BENGAL ENGINEERING AND SCIENCE UNIVERSITY, SHIBPUR

B.E. (EE) 7th Semester Final Examination December 2012

Subject: Advanced Programming for Electrical Engineering

Paper / Code No: (EE –706/2) **Branch: Electrical Engineering**

Time: 2 Hours **Full Marks: 35**

i) Answer any four (4) questions taking two(2) from each half
ii) Marks reserved for neatness in each half : 1.5(one and a half)

FIRST HALF

1. (i) Explain the following terms:
(a) Fill-in of a sparse matrix, (b) Optimal Ordering of a sparse coefficient matrix,
(c) Speed-up of a parallel process (3)

(i) Explain how eight numbers can be arranged in ascending order by 4 parallel processors using odd-even transportation sorting algorithm. (5)

2. (i) What are the advantages of storing a large matrix with a very high degree of sparsity in compact form? Justify your answer. (2)

(ii) Matrix A is stored in compact form using modified coordinate method as follows:

ValA =

2	1	7	4	6	3	1	8

ColA =

1	3	5	2	4	3	2	5

RowstA =

1	4	6	7

Matrix B is stored in compact form using modified coordinate method as follows:

ValB =

2	3	5	4	7	6	8

ColB =

2	3	3	4	2	3	5

RowstB =

1	3	5	6

Calculate:

(i) degree of sparsity of matrix A and matrix B

(ii) elements of matrix C = A + B

(iii) elements of matrix D = A - B

(iv) degree of sparsity of C and D (1 + 2 + 2 +1)

3. (i) Define (a) dominant eigen value and (b) dominant eigen vector of a matrix (2x1)

(ii) Calculate the dominant eigen value and dominant eigen vector of the following matrix using Power method.

3	-1	0
-1	2	-1
0	-1	3

Use

1
1
1

as the starting vector. (6)

SECOND HALF

4. (i) What is Relationship Diagram? Explain it with a suitable illustration. (4)
(ii) Explain the types of SQL JOINs with appropriate examples. (4)

5. (i) What is sub-query? How IN and NOT IN clauses are used in SQL queries? (2)
(ii) Discuss on the following SQL commands/clause with appropriate examples.
UNION, CREATE TABLE and FOREIGN KEY (3x2)

6. Write brief notes on any two of the following topics. (4 x 2)
(i) FTP and DNS
(ii) DML and DCL
(iii) Trigger