Total No. of Questions : 8] [Total No. of Printed Pages : 2

MCA–505(D)

M. C. A. (Fifth Semester)
EXAMINATION, May/June, 2006
ENTERPRISE RESOURCE PLANNING (ERP)
(Elective–II)
[MCA–505(D)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What is the role of Materials Management in an organization ?

   (b) Explain *four* principles of Forecasting.

2. (a) What is the role of strategic planning as a typical business processes ?

   (b) Explain the motivation factor for ERP.

3. (a) What is ERP ? Explain the role of ERP to fulfil information needs of an organization.

   (b) List the different criteria which can be used in decision-making.

P. T. O.

4. (a) What is Management Information System (MIS) ? How does the knowledge of business and business environment helps when you design the MIS ?

   (b) What are the pros and cons of integration in ERP system ?

5. (a) Explain different technologies required for ERP.

   (b) Explain the important features of the different modules of ERP.

6. (a) Describe post-implementation issues of ERP.

   (b) What are the issues to be considered in selecting an ERP ?

7. (a) Explain various problems of an ERP implementation.

   (b) How do companies organize their ERP projects ? Explain ERP Project Management.

8. Write short notes on any *four* of the following :

   (i) Productivity Management

   (ii) Sales order processing

   (iii) Needs for integrating business functions

   (iv) EDP

   (v) Executive Information System (EIS)

   (vi) Financial justification of ERP

   (vii) MRP

Total No. of Questions : 8] [Total No. of Printed Pages : 2

MCA–505(D)

M. C. A. (Fifth Semester) EXAMINATION, Dec., 2005

ENTERPRISE RESOURCE PLANNING (ERP)

(Elective – II)

[MCA – 505(D)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Explain various Business functions in an organization.
   (b) What are the various factors influencing productivity ?

2. Explain the problems of traditional business functions which forces for integrated process view, taking example of any *one* business organisation.

3. (a) Explain Information Technology plan for ERP.
   (b) Discuss the stage in the growth cycle of business and the role of Management Information System (MIS) in each stage.

4. (a) Explain the benefits of EDI process.
   (b) What is Executive Information System (EIS) ? What kind of decisions EIS would support ?

P. T. O.

5. (a) What is MRP ? Explain three inputs of MRP.
   (b) Explain data warehouse and Data Mining Techniques.

6. (a) Describe Pre-implementation issues of ERP.
   (b) What are the different ways of Performance Measurement of ERP implementation in an organisation ?

7. (a) How can ERP improve a company's business performance ?
   (b) What are the hidden costs of ERP ?

8. Write short notes on any *four* of the following :
   (i) Motivation for ERP
   (ii) Finance Module of ERP
   (iii) Business Process Re-engineering (BPR)
   (iv) Post-implementation issues of ERP
   (v) Client-Server Architecture
   (vi) ERP Project Management

Total No. of Questions : 8] [Total No. of Printed Pages : 2

MCA–505(C)

M. C. A. (Fifth Semester) EXAMINATION, June, 2005

(Elective – II)

[E_2 (c)]

DATA WAREHOUSING AND MINING

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Differentiate between operational databases and a data warehouse.

   (b) Discuss the data warehouse architecture.

2. (a) Give dimensions of a sales data warehouse are time, items, branch and location. Create star schema and snowflake schema for the sales data warehouse. You can assume any number of levels for each dimension ?

   (b) What are the steps involved in data warehouse construction ?

3. (a) Discuss briefly data cube computation technique for data warehouse implementation.

   (b) What is OLAP ? What are different types of OLAP ? Explain them.

4. (a) Discuss briefly the various types of OLAP operations.
   (b) Discuss briefly the various data pre-processing techniques.

5. (a) What kinds of patterns are discovered by data mining ? Explain them.
   (b) What are the steps involved in Data Mining ? Explain them.

6. (a) What are the methods of association rule mining ? Explain briefly.
   (b) Why do we perform attribute relevance analysis ? Explain the steps involved in attribute relevance analysis.

7. (a) How class comparison is performed ? What criteria is used to compare the classification and prediction methods ?
   (b) What are different types of clustering methods ? Explain briefly.

8. Write short notes on any *two* of the following :
   (a) Indexing
   (b) Snowflake Schemas
   (c) Primitive types of Data Mining
   (d) Outlier Analysis

Total No. of Questions : 8] [Total No. of Printed Pages : 3

MCA–505(C)

M. C. A. (Fifth Semester) EXAMINATION, June, 2004

(Elective–II)

[E_2 (C)]

DATA WAREHOUSING AND MINING

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. Differentiate between the following :
   (a) KDD and Data mining
   (b) Static and Dynamic Discretization
   (c) Hidden and Deep Knowledge
   (d) Local and Global Modeling

2. (a) What are the basic techniques used to build a dataware house ? Explain with the help of an example.
   (b) Explain briefly the various stages of knowledge discovery process with the help of an example.

