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Unit 2 - Week 1

Register for Certification exam

Course outline

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Week 1

- Lecture 1: Introduction to Finite Element Analysis (FEA)
- Lecture 2: Philosphy of FEA, Nodes , Element and Shape Functions
- Lecture 3: Nodes, Elements and Shape Functions
- Lecture 4: Polynomials as Shape Functions, Weighted Residuals, Element and Assembly level equations
- Lecture 5: Types of Errors in FEA, Overall FEA process, Convergence

Assignment 01

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-03-13, 23:59 IST.**

1) Which of the following statement is true about Finite Element Analysis (FEA)? ***1 point***

- Residue obtained equals zero.
- The solution is exact.
- The solution is exact at boundaries.
- It is an analytical technique.

No, the answer is incorrect.
Score: 0

Accepted Answers:
The solution is exact at boundaries.

2) In finite element analysis over a domain, an interpolation function represents a _____. ***1 point***

- Change in variable over an element.
- Change in variable over the whole domain.
- Shape of the element.
- Shape of the whole domain.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Change in variable over an element.

3) While discretizing a domain in FEA, maximum error occurs when shape function is _____. ***1 point***

- Constant
- Linear
- Quadratic

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Basics of Finite Element Analysis-I : Feedback For Week 1
Assignment 01 Solution set
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Interaction session

- Cross-section is axisymmetric.
- Boundary Conditions are axisymmetric.
- Material properties are axisymmetric.
- Loading conditions are axisymmetric.
- All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above.

5) If a domain is discretized in to N linear 1-D elements, then the number of nodes will be: ***1 point***

- N
- N+1
- N-1
- 2N

No, the answer is incorrect.
Score: 0

Accepted Answers:
N+1

6) In a 1-D quadratic element (quad element), how many nodes are present? ***1 point***

- 1
- 2
- 3
- 4

No, the answer is incorrect.
Score: 0

Accepted Answers:
3

7) In FEA, the solution is said to be converging when _____. ***1 point***

- Element is converging to a point.
- Residue is tending to zero.
- Order of shape function is increasing.
- Number of elements is increasing.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Residue is tending to zero.

8) Which of the following will decrease the error? ***1 point***

- Increasing the number of elements.
- Increasing the order of shape functions.
- Increasing the number of decimals in numerical values.
- All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above.

9) What does $'w'$ represent in the following equation $(\int Error * wd\Omega)$? **1 point**

- Coefficients
- Weight Function
- Error Functions
- Residue

No, the answer is incorrect.
Score: 0

Accepted Answers:
Weight Function

Previous Page End