

Interview Questions

HOME Interview Questions MCQs *LAB VIVA CLASS NOTES SEMINAR TOPICS
ONLINE TEST GATE CAT Internship ABOUT US Privacy Policy

[Home](#) » [STRUCTURAL ANALYSIS Questions](#) » **300+ TOP Structural Analysis Objective Questions and Answers**

300+ TOP Structural Analysis Objective Questions and Answers

Search
Here for
Skill

Search...



Scalyr's 200TB E

In modern stacks, data
cloud

Scalyr



2020

SHOP

STRUCTURAL ANALYSIS Multiple Choice

Questions :-

1. The number of independent equations to be satisfied for static equilibrium of a plane structure is

- a) 1
- b) 2
- c) 3
- d) 6

Ans: c

2. 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) $m + r + 2j$

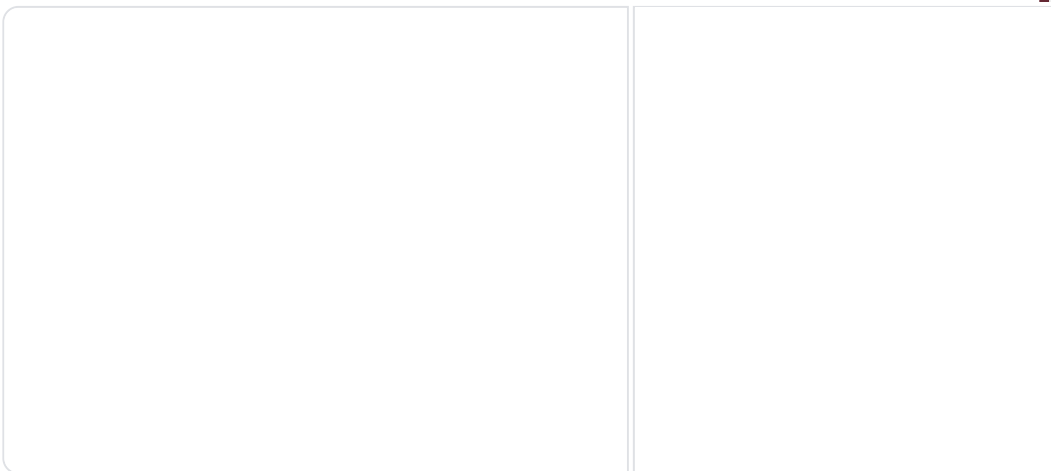
- b) $m - r + 2j$
- c) $m + r - 2j$
- d) $m + r - 3j$

Ans: c

3. Number of unknown internal forces in each member of a rigid jointed plane frame is

- a) 1
- b) 2
- c) 3
- d) 6

Ans: c



Cases, Protectors & More
Mobile Mate

4. Degree of static indeterminacy of a rigid-jointed plane frame having 15 members, 3 reaction components and 14 joints is

- a) 2
- b) 3
- c) 6
- d) 8

Ans: c

5. Degree of kinematic indeterminacy of a pin-jointed plane frame is given by

- a) $2j - r$
- b) $j - 2r$
- c) $3j - r$
- d) $2j + r$

Ans: a



6. 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

Ans: b

7. If in a pin-jointed plane frame $(m + r) > 2j$, then the frame is

- a) stable and statically determinate
- b) stable and statically indeterminate
- c) unstable
- d) none of the above

where m is number of members, r is reaction components and j is number of joints

Ans: b

8. A pin-jointed plane frame is unstable if

- a) $(m + r) < 2j$
- b) $m + r = 2j$
- c) $(m + r) > 2j$
- d) none of the above

where m is number of members, r is reaction components and j is number of joints

Ans: a

Cases, Protectors & More
Mobile Mate

9. A rigid-jointed plane frame is stable and statically determinate if

- a) $(m + r) = 2j$

b) $(m + r) = 3j$

c) $(3m + r) = 3j$

d) $(m + 3r) = 3j$

where m is number of members, r is reaction components and j is number of joints

Ans: c

10. The number of independent equations to be satisfied for static equilibrium in a space structure is

a) 2

b) 3

c) 4

d) 6

Ans: d

11. The degree of static indeterminacy of a pin-jointed space frame is given by

a) $m + r - 2j$

b) $m + r - 3j$

c) $3m + r - 3j$

d) $m + r + 3j$

where m is number of unknown member forces, r is unknown reaction components and j is number of joints

