Assignment 0

The due date for submitting this assignment has passed. **Due on 2018-01-22, 23:59 IST.**

Submitted assignment

Based on the question 1, answer the following questions upto 10

1) The boom OA is supported by two cables as shown in the figure. Knowing that the tension in cable AB is 700 N, find the following **accurately up to first decimal place:**

The angle between the tensile force AB and x direction = ________ degrees.

No, the answer is incorrect.

**Score: 0**

**Accepted Answers:**

(Type: Range) 141.8, 142

Hint

2) The angle between the tensile force AB and y direction = ________ degrees.

No, the answer is incorrect.

**Score: 0**

**Accepted Answers:**

(Type: Range) 61.5, 61.7
3) The angle between the tensile force AB and z direction = ________ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 66.7, 66.9

4) The angle between the tensile force AC and x direction = ________ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 137.5, 137.7

5) The angle between the tensile force AC and y direction = ________ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 67.3, 67.5

6) The angle between the tensile force AC and z direction = ________ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 123.5, 123.7

7) The magnitude of the applied load, P = _________ N.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 523.9, 524.1

8) The tension in cable AC is _________ N.
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 497.2, 497.4

9) The compressive force in boom OA = _________ N.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 918.0, 918.2

10. The magnitude of \| F_{FA} + F_{AC} + F_{OA} \| = _________ N.

Based on the question 11, answer the following questions upto 25

11)

Compute the reaction forces and moment at fixed end A and report: accurately up to first decimal place

Magnitude of the component of the force along x direction, F_x = _________ N.

Hint
12) Magnitude of the component of the force along y direction, \( F_y = \) _______ N.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

13) Magnitude of the component of the force along z direction, \( F_z = \) _______ N.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

14) The magnitude of the resultant force, \( ||F|| = \) _______ N.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 250

15) The angle between the resultant force and x direction = _______ degrees.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 90

16) The angle between the resultant force and y direction = _______ degrees.
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 90

The angle between the resultant force and z direction = ________ degrees.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 180

Magnitude of the component of the moment along x direction, Mx = _______ Nmm.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

Magnitude of the component of the moment along y direction, My = _______ Nmm.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 69200

Magnitude of the component of the moment along z direction, Mz = _______ Nmm.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 12000

The magnitude of the resultant moment, ||M|| = ___________ Nmm.
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 70232.7, 70232.9

1 point

The angle between the resultant moment and x direction = _____ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 90

1 point

The angle between the resultant moment and y direction = _____ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 170.1, 170.3

1 point

The angle between the resultant moment and z direction = _____ degrees.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 80.1, 80.3

1 point

When the thickness of the member is changed from 20 mm to 10 mm the magnitude of the resultant force would increase by ___________ N.

Hint

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

1 point

Based on the question 26, answer the following questions up to 35
A simply supported beam made of steel of length, $L = 12$ m is subjected to a concentrated load, $P = 10$ kN at mid span. For this beam answer the following:

The $z$ component (horizontal) of the reaction force at the hinge end is ______ kN.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

1 point

The $y$ component (vertical) of the reaction force at the hinge end is ________ kN.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 5

1 point

The $y$ component (vertical) of the reaction force at the roller end is ________ kN.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 5

1 point

The maximum bending moment would occur at a distance of __________ m from the hinge end.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 6

1 point

The magnitude of the maximum bending moment would be __________ kNm.
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 30

31) The magnitude of the bending moment at hinge end is _____________ kNm.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

32) The magnitude of the bending moment at roller end is _____________ kNm.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0

33) The magnitude of the shear force at quarter span is _____________ kN.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 5

34) The magnitude of the shear force at three quarter span is _____________ kN.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 5

35) If the beam were to be made of rubber the magnitude of the maximum bending moment would increase by _____________ kNm.
A cantilever beam made of steel and of span 12 m, is carrying a uniformly distributed load of magnitude, 1 kN/m throughout the span. The load is acting in the vertically downward direction. For this beam answer the following:

36) The horizontal component of the reaction force at the fixed end is ________ kN.

37) The vertical component of the reaction force at the fixed end is ________ kN.

38) The magnitude of the bending moment at the fixed end is _____________ kNm.
39) The direction of the bending moment at the fixed end is ____________
   - Anticlockwise
   - clockwise

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Anticlockwise

40) The maximum bending moment would occur at a distance of __________ m from the fixed end.

   Hint

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   (Type: Numeric) 0

41) The magnitude of the maximum bending moment is ___________ kNm.

   Hint

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   (Type: Numeric) 72

42) The magnitude of the bending moment at free end is _____________ kNm.

   Hint

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   (Type: Numeric) 0

43) The order of the polynomial describing the variation of the bending moment along the span of the beam is _________.

   Hint

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   (Type: Numeric) 2

44) The order of the polynomial describing the variation of the shear force along the span of the beam is __________.
45) The magnitude of the shear force at the free end is ___________ kN.


46) The magnitude of the maximum shear force is ___________ kN.


47) The location of the maximum shear force is at a distance of __________ m from the fixed end.


48) The magnitude of the shear force at quarter span is __________ kN.


49) The magnitude of the shear force at three quarter span is _____________ kN.
No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 3

50) If the beam were to be made of rubber the magnitude of the maximum bending moment would increase by ______________ kNm.

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0