3. (a) "Online Analytical processing is not as powerful as data mining." Comment.
   (b) Suppose that one needs to record three measures in a data cube : min, average and median. Design an

efficient computation and storage method for each measure given test the cube allows data to be deleted incrementally.

4. (a) Write down the A priori Algorithm and illustrate the working of it with the help of an example.

   (b) Why is tree pruning useful in decision tree induction ? What is the drawback of using a separate set of samples to evaluate pruning ?

5. (a) Discuss the importance of cluster features. How do these help is clustering large database ? How are these different from the cluster representatives ?

   (b) Describe why concept hierarchies are useful in data mining ?

6. (a) Discuss the importance of establishing a standardised data mining query language. What are some of the political benefits and challenges involved in such task ?

   (b) What are the different methods of computing the best split ? What is the gini index ? What are entropy gain and gain ratio ?

7. (a) Describe the essential features of temporal data and temporal inferences.

   (b) What are the different neighbourhood relationships that can be used for density based clustering of spatial data ?

8. Write short notes on any *four* of the following :

   (a) Architecture of data mining

   (b) Operational Database

(c) HOLAP

(d) Data mining primitives

(e) Data cleaning

(f) Data Transformation

Total No. of Questions : 8] [Total No. of Printed Pages : 4

MCA–505 (B)

M. C. A. (Fifth Semester) EXAMINATION, Dec., 2004

(Elective – II)

[E_2 (b)]

DESIGN AND ANALYSIS OF ALGORITHMS

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What criterian are used to design and analyse an algorithm ? 8

   (b) What is the role of asymptotic behaviour of the function in computing algorithm ? What notations are used for this purpose ? 8

   (c) How to produce a complete analysis of the computing time of an algorithm ? 4

2. (a) Distinguish between divide and conquer, greedy and branch and bound techniques of algorithm design. 8

   (b) Design the binary search algorithm to find x in an ordered list of numbers. Do its worst care behaviour analysis and compare with other algorithms in this category ? 12

P. T. O.

3. (a) Design an algorithm to find smallest and largest element in a list of n entries. Your algorithm should do at least roughly $1 \cdot 5n$ comparisons. Justify your claim. 10

   (b) Prove that any algorithm that works by comparison of keys to find the second largest key in the list of n keys must do at least $n + \lceil \log n \rceil - 2$ comparisons in worst case. 10

4. (a) Write an algorithm that multiply two square matrices of order n using $0(n^3)$ operations. Find the number of multiplications, additions and array elements accesses. 7, 1, 1, 1

   (b) Write quick sort algorithm and do its average behaviour analysis. Complexity of your algorithm must be approximately $1 \cdot 4 (n + 1) \log (n)$ for n keys in the list. 10

5. (a) Write Depth first search and Breadth first search algorithm for traversing a digraph. Find their complexity also. 3, 3, 2, 2

   (b) List the values is char jump and match jump array for the Boyer-Moore algorithm for the following pattern assuming alphabet (A, B ..... , Z) : 5, 5

   ABRACADABRA

6. (a) Design PRAM algorithm for finding the maximum of n numbers. Illustrate the implementation of your algorithm to show its efficiency over the sequential algorithm. 6, 4

(b) A list of distinct keys in decreasing order is to be sorted (into increasing order) by Heap sort.

(i) How many comparisons of keys are done in heap construction phase, if there are 10 keys ? 6

(ii) Is a list in decreasing order a best, worst or intermediate case of heap construction ? Justify your answer. 4

7. (a) For the graph in the following fig. 1, indicate which edge would be in minimum spanning tree constructed by MST algorithm ? What is the work done by the algorithm in worst case ? 6, 4

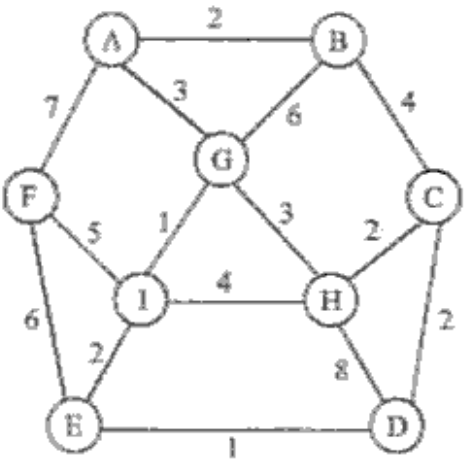


Fig. 1

(b) Write an algorithm for shortest path problem based on Greedy method and write down the action of shortest path algorithm for the graph in ahead fig. 2 from A to H. 10