Ans: b

12. The degree of static indeterminacy of a rigid-jointed space frame is

a) $m + r - 2j$

b) $m + r - 3j$

c) $3m + r - 3j$

d) $6m + r - 6j$

where m, r and j have their usual meanings

Ans: d

13. The degree of kinematic indeterminacy of a pin-jointed space frame is

a) $2j - r$

b) $3j - r$

c) $j - 2r$

d) $j - 3r$

where j is number of joints and r is reaction components

Ans: b

14. The number of independent displacement components at each joint of a rigid-jointed space frame is

- a) 1
- b) 2
- c) 3
- d) 6

Ans: d

15. 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

Ans: a

16. The principle of virtual work can be applied to elastic system by considering the virtual work of

- a) internal forces only
- b) external forces only
- c) internal as well as external forces
- d) none of the above

Ans: c

17. 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

Ans: c

18. 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

Ans: a

19. In moment distribution method, the sum of distribution factors of all the members meeting at any joint is always

- a) zero
- b) less than 1
- c) 1
- d) greater than 1

Ans: c

20. The carryover factor in a prismatic member whose far end is fixed is

- a) 0
- b) $1/2$
- c) $3/4$
- d) 1

Ans: b

21. 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) $L/4EI$

Ans: a

22. The degree of static indeterminacy up to which column analogy method can be used is

- a) 2

- b) 3
- c) 4
- d) unrestricted

Ans: b

23. 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

Ans: d

24. 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)

Ans: a

25. 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

Ans: c

26. While using three moments equation, a fixed end of a continuous beam is replaced by an additional span of

- a) zero length
- b) infinite length
- c) zero moment of inertia
- d) none of the above

Ans: a

27. 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

Ans: b

28. Bending moment at any section in a conjugate beam gives in the actual beam

- a) slope
- b) curvature
- c) deflection
- d) bending moment

Ans: c

29. For a two-hinged arch, if one of the supports settles down vertically, then the horizontal thrust

- a) is increased
- b) is decreased
- c) remains unchanged
- d) becomes zero

Ans: c

30. For a symmetrical two hinged parabolic arch, if one of the supports settles horizontally, then the horizontal thrust

- a) is increased
- b) is decreased
- c) remains unchanged
- d) becomes zero

Ans: b

Structural Analysis Interview Questions

31. A single rolling load of 8 kN rolls along a girder of 15 m span. The absolute maximum bending moment will be

- a) 8 kN.m
- b) 15 kN.m
- c) 30 kN.m
- d) 60 kN.m

Ans: c

32. The maximum bending moment due to a train of wheel loads on a simply supported girder

- a) always occurs at centre of span
- b) always occurs under a wheel load
- c) never occurs under a wheel load
- d) none of the above

Ans: b

33. 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

Ans: d

34. When a uniformly distributed load, shorter than the span of the girder, moves from left to right, then the conditions for maximum bending moment at a section is that

- a) the head of the load reaches the section
- b) the tail of the load reaches the section
- c) the load position should be such that the section divides it equally on both sides
- d) the load position should be such that the section divides the load in the same ratio as it divides the span

Ans: d

35. When a series of wheel loads crosses a simply supported girder, the maximum bending moment under any given wheel load occurs when

- a) the centre of gravity of the load system is midway between the centre of span and wheel load under consideration
- b) the centre of span is midway between the centre of gravity of the load system and the wheel load under consideration
- c) the wheel load under consideration is midway between the centre of span and the centre of gravity of the load system
- d) none of the above

Ans: b

36. Which of the following is not the displacement method ?

- a) Equilibrium method
- b) Column analogy method
- c) Moment distribution method
- d) Kani's method

Ans: b

37. Study the following statements.

- i) The displacement method is more useful when degree of kinematic indeterminacy is greater than the degree of static indeterminacy.
- ii) The displacement method is more useful when degree of kinematic indeterminacy is less than the degree of static indeterminacy.
- iii) The force method is more useful when degree of static indeterminacy is greater than the degree of kinematic indeterminacy.
- iv) The force method is more useful when degree of static indeterminacy is less than the degree of kinematic indeterminacy.

