G.PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY (AT)
II-B.Tech II MID CIVIL

1

Sub: Structural Analysis-I **Objective type** **Date: 12/05/2017**
Time: 20min **ROLL NO:** **Max.Marks.10**

1. If there are m unknown member forces, r unknown reaction components and j number of joints, then the degree of static indeterminacy of a pin-jointed plane frame is given by [ ]
   a)m + r + 2j b)m + r - 2j c)m + r - 3j d)m + r - 3j
2. The number of independent equations to be satisfied for static equilibrium in a space structure is [ ]
   a)2 b)3 c)4 d)6
3. In the slope deflection equations, the deformations are considered to be caused by i) bending moment ii) shear force iii) axial force The correct answer is [ ]
   a)only (i) b)(i)and(ii) c)(ii) and (iii) d)(i), (ii) and (iii)
4. Castigliano's first theorem is applicable [ ]
   a)for statically determinate structures only b)when the system behaves elastically
   c)only when principle of superposition is valid d)none of the above
5. Number of unknown internal forces in each member of a rigid jointed plane frame is [ ]
   a)1 2 c)3 d)6
6. The deflection at any point of a perfect frame can be obtained by applying a unit load at the joint in [ ]
   a)vertical direction b)horizontal direction c)inclined direction d)the direction in which the deflection is required
7. Independent displacement components at each joint of a rigid-jointed plane frame are
   a)three linear movements b)two linear movements and one rotation
   c)one linear movement and two rotations d)three rotations
8. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
   a)L/EI b)L/2EI c)L/3EI d)L/4EI
9. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
   a)2j – r b)j - 2r c)3j – r d)2j + r
10. The carryover factor in a prismatic member whose far end is fixed is [ ]
    a)0 b)1/2 c)3/4 d)1
11. Principle of superposition is applicable when [ ]
    a)deflections are linear functions of applied forces b)material obeys Hooke's law
    c)the action of applied forces will be affected by small deformations of the structure d)none of the above
12. The three moments equation is applicable only when [ ]
    a)the beam is prismatic b)there is no settlement of supports
    c)there is no discontinuity such as hinges within the span d)the spans are equal
13. The number of independent displacement components at each joint of a rigid-jointed space frame is [ ]
    a)1 b)2 c)3 d)6
14. The point of contra flexure is the point where [ ]
    a)B.M. changes sign b)B.M. is maximum c)B.M. is minimum d)S.F. is zero.
15. Stress may be defined as [ ]
    a)force per unit length b)force per unit volume c)force per unit area d)none of these.
16. Stress may be expressed in Newtons [ ]
    a)per millimetre square (N/mm2) b)per centimetre square (N/cm2)
    c)per metre square (N/m2) d)none of these.
17. 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.
18. 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)shear forces only b)bending moments only c)internal forces only d)all the above.
19. 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. [ ]
20. The forces in the members of simple trusses, may be analysed by [ ]
    a)graphical method b)method of joints c)method of sections d)all the above.

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4. Castigliano's first theorem is applicable [ ]
   a)for statically determinate structures only b)when the system behaves elastically
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5. Number of unknown internal forces in each member of a rigid jointed plane frame is [ ]
   a)1 2 c)3 d)6
6. The deflection at any point of a perfect frame can be obtained by applying a unit load at the joint in [ ]
   a)vertical direction b)horizontal direction c)inclined direction d)the direction in which the deflection is required
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8. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
   a)L/EI b)L/2EI c)L/3EI d)L/4EI
9. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
   a)2j – r b)j - 2r c)3j – r d)2j + r
10. The carryover factor in a prismatic member whose far end is fixed is [ ]
    a)0 b)1/2 c)3/4 d)1
11. Principle of superposition is applicable when [ ]
    a)deflections are linear functions of applied forces b)material obeys Hooke's law
    c)the action of applied forces will be affected by small deformations of the structure d)none of the above
12. The three moments equation is applicable only when [ ]
    a)the beam is prismatic b)there is no settlement of supports
    c)there is no discontinuity such as hinges within the span d)the spans are equal
13. The number of independent displacement components at each joint of a rigid-jointed space frame is [ ]
    a)1 b)2 c)3 d)6
14. The point of contra flexure is the point where [ ]
    a)B.M. changes sign b)B.M. is maximum c)B.M. is minimum d)S.F. is zero.