P. T. O.

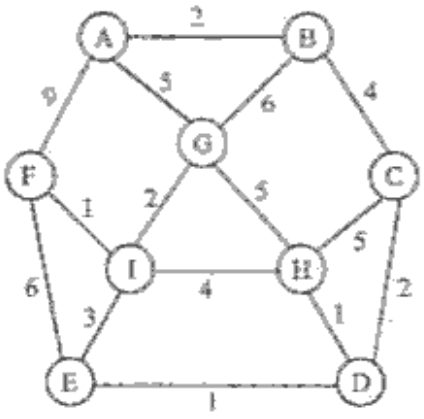


Fig. 2

8. Write short notes on any *four* of the following : 5 each

   (a) Horner's method

   (b) Parallel models

   (c) Binary fan-in technique

   (d) Merge sort

   (e) Tournament method

Total No. of Questions : 8] [Total No. of Printed Pages : 3

MCA–505(C)

M. C. A. (Fifth Semester) EXAMINATION, Dec., 2004

(Elective – II)

[E_2 (c)]

DATA WAREHOUSING AND MINING

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What does data mining actually mean in practice ? Is it really being applied or is it only hype ? Differentiate between Prescriptive *vs.* Descriptive Data mining. 10

   (b) What is the purpose of Neural Networks in Data mining ? When one cannot use Neural Networks in Datamining ? Explain with the help of an example. 10

2. (a) Differentiate between star schema and snow flake schema with the help of an example. 8

   (b) How Data cleaning is different from the data transformation ? 6

   (c) "A data warehouse is built on historical data and is not guaranteed to be up-to-date information." Comment.

3. (a) What are the different ways of interfacing a data mining system with database system ? 7

   (b) What are the different phases of BIRCH ? How are they important in clustering ? 7

   (c) Compare the advantages/disadvantages of eager classification and lazy classification. 6

4. (a) Define a FP-tree. Discuss the method of computing a FP-tree. 8

   (b) Distinguish between global and local normalization in STIRR. 7

   (c) Define the following : 5

   (i) Cluster-projection

   (ii) Intra-attribute summary

5. (a) Describe the CLOUD algorithm and discuss its advantages over SLIQ. 8

   (b) How is SVM different from MLP-based classification ? 6

   (c) What do you mean by DATA in Data warehousing ? What are the different categories of DATA ? 6

6. (a) "The pincer-search algorithm finds only maximal frequent sets." Comment. 8

   (b) What is the incremental discovery of an association rules ? What are the algorithms for incremental discovery ? Discuss the important features of the algorithm. 12

7. (a) Differentiate between two and three tier Architecture of Data warehousing. 8

(b) How do you handle spatial and non-spatial data, while carrying out any mining task ? 6

(c) What is the concept of hierarchy ? How is it related to web mining ? 6

8. Write short notes on any *four* of the following : 20

(a) Types of databases

(b) Data mining query language

(c) Fact constellation

(d) OLAP servers

(e) Data Reduction

(f) KDD

Total No. of Questions : 8] [Total No. of Printed Pages : 3

MCA–505 (A)

M. C. A. (Fifth Semester) EXAMINATION, Dec., 2004

(Elective – II)

[E_2 (a)]

PARALLEL COMPUTING

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks. Make suitable assumptions wherever needed.

1. (a) For a particular algorithms, assume that 15% of the code is purely sequential and cannot be parallelized. Use the Amdahl's law to find the maximum speed up and efficiency when the number of processors are 6, 12 and 18.

   (b) What do you mean by cache coherence problem ? Explain any *one* solution of the problem.

2. (a) What are the different categories of the parallel algorithms ? Which one of the algorithms are best suited for mesh models ?

   (b) Write down an algorithm for the addition of two binary numbers on linear mesh. Also give the algorithm complexity.

3. (a) Design an algorithm to sort a sequence of length n in $0 (\log n)$ time using $0 (n/\log n)$ processors.

P. T. O.

(b) Differentiate between the following : 6, 4

(i) Processor arrays and Multiprocessors and Multicomputers

(ii) Parallel computing and Parallel Processing

4. (a) Write down the fast Fourier transform algorithm on hypercube topology. Also give its complexity.

(b) Write down the algorithm of Bitonic merge. Give its complexity.