The correct answer is

- a) (i) and (iii)
- b) (ii) and (iii)
- c) (i) and (iv)
- d) (ii) and (iv)

Ans: d

38. Select the correct statement

- a) Flexibility matrix is a square symmetrical matrix
- b) Stiffness matrix is a square symmetrical matrix
- c) both (a) and (b)
- d) none of the above

Ans: c

39. To generate the j th column of the flexibility matrix

- a) a unit force is applied at coordinate j and the displacements are calculated at all coordinates
- b) a unit displacement is applied at co-ordinate j and the forces are calculated at all coordinates
- c) a unit force is applied at coordinate j and the forces are calculated at all coordinates

d) a unit displacement is applied at co-ordinate j and the displacements are calculated at all co-ordinates

Ans: a

40. For stable structures, one of the important properties of flexibility and stiffness matrices is that the elements on the main diagonal

- i) of a stiffness matrix must be positive
- ii) of a stiffness matrix must be negative
- iii) of a flexibility matrix must be positive
- iv) of a flexibility matrix must be negative

The correct answer is

- a) (i) and (iii)
- b) (ii) and (iii)
- c) (i) and (iv)
- d) (ii) and (iv)

Ans: a

41. Effects of shear force and axial force on plastic moment capacity of a structure are respectively to

- a) increase and decrease
- b) increase and increase
- c) decrease and increase
- d) decrease and decrease

Ans: d

42. Which of the following methods of structural analysis is a force method ?

- a) slope deflection method
- b) column analogy method
- c) moment distribution method
- d) none of the above

Ans: b

43. Which of the following methods of structural analysis is a displacement method ?

- a) moment distribution method
- b) column analogy method
- c) three moment equation
- d) none of the above

Ans: a

44. In the displacement method of structural analysis, the basic unknowns are

- a) displacements
- b) force
- c) displacements and forces
- d) none of the above

Ans: a

45. The fixed support in a real beam becomes in the conjugate beam a

- a) roller support
- b) hinged support
- c) fixed support
- d) free end

Ans: d

46. The width of the analogous column in the method of column analogy is

- a) $2/EI$
- b) $1/EI$
- c) $1/2 EI$
- d) $1/4 EI$

Ans: b

47. A simply supported beam deflects by 5 mm when it is subjected to a concentrated load of 10 kN at its centre. What will be deflection in a 1/10 model of the beam if the model is subjected to a 1 kN load at its centre ?

- a) 5 mm
- b) 0.5 mm
- c) 0.05 mm
- d) 0.005mm

Ans: a

48. The deformation of a spring produced by a unit load is called

- a) stiffness
- b) flexibility
- c) influence coefficient
- d) unit strain

Ans: b

49. For a single point load W moving on a symmetrical three hinged parabolic arch of span L , the maximum sagging moment occurs at a distance x from ends. The value of x is

- a) $0.211 L$
- b) $0.25 L$
- c) $0.234 L$
- d) $0.5 L$

Ans: a

50. Muller Breslau's principle for obtaining influence lines is applicable to

- i) trusses**
- ii) statically determinate beams and frames**
- iii) statically indeterminate structures, the material of which is elastic and follows Hooke's law**
- iv) any statically indeterminate structure**

The correct answer is

- a) (i), (ii) and (iii)
- b) (i), (ii) and (iv)
- c) (i) and (ii)
- d) only (i)

Ans: a

51. Consider the following statements:

Sinking of an intermediate support of a continuous beam

1. reduces the negative moment at support.
2. increases the negative moment at support.
3. reduces the positive moment at support.
4. increases the positive moment at the centre of span.

Of these statements

- a) i and 4 are correct
- b) 1 and 3 are correct
- c) 2 and 3 are correct
- d) 2 and 4 are correct

Ans: a

52. A load ' W is moving from left to right support on a simply supported beam of span T . The maximum bending moment at $0.4 T$ from the left support is

- a) $0.16 Wl$

b) 0.20 Wl

c) 0.24 Wl

d) 0.25 Wl

Ans: c

53. When a load crosses a through type Pratt truss in the direction left to right, the nature of force in any diagonal member in the left half of the span would

a) change from compression to tension

b) change from tension to compression

c) always be compression

d) always be tension

Ans: a

STRUCTURAL ANALYSIS Questions and Answers pdf free download ::

21 THOUGHTS ON “300+ TOP STRUCTURAL ANALYSIS OBJECTIVE QUESTIONS AND ANSWERS”



pramod kolekar

NOVEMBER 30, 2020 AT 10:10 AM

You website is veary helpful for gate exam Or mpSC exam

[REPLY](#)



SATYABRATA SAHOO

NOVEMBER 24, 2019 AT 2:34 AM

Kindly send me the PDF copy of MCQ questions of Structural analysis.

