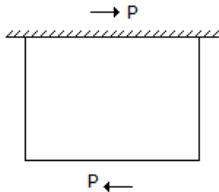
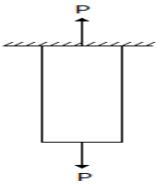


1. If in a pin-jointed plane frame  $(m + r) > 2j$ , then the frame is (Where 'm' is number of members, 'r' is reaction components and 'j' is number of joints) [ ]  
 (a) Stable and statically determinate      (b) Stable and statically indeterminate  
 (c) Unstable      (d) None of the above
2. The Castigliano's second theorem can be used to compute deflections [ ]  
 (a) In statically determinate structures only      (b) For any type of structure  
 (c) At the point under the load only      (d) For beams and frames only
3. When a uniformly distributed load, longer than the span of the girder, moves from left to right, then the maximum bending moment at mid section of span occurs when the uniformly distributed load occupies [ ]  
 (a) Less than the left half span      (b) Whole of left half span  
 (c) More than the left half span      (d) Whole span
4. If in a rigid-jointed space frame,  $(6m + r) < 6j$ , then the frame is [ ]  
 (a) Unstable      (b) Stable and statically determinate  
 (c) Stable and statically indeterminate      (d) none of the above
5. By applying the static equations i.e.  $\Sigma H = 0$ ,  $\Sigma V = 0$  and  $\Sigma M = 0$ , to a determinate structure, we may determine [ ]  
 (a) supporting reactions only      (b) shear forces only  
 (c) Bending moments only      (d) internal forces only      (e) all the above.
6. The forces acting on the bar as shown in the given figure introduce [ ]



- (a) compressive stress      (b) tensile stress      (c) shear stress      (d) none of these.

7. The forces acting normally on the cross section of a bar shown in the given figure introduce [ ]



- a) Compressive stress      (b) tensile stress      (c) shear stress      (d) none of these.

8. Stress may be expressed in Newton's [ ]

- (a) per millimeter square ( $N/mm^2$ )      (b) per centimeter square ( $N/cm^2$ )  
 (c) per metre square ( $N/m^2$ )      (d) none of these.

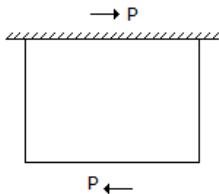
9. Principal planes are subjected to [ ]

- (a) normal stresses only      (b) tangential stresses only  
 (c) normal stresses as well as tangential stresses      (d) none of these.

10. A material is said to be perfectly elastic if [ ]

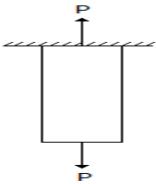
- (a) it regains its original shape on removal of the load      (b) it regains its original shape partially on removal of the load  
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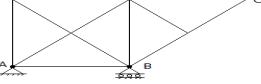
- (a) per millimeter square ( $N/mm^2$ )      (b) per centimeter square ( $N/cm^2$ )  
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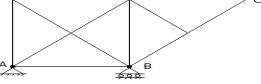
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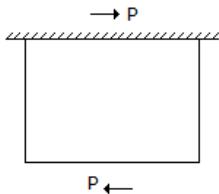
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12. A cantilever of length 2 cm and depth 10 cm tapers in plan from a width 24 cm to zero at its free end. If the modulus of elasticity of the material is  $0.2 \times 10^6$  N/mm<sup>2</sup>, the deflection of the free end, is [ ]  
 (a) 2 mm (b) 3 mm (c) 4 mm (d) 5 mm (e) 6 mm
13. The degree of indeterminacy of the frame in the given figure, is [ ]
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14. Gradually applied static loads do not change with time their [ ]  
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16. In case of principal axes of a section [ ]  
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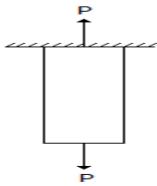
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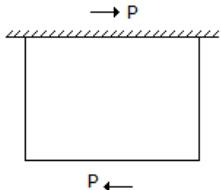
10. The forces acting normally on the cross section of a bar shown in the given figure introduce [ ]



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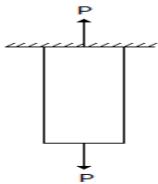
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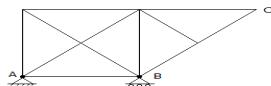
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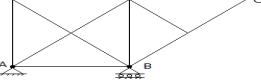
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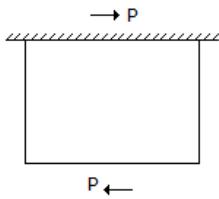
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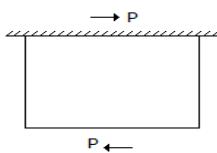
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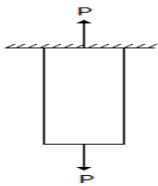


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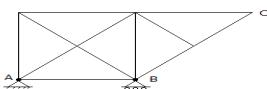
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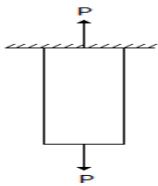
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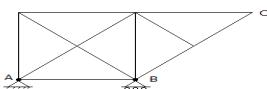
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- (a)1 (b)2 (c)3 (d)zero

17. Gradually applied static loads do not change with time their [ ]

- (a)magnitude (b)direction (c)point of application (d)all the above.

