

M.Tech. (Sem. II) (Main) Examination, October - 2009

Computer Science & Engineering

(2MCS4.2 (Elective-I) High-Performance Scientific Computing)

Time : 3 Hours]

[Total Marks : 100

[Min. Passing Marks : 33

Attempt any **five** questions. Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever **necessary** to clearly illustrate your answer. Assume missing data suitably if any and specify the same.

Use of following supporting materials is permitted during examination.

(Mentioned in form No. 205)

1. Nil

2. Nil

1. Why high performance scientific computing is advanced ? Which type of environment is provided for high performance scientific computing.

12+8

- 2 (a) Produce following matrix in MATLAB :

$$A = \begin{pmatrix} 0 & 1 & 0 & 0 & 0 \\ 1 & 0 & 1 & 1 & 1 \\ 0 & 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 \end{pmatrix}$$

Calculate Transpose of A and calculate paths of length 2 or more, if exists,

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Write commands in IDL (using examples) :

- To declare 3×2 byte array and display it.
- Find dot product of matrix with itself.
- Draw a plot A versus B using dashed line style.
- To find total sum of values in matrix.

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