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16. Stress may be expressed in Newtons [ ]
    a)per millimetre square (N/mm2) b)per centimetre square (N/cm2)
    c)per metre square (N/m2) d)none of these.
17. 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.
18. 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)shear forces only b)bending moments only c)internal forces only d)all the above.
19. 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. [ ]
20. The forces in the members of simple trusses, may be analysed by [ ]
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Sub: Structural Analysis-I **Objective type** **Date: 12/05/2017**
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1. 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.
2. By applying the static equations i.e. ΣH = 0, ΣV = 0 and ΣM = 0, to a determinate structure, we may determine[ ]
   a)shear forces only b)bending moments only c)internal forces only d)all the above.
3. 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. [ ]
4. The forces in the members of simple trusses, may be analysed by [ ]
   a)graphical method b)method of joints c)method of sections d)all the above.
5. If there are m unknown member forces, r unknown reaction components and j number of joints, then the degree of static indeterminacy of a pin-jointed plane frame is given by [ ]
   a)m + r + 2j b)m + r - 2j c)m + r - 3j d)m + r - 3j
6. The number of independent equations to be satisfied for static equilibrium in a space structure is [ ]
   a)2 b)3 c)4 d)6
7. In the slope deflection equations, the deformations are considered to be caused by i) bending moment ii) shear force iii) axial force The correct answer is [ ]
   a)only (i) b)(i)and(ii) c)(ii) and (iii) d)(i), (ii) and (iii)
8. Castigliano's first theorem is applicable [ ]
   a)for statically determinate structures only b)when the system behaves elastically
   c)only when principle of superposition is valid d)none of the above
9. Number of unknown internal forces in each member of a rigid jointed plane frame is [ ]
   a)1 2 c)3 d)6
10. The deflection at any point of a perfect frame can be obtained by applying a unit load at the joint in [ ]
a)vertical direction b)horizontal direction c)inclined direction d)the direction in which the deflection is required
11. Independent displacement components at each joint of a rigid-jointed plane frame are
    a)three linear movements b)two linear movements and one rotation
    c)one linear movement and two rotations d)three rotations
12. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
    a)L/EI b)L/2EI c)L/3EI d)L/4EI
13. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
    a)2j – r b)j - 2r c)3j – r d)2j + r
14. The carryover factor in a prismatic member whose far end is fixed is [ ]
    a)0 b)1/2 c)3/4 d)1
15. Principle of superposition is applicable when [ ]
    a)deflections are linear functions of applied forces b)material obeys Hooke's law
    c)the action of applied forces will be affected by small deformations of the structure d)none of the above
16. The three moments equation is applicable only when [ ]
    a)the beam is prismatic b)there is no settlement of supports
    c)there is no discontinuity such as hinges within the span d)the spans are equal
17. The number of independent displacement components at each joint of a rigid-jointed space frame is [ ]
    a)1 b)2 c)3 d)6
18. The point of contra flexure is the point where [ ]
    a)B.M. changes sign b)B.M. is maximum c)B.M. is minimum d)S.F. is zero.
19. Stress may be defined as [ ]
    a)force per unit length b)force per unit volume c)force per unit area d)none of these.
20. Stress may be expressed in Newtons [ ]
    a)per millimetre square (N/mm2) b)per centimetre square (N/cm2)
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1. 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.
2. By applying the static equations i.e. ΣH = 0, ΣV = 0 and ΣM = 0, to a determinate structure, we may determine[ ]
   a)shear forces only b)bending moments only c)internal forces only d)all the above.
3. 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. [ ]
4. The forces in the members of simple trusses, may be analysed by [ ]
   a)graphical method b)method of joints c)method of sections d)all the above.