[REPLY](#)



SARVESH SAXSENA

MARCH 27, 2019 AT 7:20 AM

PLEASE SEND ME PDF ON MY EMAIL civil
engineering all subject.

[REPLY](#)

BATZOLBOO BAATARKHUYAG

OCTOBER 5, 2016 AT 3:04 PM

Wow, super helpful!

Would you please send me the PDF copy?

bzolboo7@gmail.com

Thank you!

[REPLY](#)

Manoj

SEPTEMBER 17, 2016 AT 5:19 AM

Thankyou for the question and answers Sir. Please send me a copy of pdf to manoj07.gowda@gmail.com

[REPLY](#)

M.c swain

SEPTEMBER 15, 2016 AT 5:16 AM

Your website is very useful. Dear,sir please provide me engineering hydrology question answer for gate ce

[REPLY](#)

Mrityunjoy Roy

AUGUST 27, 2016 AT 3:54 PM

Please sir send me a pdf file of top civil engineering question and answer

[REPLY](#)

 **David**

JULY 9, 2016 AT 11:21 AM

Good day to you , Please send to my e- mail a copy of this – Structural text and answer.

Thanks.

[REPLY](#)

 **Opuu**

JUNE 27, 2016 AT 3:16 PM

Oh thanks for this
may i get the pdf of qns and answers on my mail

[REPLY](#)

 **Chetan**

JUNE 12, 2016 AT 9:10 AM

thank u so much plz send me pdf file of all civil engineering Que

[REPLY](#)

 **Aulia sk salim**

JUNE 5, 2016 AT 8:06 AM

please send me the pdf file

[REPLY](#)

 **safsa kais**

MAY 11, 2016 AT 3:23 PM

Send pdf file plase

[REPLY](#)

 **Nouruj**

MAY 5, 2016 AT 11:15 AM

Please send me PDF of all civil questions with answer
ASAP to nouruj.duet@gmail.com

[REPLY](#)

manish

APRIL 11, 2016 AT 4:33 PM

Please sand me a civil's objective questions pdf like
above questions. mjain3293@gmail.com

[REPLY](#)

Tazir shaikh

APRIL 11, 2016 AT 10:56 AM

please send me solutions of the above questions

[REPLY](#)

abdullah

APRIL 4, 2016 AT 7:51 PM

plz do send me pdf.abdullahejaz26@yahoo.com

[REPLY](#)

Sunil Gupta

MARCH 12, 2016 AT 6:22 PM

send me pdf please sunil7897@gmail.com

Thanks for this one really in short time you can revise
all the things related to Structure Analysis

[REPLY](#)

tim

MARCH 1, 2016 AT 6:24 AM

thank u so much

[REPLY](#)



MANISH GUPTA

FEBRUARY 28, 2016 AT 4:38 PM

Pdf please to : sunnygupta908@gmail.com

Your website is very useful thank you so much.....

[REPLY](#)



abdullah

APRIL 4, 2016 AT 7:53 PM

kindly one copy too mee too...appreciated..

[REPLY](#)



Sindy Kottraba

FEBRUARY 25, 2016 AT 8:21 PM

Thank you for this blog post It is indeed very useful

[REPLY](#)

LEAVE A REPLY

Your email address will not be published. Required fields are marked *

Comment

Name *

Email ***Website**

Copyright 2020 , Engineering Interview Questions.com , Theme by [Engineering](#) || [Privacy Policy](#) || [Terms and Conditions](#) || [ABOUT US](#) || [Contact US](#) ||

Engineering interview questions, Mcqs, Objective Questions, Class Lecture Notes, Seminar topics, Lab Viva Pdf PPT Doc Book free download. Most Asked Technical Basic CIVIL | Mechanical | CSE | EEE | ECE | IT | Chemical | Medical MBBS Jobs Online Quiz Tests for Freshers Experienced.