Explain with example, specification inheritance and implementation inheritance in object oriented design. (10)  
b) What are the various guidelines for designing classes? (10)
- IX Explain the concept of distributed databases and distributed objects? (20)
- OR**
- X a) Explain RMI and Sockets? (6)  
b) Differentiate between a process and port. (7)  
c) What are the various testing strategies? (7)

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## ***B. Tech Degree VII Semester (Supplementary) Examination, July 2009***

### **IT/CS/EC/EI/EB 705 (C) ARTIFICIAL NEURAL NETWORKS (2002 Scheme)**

Time: 3 Hours

Maximum Marks: 100

- I. a. Explain the architecture of a multi-layer artificial neural network. Give a labelled diagram and show its working. (10)  
b. What is meant by Linear Separability? Explain a problem which is not linearly separable and suggest a method to solve it. (10)
- OR**
- II. a. What are activation functions? Give three examples with necessary graphical representation. (12)  
b. Explain (i) Hebbian learning Rule (ii) Delta Rule (8)
- III. a. Explain the Back propagation learning algorithm. Also draw the architecture of the Network. (12)  
b. What is meant by the momentum technique. (4)  
c. What is meant by (i) Local minima (ii) temporal instability (4)
- OR**
- IV. a. Explain the problems involved in Back propagation Training methods. (10)  
b. Explain how the initial weights and learning rate parameter is selected in Back propagation algorithm. (10)
- V. a. Draw the architecture of a counter propagation network and explain its normal mode of operation. (8)  
b. Explain the training process in the Kohonen layer and Grossberg layer of a CPN. (12)
- OR**
- VI. a. In Kohonen learning, how are the initial weights assigned. Discuss the various methods used. (10)  
b. Show how input –vectors are preprocessed in a CPN with help of an example (5)  
c. Discuss the problems involved when weights are assigned randomly in the Kohonen layer of a CPN? (5)
- VII. a. Explain what you mean by statistical methods. Give an example. (10)  
b. Discuss the application of statistical methods to general non-linear optimization problems. (10)
- OR**
- VIII. a. Compare and contrast Boltzman Training and Cauchy Training. Give their graphs. (10)  
b. Explain what you mean by  
(i) Simulated annealing  
(ii) Artificial specific heat methods (10)
- IX. a. Explain the architecture of a Hop field Network. How is it related to Bidirectional Associative memory and how are its weights assigned? (12)  
b. What do you mean by  
(i) mutation in genetic algorithms  
(ii) Cross-over in genetic algorithms. (8)
- OR**
- X. a. Draw the architecture of BAM, properly labelled. Give a problem that can be solved with the help of the Network. (10)  
b. Explain how weights are computed in Bidirectional Associative memory. Also show how associations are stored and retrieved. (10)

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