5. If there are m unknown member forces, r unknown reaction components and j number of joints, then the degree of static indeterminacy of a pin-jointed plane frame is given by [ ]
   a)m + r + 2j b)m + r - 2j c)m + r - 3j d)m + r - 3j
6. The number of independent equations to be satisfied for static equilibrium in a space structure is [ ]
   a)2 b)3 c)4 d)6
7. In the slope deflection equations, the deformations are considered to be caused by i) bending moment ii) shear force iii) axial force The correct answer is [ ]
   a)only (i) b)(i)and(ii) c)(ii) and (iii) d)(i), (ii) and (iii)
8. Castigliano's first theorem is applicable [ ]
   a)for statically determinate structures only b)when the system behaves elastically
   c)only when principle of superposition is valid d)none of the above
9. Number of unknown internal forces in each member of a rigid jointed plane frame is [ ]
   a)1 2 c)3 d)6
10. The deflection at any point of a perfect frame can be obtained by applying a unit load at the joint in [ ]
a)vertical direction b)horizontal direction c)inclined direction d)the direction in which the deflection is required
11. Independent displacement components at each joint of a rigid-jointed plane frame are
    a)three linear movements b)two linear movements and one rotation
    c)one linear movement and two rotations d)three rotations
12. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
    a)L/EI b)L/2EI c)L/3EI d)L/4EI
13. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
    a)2j – r b)j - 2r c)3j – r d)2j + r
14. The carryover factor in a prismatic member whose far end is fixed is [ ]
    a)0 b)1/2 c)3/4 d)1
15. Principle of superposition is applicable when [ ]
    a)deflections are linear functions of applied forces b)material obeys Hooke's law
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16. The three moments equation is applicable only when [ ]
    a)the beam is prismatic b)there is no settlement of supports
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17. The number of independent displacement components at each joint of a rigid-jointed space frame is [ ]
    a)1 b)2 c)3 d)6
18. The point of contra flexure is the point where [ ]
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1. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity EI is taken as [ ]
   a)L/EI b)L/2EI c)L/3EI d)L/4EI
2. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
   a)2j – r b)j - 2r c)3j – r d)2j + r
3. The carryover factor in a prismatic member whose far end is fixed is [ ]
   a)0 b)1/2 c)3/4 d)1
4. 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.
5. By applying the static equations i.e. ΣH = 0, ΣV = 0 and ΣM = 0, to a determinate structure, we may determine[ ]
   a)shear forces only b)bending moments only c)internal forces only d)all the above.
6. The strain energy stored in a spring when subjected to greatest load without being permanently distorted, is called
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8. If there are m unknown member forces, r unknown reaction components and j number of joints, then the degree of static indeterminacy of a pin-jointed plane frame is given by [ ]
   a)m + r + 2j b)m + r - 2j c)m + r - 3j d)m + r - 3j
9. The number of independent equations to be satisfied for static equilibrium in a space structure is [ ]
   a)2 b)3 c)4 d)6
10. In the slope deflection equations, the deformations are considered to be caused by i) bending moment ii) shear force iii) axial force The correct answer is [ ]
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    a)1 2 c)3 d)6
13. The deflection at any point of a perfect frame can be obtained by applying a unit load at the joint in [ ]
    a)vertical direction b)horizontal direction c)inclined direction d)the direction in which the deflection is required
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1. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
   a)L/EI b)L/2EI c)L/3EI d)L/4EI
2. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
   a)2j – r b)j - 2r c)3j – r d)2j + r
3. The carryover factor in a prismatic member whose far end is fixed is [ ]
   a)0 b)1/2 c)3/4 d)1
4. 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.
5. By applying the static equations i.e. ΣH = 0, ΣV = 0 and ΣM = 0, to a determinate structure, we may determine[ ]
   a)shear forces only b)bending moments only c)internal forces only d)all the above.
6. The strain energy stored in a spring when subjected to greatest load without being permanently distorted, is called
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7. The forces in the members of simple trusses, may be analysed by [ ]
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    a)the beam is prismatic b)there is no settlement of supports
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    a)1 b)2 c)3 d)6
18. The point of contra flexure is the point where [ ]
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1. Stress may be defined as [ ]
   a)force per unit length b)force per unit volume c)force per unit area d)none of these.
