X

NPTEL

reviewer1@nptel.iitm.ac.in ▼

Courses » **Mechanics Of Materials**   Announcements   **Course**   Ask a Question   Progress   Mentor
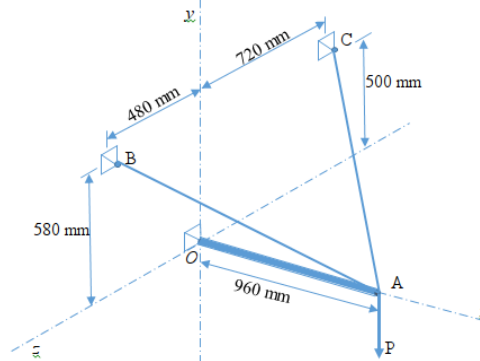
Unit 1 - Week 0

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

1 point

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

1 point

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

1 point

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

1 point

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

1 point

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

1 point

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

1 point

8) The tension in cable AC is _____ N.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 497.2, 497.4

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 918.0, 918.2

1 point

10 The magnitude of $|| \mathbf{F}_{AB} + \mathbf{F}_{AC} + \mathbf{F}_{OA} || =$ _____ **N.**

Hint

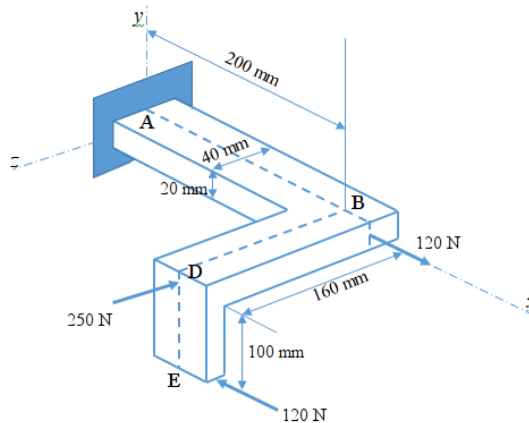**No, the answer is incorrect.**
Score: 0

Accepted Answers:
(Type: Range) 523.9, 524.1

1 point

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, Fx = _____ N.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

12) Magnitude of the component of the force along y direction, Fy = _____ N.

[   ]

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

13) Magnitude of the component of the force along z direction, Fz = _____ N.

[   ]

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 250

1 point

14) The magnitude of the resultant force, ||F|| = _____ N.

[   ]

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 250

1 point

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

[   ]

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 90

1 point

16) The angle between the resultant force and y direction = _____ degrees.

[   ]

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 90

1 point

17)The angle between the resultant force and z direction = _____ degrees.

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 180

1 point

18)Magnitude of the component of the moment along x direction, Mx = _____ Nmm.

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

19)Magnitude of the component of the moment along y direction, My = _____ Nmm.

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 69200

1 point

20)Magnitude of the component of the moment along z direction, Mz = _____ Nmm.

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 12000

1 point

21)The magnitude of the resultant moment, ||M|| = _____ Nmm.

[Hint]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 70232.7, 70232.9

1 point

22)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

23)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

24)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

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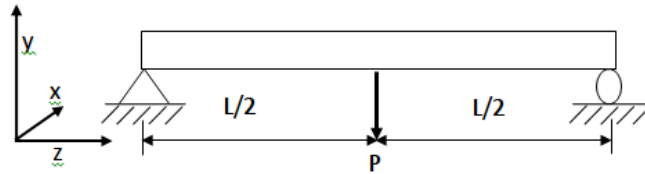
Hint

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

26

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.

Hint

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

1 point

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

Hint

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

1 point

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

Hint

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

1 point

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

Hint

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

1 point

30)The magnitude of the maximum bending moment would be _____ kNm.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 30

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 5

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
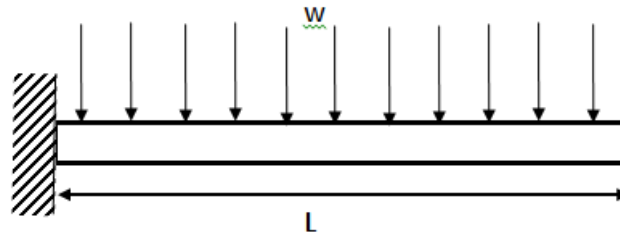*(Type: Numeric) 5*

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

Based on the question 36, answer the following questions up to 50

36

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:

The horizontal component of the reaction force at the fixed end is _____ kN.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 12

1 point

38)The magnitude of the bending moment at the fixed end is _____ kNm.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 72

1 point

39)The direction of the bending moment at the fixed end is _____   *1 point*

○ 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

1 point

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

[ ]

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 72

1 point

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

1 point

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

1 point

44)The order of the polynomial describing the variation of the shear force along the span of the beam is _____.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 1

1 point

45) The magnitude of the shear force at the free end is _____ kN.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 12

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 9

1 point

49) The magnitude of the shear force at three quarter span is _____ kN.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 3

1 point

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

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

End