

Unit 4 - Week 2

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Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-09-30, 23:59 IST.

- 1) A material is said to be isotropic if it possesses which one of the engineering property equally in all three directions 1 point
- (A) Ductility
 (B) Elasticity
 (C) Density
 (D) Hardness
- No, the answer is incorrect.
Score: 0
Accepted Answers: (B) Elasticity
- 2) Modulus of Rigidity is associated with 1 point
- (A) Axial Tensile Stress
 (B) Axial Compressive Stress
 (C) Shear Stress
 (D) Bending Stress
- No, the answer is incorrect.
Score: 0
Accepted Answers: (C) Shear Stress
- 3) Permissible Working Stress = 1 point
- (A) Yield Stress / Factor of Safety
 (B) Ultimate Stress / Factor of Safety
 (C) Yield Stress X Factor of Safety
 (D) Ultimate Stress X Factor of Safety
- No, the answer is incorrect.
Score: 0
Accepted Answers: (A) Yield Stress / Factor of Safety
- 4) During a tensile test, a bar sample shows an increment of 3% in its length. During the process, its diameter decreases by 1%. The Poisson's Ratio of the bar sample material is 1 point
- (A) 3
 (B) 0.33
 (C) 0.27
 (D) 0.17
- No, the answer is incorrect.
Score: 0
Accepted Answers: (B) 0.33
- 5) **For Question Number 5 to 7, please read the following statement and answer accordingly.** 1 point
- A tensile test was conducted on a metal rod test sample. The salient data obtained during the test is furnished below:
 Sample Length: 900mm
 Yield Stress: 150 N/mm²
 Ultimate Stress: 450 N/mm²
 Sample Length at Yield Point: 904.5mm
 Sample Length at Rupture: 975mm
- Young's Modulus of the metal in N/mm² is
- | | | | | | | | |
|-----|------|-----|-------|-----|-------|-----|-------|
| (A) | 5400 | (B) | 15000 | (C) | 30000 | (D) | 90000 |
|-----|------|-----|-------|-----|-------|-----|-------|
- A
 B
 C
 D
- No, the answer is incorrect.
Score: 0
Accepted Answers: C
- 6) Percentage elongation of the test sample is 1 point
- (A) 0.5
 (B) 4.42
 (C) 6.5
 (D) 8.33
- No, the answer is incorrect.
Score: 0
Accepted Answers: (D) 8.33
- 7) If the factor of safety is considered as 1.2. Then the Permissible Working Stress of the material in N/mm² will be 1 point
- (A) 125
 (B) 135
 (C) 375
 (D) 415
- No, the answer is incorrect.
Score: 0
Accepted Answers: (A) 125
- 8) A 250mm X 400mm reinforced concrete beam is simply supported over a clear span of 6m. The density of concrete is 24KN/m³. The maximum bending moment due to the self-weight of the beam is _____ KN-m.
-
- No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Numeric) 10.8
- 9) A 6-meter long cantilever beam is to carry a full span UDL. If the beam can hold a maximum bending moment of 90KN-m. The maximum intensity of the UDL that the beam can be loaded is _____ KN/m
-
- No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Numeric) 5.0
- 10) The 'Point of Contra-flexure' is a point in 1 point
- (A) BMD, where Bending Moment is Zero and changes its sign
 (B) SFD, where Shear Force is Zero and changes its sign
 (C) BMD, where Bending moment is Maximum and changes its sign
 (D) SFD, where Shear Force is Maximum and changes its sign
- No, the answer is incorrect.
Score: 0
Accepted Answers: (A) BMD, where Bending Moment is Zero and changes its sign
- 11) A 36KN tensile load on a rod produces 5mm extension. The cross sectional area and the original length of the rod is 60mm² and 2m respectively. Choose the one correct statement from the options below. 2 points
- | | |
|-----|--|
| (A) | Stress in the rod is 500 N/mm ² |
| (B) | Strain in the rod is 0.003 |
| (C) | Slope of the Stress-Strain Diagram is 85° |
| (D) | Young's Modulus of Elasticity of the material is 2.4X10 ⁵ N/mm ² |
- A
 B
 C
 D
- No, the answer is incorrect.
Score: 0
Accepted Answers: D
- 12) Match the salient points in the Stress-Strain curve in Group-I and the corresponding observations in Group-II 2 points
- | Group-I | Group-II |
|----------------------------|---|
| P Limit of Proportionality | 1 No permanent or residual Deformation |
| Q Yield Point | 2 Highest point of the stress-strain curve |
| R Elastic Limit | 3 Follow Hooke's Law |
| S Ultimate Strength | 4 Flow of material without any increase of stress |
- | | | | |
|-----|--------------------|-----|--------------------|
| (A) | P-2, Q-4, R-1, S-3 | (C) | P-3, Q-4, R-1, S-2 |
| (B) | P-3, Q-1, R-4, S-2 | (D) | P-2, Q-1, R-4, S-3 |
- A
 B
 C
 D
- No, the answer is incorrect.
Score: 0
Accepted Answers: C
- 13) The shear force diagram (SFD) of a simply supported beam is shown in the figure below. The beam is supported at P & Q. Read the following statements carefully in relation with the figure and choose the correct option. 2 points
-
- | | |
|--------------|-------------------------------------|
| Statement: P | There is a concentrated load at S |
| Statement: Q | There is a UDL in between RS |
| Statement: R | There is a concentrated load at R |
| Statement: T | There is a UDL in between PR and SQ |
- | | |
|-----|---|
| (A) | Statements P & Q are TRUE, Statements R & T are FALSE |
| (B) | Statements Q & R are TRUE, Statements P & T are FALSE |
| (C) | Statements R & T are TRUE, Statements P & Q are FALSE |
| (D) | Statements P, Q & R are TRUE, Statements T is FALSE |
- A
 B
 C
 D
- No, the answer is incorrect.
Score: 0
Accepted Answers: B
- 14) A 4.5-meter long simply supported beam is loaded with two concentrated load P & Q at the one third spans as shown in the figure below. The ratio of P:Q is 2:1. The bending moment at the point C (below the load P) is 75N-m. Then the magnitude of P and Q will be 2 points
-
- | | |
|-----|-------------------|
| (A) | P = 60N & Q = 30N |
| (B) | P = 40N & Q = 20N |
| (C) | P = 80N & Q = 40N |
| (D) | P = 50N & Q = 25N |
- A
 B
 C
 D
- No, the answer is incorrect.
Score: 0
Accepted Answers: A
- 15) A combination of Bar-A and Bar-B are fabricated as per the figure below. The geometric and material property for both the bars can be read from the figure. If an axial load is applied at the top platform, the Bar-A and Bar-B carry P_A and P_B forces respectively. The ratio of P_A : P_B is 2 points
-
- | | | | | | | | |
|-----|--------|-----|--------|-----|--------|-----|--------|
| (A) | 1.67:1 | (B) | 2.83:1 | (C) | 5.33:1 | (D) | 6.67:1 |
|-----|--------|-----|--------|-----|--------|-----|--------|
- A
 B
 C
 D
- No, the answer is incorrect.
Score: 0
Accepted Answers: C