18. A body is said to be in equilibrium if [ ]

- (a)it moves horizontally (b)it moves vertically (c)it rotates about its C.G. (d)none of these.

19. In case of principal axes of a section [ ]

- (a)sum of moment of inertia is zero (b)difference of moment inertia is zero

- (c)product of moment of inertia is zero (d)none of these.

20. The locus of the end point of the resultant of the normal and tangential components of the stress on an inclined plane, is [ ]

- (a) Circle (b) parabola (c) ellipse (d)straight line.

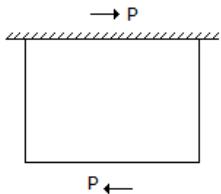
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3. The locus of the end point of the resultant of the normal and tangential components of the stress on an inclined plane, is [ ]  
(a) Circle (b) parabola (c) ellipse (d)straight line.
4. At any point of a beam, the section modulus may be obtained by dividing the moment of inertia of the section by [ ]  
(a)depth of the section (b)depth of the neutral axis  
(c) Maximum tensile stress at the section (d) maximum compressive stress at the section  
(e) None of these.
5. A compound truss may be formed by connecting two simple rigid frames, by [ ]  
(a) two bars (b)three bars (c)three parallel bars (d)three bars intersecting at a point.
6. The strain energy due to volumetric strain [ ]  
(a)is directly proportional to the volume (b)is directly proportional to the square of exerted pressure  
(c)is inversely proportional to Bulk modulus (d)all the above
7. Stress may be expressed in Newton's [ ]  
(a)per millimeter square (N/mm<sup>2</sup>) (b)per centimeter square (N/cm<sup>2</sup>)  
(c) per metre square (N/m<sup>2</sup>) (d)none of these.
8. Principal planes are subjected to [ ]  
(a) normal stresses only (b)tangential stresses only  
(c) normal stresses as well as tangential stresses (d)none of these.
9. A material is said to be perfectly elastic if [ ]  
(a)it regains its original shape on removal of the load (b)It regains its original shape partially on removal of the load  
(c)it does not regain its original shape at all (d)none of these.
10. If in a pin-jointed plane frame  $(m + r) > 2j$ , then the frame is(Where 'm' is number of members, 'r' is reaction components and 'j' is number of joints) [ ]  
(a )Stable and statically determinate (b) Stable and statically indeterminate  
(c )Unstable (d) None of the above
11. The Castigliano's second theorem can be used to compute deflections [ ]  
(a)In statically determinate structures only (b)For any type of structure  
(c)At the point under the load only (d)For beams and frames only
12. When a uniformly distributed load, longer than the span of the girder, moves from left to right, then the maximum bending moment at mid section of span occurs when the uniformly distributed load occupies[ ]  
(a) Less than the left half span (b) Whole of left half span  
(c)More than the left half span (d) Whole span
13. If in a rigid-jointed space frame,  $(6m + r) < 6j$ , then the frame is [ ]  
(a) Unstable (b) Stable and statically determinate  
(c)Stable and statically indeterminate (d) none of the above

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14. By applying the static equations i.e.  $\Sigma H = 0$ ,  $\Sigma V = 0$  and  $\Sigma M = 0$ , to a determinate structure, we may determine [ ]

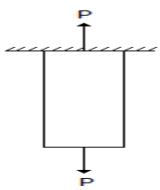
- (a) supporting reactions only      (b)shear forces only  
(c) Bending moments only      (d) internal forces only (e) all the above.

15. The forces acting on the bar as shown in the given figure introduce [ ]



- (a)compressive stress    (b) tensile stress    (c)shear stress (d)none of these.

16. The forces acting normally on the cross section of a bar shown in the given figure introduce [ ]



- a) Compressive stress (b)tensile stress (c)shear stress (d)none of these.

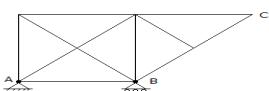
17. The strain energy stored in a spring when subjected to greatest load without being permanently distorted, is called [ ]

- (a) Stiffness      (b) proof resilience      (c) proof stress (d) proof load.

18. A cantilever of length 2 cm and depth 10 cm tapers in plan from a width 24 cm to zero at its free end. If the modulus of elasticity of the material is  $0.2 \times 10^6$  N/mm<sup>2</sup>, the deflection of the free end, is [ ]

- (a)2 mm      (b)3 mm      (c)4 mm      (d)5 mm      (e)6 mm

19. The degree of indeterminacy of the frame in the given figure, is [ ]



- (a)1    (b)2    (c)3    (d)zero

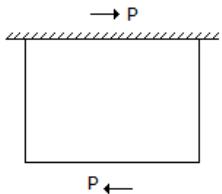
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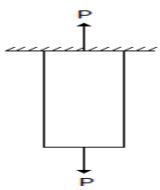
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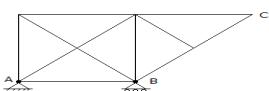
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