2. Stress may be expressed in Newtons [ ]
   a)per millimetre square (N/mm2) b)per centimetre square (N/cm2)
   c)per metre square (N/m2) d)none of these.
3. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
   a)L/EI b)L/2EI c)L/3EI d)L/4EI
4. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
   a)2j – r b)j - 2r c)3j – r d)2j + r
5. The carryover factor in a prismatic member whose far end is fixed is [ ]
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6. Principal planes are subjected to [ ]
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7. By applying the static equations i.e. ΣH = 0, ΣV = 0 and ΣM = 0, to a determinate structure, we may determine[ ]
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9. The forces in the members of simple trusses, may be analysed by [ ]
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19. The number of independent displacement components at each joint of a rigid-jointed space frame is [ ]
    a)1 b)2 c)3 d)6
20. The point of contra flexure is the point where [ ]
    a)B.M. changes sign b)B.M. is maximum c)B.M. is minimum d)S.F. is zero.

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4

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1. Stress may be defined as [ ]
   a)force per unit length b)force per unit volume c)force per unit area d)none of these.
2. Stress may be expressed in Newtons [ ]
   a)per millimetre square (N/mm2) b)per centimetre square (N/cm2)
   c)per metre square (N/m2) d)none of these.
3. In column analogy method, the area of an analogous column for a fixed beam of span L and flexural rigidity El is taken as [ ]
   a)L/EI b)L/2EI c)L/3EI d)L/4EI
4. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by [ ]
   a)2j – r b)j - 2r c)3j – r d)2j + r
5. The carryover factor in a prismatic member whose far end is fixed is [ ]
   a)0 b)1/2 c)3/4 d)1
6. 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.
7. By applying the static equations i.e. ΣH = 0, ΣV = 0 and ΣM = 0, to a determinate structure, we may determine[ ]
   a)shear forces only b)bending moments only c)internal forces only d)all the above.
8. 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. [ ]
9. The forces in the members of simple trusses, may be analysed by [ ]
   a)graphical method b)method of joints c)method of sections d)all the above.
10. If there are m unknown member forces, r unknown reaction components and j number of joints, then the degree of static indeterminacy of a pin-jointed plane frame is given by [ ]
    a)m + r + 2j b)m + r - 2j c)m + r - 3j d)m + r - 3j
11. The number of independent equations to be satisfied for static equilibrium in a space structure is [ ]
    a)2 b)3 c)4 d)6
12. In the slope deflection equations, the deformations are considered to be caused by i) bending moment ii) shear force iii) axial force The correct answer is [ ]
    a)only (i) b)(i)and(ii) c)(ii) and (iii) d)(i), (ii) and (iii)
13. Castigliano's first theorem is applicable [ ]
    a)for statically determinate structures only b)when the system behaves elastically
    c)only when principle of superposition is valid d)none of the above
14. Number of unknown internal forces in each member of a rigid jointed plane frame is [ ]
    a)1 2 c)3 d)6
15. The deflection at any point of a perfect frame can be obtained by applying a unit load at the joint in [ ]
    a)vertical direction b)horizontal direction c)inclined direction d)the direction in which the deflection is required
16. Independent displacement components at each joint of a rigid-jointed plane frame are
    a)three linear movements b)two linear movements and one rotation
    c)one linear movement and two rotations d)three rotations
17. Principle of superposition is applicable when [ ]
    a)deflections are linear functions of applied forces b)material obeys Hooke's law
    c)the action of applied forces will be affected by small deformations of the structure d)none of the above
18. The three moments equation is applicable only when [ ]
    a)the beam is prismatic b)there is no settlement of supports
    c)there is no discontinuity such as hinges within the span d)the spans are equal
19. The number of independent displacement components at each joint of a rigid-jointed space frame is [ ]
    a)1 b)2 c)3 d)6
20. The point of contra flexure is the point where [ ]
    a)B.M. changes sign b)B.M. is maximum c)B.M. is minimum d)S.F. is zero.