**MEEN-673 Nonlinear Finite Element Analysis Assignment-5**

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*Please follow the order and format used here. Just fill out the values of in the corresponding tables for each problem. If you have any plots that you want to include, include them at the end of each problem and name them appropriately.*

# Problem 1 :Simply Supported plate (SS-3)

Input files for Problem 1 goes here. Example:

Problem 1a: Simply supported(SS3) plate 8X8 L4

1 MODEL (Not used)

4 2 1 1 NA NA NA 1 2 NPE,NGPF,NGPR,NGPS,NSTR,MESH,NPRNT,IGRAD,NONLIN

3 SS

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 8 | 8 |  |  | NX,NY |  | |
| 0 | 0.625 | 0.625 | 0.625 | 0.625 0.625 0.625 0.625 | 0.625 | X0,DX(I) |
| 0 | 0.625 | 0.625 | 0.625 | 0.625 0.625 0.625 0.625 | 0.625 | Y0,DY(I) |

84 NSPV

zeros(NSPV,1) VSPV

[Table](https://docs.google.com/spreadsheets/d/1mpbFd03O2nITkyFKsG1FSRRlypMLSW8LfIhNwPVCTmU/edit?usp=sharing) ISPV

Problem 1b: Simply supported(SS3) plate 4X4 Q9

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2 |  |  |  |  | MODEL (Not Used) |
| 9 | 3 2 2 | NA NA | NA 1 2 | 3 | NPE,NGPF,NGPR,NGPS,NSTR,MESH,NPRNT,IGRAD,NONLIN  SS |
| 4 | 4 |  |  |  | NX,NY |
| 0 | 1.25 | 1.25 | 1.25 | 1.25 | X0,DX(I) |
| 0 | 1.25 | 1.25 | 1.25 | 1.25 | Y0,DY(I) |

84 NSPV

zeros(NSPV,1) VSPV

[Table](https://docs.google.com/spreadsheets/d/1mpbFd03O2nITkyFKsG1FSRRlypMLSW8LfIhNwPVCTmU/edit?usp=sharing) ISPV

# Problem 2 : Clamped square plate

Input files for problem 2 goes here. Example

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Problem | | 2a: | Clamped | plate 8X8 L4 | | |
| 1 | |  |  | MODEL (Not Used) | | |
| 4 2 1 1 | | NA NA | NA 0 1 2  4 | NPE,NGPF,NGPR,NGPS,NSTR,MESH,NPRNT,IGRAD,NONLIN  SS | | |
| 117 | |  |  | NX,NY | | |
| 0 | 0.625 | 0.625 | 0.625 | 0.625 | 0.625 0.625 0.625 0.625 | X0,DX(I) |
| 0 | 0.625 | 0.625 | 0.625 | 0.625 | 0.625 0.625 0.625 0.625 | Y0,DY(I) |

117 NSPV

zeros(NSPV,1) VSPV

[Table](https://docs.google.com/spreadsheets/d/1UtGvraqD1r50w5fUR1fv1Nb_CetYrtCA3VgvKhhZq8E/edit?usp=sharing) ISPV

Problem 2b: Clamped plate 4X4 Q9

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2 |  |  |  |  | MODEL |
| 9 | 3 2 2 | NA NA | 0 1 2  4 |  | NPE,NGPF,NGPR,NGPS,NSTR,MESH,NPRNT,IGRAD,NONLIN  SS |
| 4 | 4 |  |  |  | NX,NY |
| 0 | 1.25 | 1.25 | 1.25 | 1.25 | X0,DX(I) |
| 0 | 1.25 | 1.25 | 1.25 | 1.25 | Y0,DY(I) |

117 NSPV

zeros(NSPV,1) VSPV

[Table](https://docs.google.com/spreadsheets/d/1UtGvraqD1r50w5fUR1fv1Nb_CetYrtCA3VgvKhhZq8E/edit?usp=sharing) ISPV

Table

Description automatically generated

Text, table

Description automatically generated

Table 1: Load parameter versus *w* for both SS-3 and clamped plates (Deflection at centre, ie x =0 , y = 0)

*h*

Table

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

Table 2: Load parameter versus stresses for SS-3 8X8 L4

(at center)

A picture containing table

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

Table 3: Load parameter versus stresses for SS-3 4X4 Q9

(at center)

A picture containing calendar

Description automatically generated

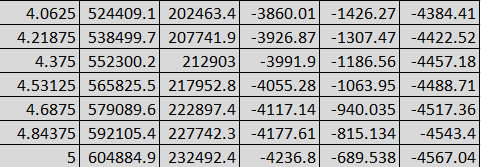


Table 4: Load parameter versus stresses for Clamped 8X8 L4

(at center)

A picture containing table

Description automatically generated

A screenshot of a computer

Description automatically generated with medium confidence

Table 5: Load parameter versus stresses for Clamped 4X4 Q9

(at center)

**Deflection Graphs**

Chart, line chart, scatter chart

Description automatically generated

Chart, line chart, scatter chart

Description automatically generated

Chart, scatter chart

Description automatically generated

Chart, scatter chart

Description automatically generated

**Stress Graphs**

**Chart, line chart

Description automatically generated**

**Chart, line chart, scatter chart

Description automatically generated**

**Chart, line chart

Description automatically generated**

**Chart, line chart

Description automatically generated**