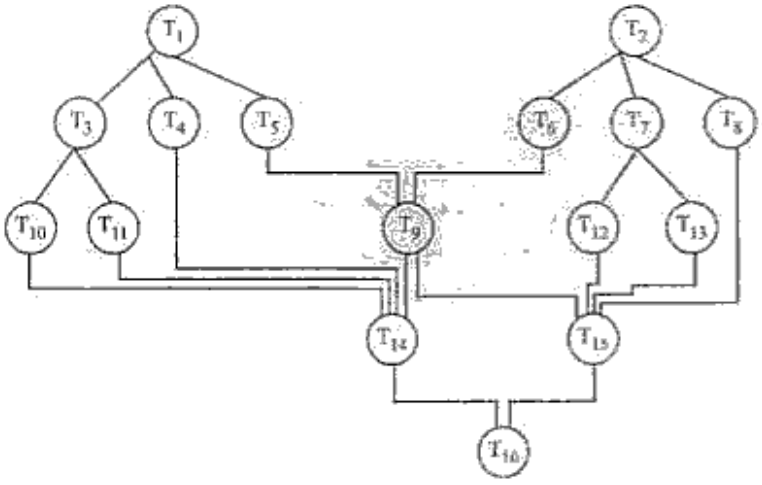
5. Write down the algorithm of Gaussian Elimination method on SIMD–MC^2 topology with its complexity.

6. (a) Give an example of bitonic list with 32 elements. Apply binary-split operations to the list and show the resultant list.

(b) Write the matrix transpose alglorithm on SIMD-CC with its complexity.

7. (a) Differentiate among various types of MIMD algorithms. 6

(b) Consider the dependency graph for 16 tasks. 14



Time for each task is given as follows :

Task	Time
T_1	5
T_2	2
T_3	3
T_4	4
T_5	1
T_6	10
T_7	7
T_8	8
T_9	2
T_{10}	5
T_{11}	3
T_{12}	2
T_{13}	1
T_{14}	6
T_{15}	7
T_{16}	8

Find out the optimum time with 4 No. of processors. Also calculate the speed up and efficiency of the schedule algorithm.

8. Write short notes on any *four* of the following :
   (a) Quick sort
   (b) Analysis of parallel algorithms
   (c) Flyms taxonomy
   (d) Prefix-Sum algorithm
   (e) Minimum cost spanning tree
   (f) Deadlock

Total No. of Questions : 8] [Total No. of Printed Pages : 2

MCA–505(D)

M. C. A. (Fifth Semester) EXAMINATION, Dec., 2004

(Elective – II)

[E_2 (d)]

ENTERPRISE RESOURCE PLANNING

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. What are the major functions of any business ? Explain the importance of the functions with the help of an example.

2. (a) What do you mean strategic planning ? Discuss its prons and cons with example.

   (b) "ERP consider each activity in a process as the part of the process rather than separately." Comment.

3. (a) What do you mean by Enterprise Resource Planning ? What should one consider when evaluating an ERP upgrade ?

   (b) Explain the three tiered architecture used for computer support of SAP.

4. (a) Can the two separate plants run on one SAP system or should each plant have their own versions of the software ? Advantages/disadvantages of each method.

P. T. O.

(b) What do you see as the pros and cons of centralized versus decentralized project documentation ?

5. (a) What are the most important pain areas for users in the telecom industry that can be addressed by implementing a business intelligence solution ?

(b) Could we use a corporate portal to provide better access to company data rather than implement an ERP system ?

6. (a) How can a company assess process, organization and cultural issues before one can implement ERP ?

(b) What are the various advantages/disadvantages of Data Warehousing ? How is it related with ERP ?

7. (a) Will CRM/SCM modules be sold as a different module or will CRM/SCM will be part of the ERP system ?

(b) How do you estimate the effort (lost and schedule) prior to committing to a project ?

8. Write short notes on any *four* of the following :

(a) Electronic Data Processing

(b) Executive Information Systems

(c) Post Implementation Issues

(d) Re-engineering

(e) Core processes

(f) Data Redundancy

Total No. of Questions : 8] [Total No. of Printed Pages : 2

MCA – 505(C)

M. C. A. (Fifth Semester) EXAMINATION, Dec., 2003

(Elective – II)

[E_2 (c)]

DATA WAREHOUSING AND MINING

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Define data warehouse. Discuss its 3 Tier architecture.
   (b) Differentiate between data warehouse and operational databases.

2. (a) What are the different types of databases ? Explain them.
   (b) Differentiate between a data warehouse and a data mart. What is the role of data mart in data warehousing ?

3. (a) What are the steps involved in data mining ?
   (b) Explain the major components of a data mining system architecture.

4. (a) Differentiate between OLTP and OLAP.
   (b) What is OLAP ? Discuss the basic operations of OLAP.

5. (a) Develop a star schema for a sales database where the dimensions are time, location, product and salesman. Assume any number of attributes for each dimension.

   (b) What are the steps involved in design and construction of a data warehouse ?

6. (a) What are the different types of OLAP servers ? Explain them.

   (b) Discuss the cube computation technique for data warehouse implementation.

7. (a) What are the methods of association rule mining ? Explain them.

   (b) What criteria is used to compare the classification and prediction methods ?

8. (a) Explain the classification by decision tree induction.

   (b) Discuss the back propagation method.