Trusses

1. List 3 conditions that help ensure that a truss member acts as a 2-force member. (i.e. definitions and assumptions for a truss)

   A) Any 3 of the following:
   1. Pinned Joints
   2. Concurrent Member Centroids
   3. Straight members
   4. Joint Loaded
   5. Small Deflections

2. The bottom chord of a gravity loaded truss assumes what type of force?
   A) Tension

3. Which of the following forces may be present in the members of a simple truss:
   1. Axial Tension
   2. Bending Moment
   3. Axial Compression

   A) 1 and 3

4. Determine whether the following truss is or is not stable and determinate?
   A) Stable and determinate

   Number of Joints = 4
   Number of Members = 5
   Number of Reactions = 3
   
   \[ K = 2J-R = 2(4) - 3 = 5, \text{K}=5 \]

5. Movement along the line of action of concurrent forces is known as?
   A) Translation

6. The pin connected structure shown is supported on the left by a pin and on the right by a roller support. The structure is:

   A) Stable and determinate

7. The cantilever truss shown below contains 2 zero force members. List them.

   A) a, b
8. What range of spans can a truss normally cover?
   A) 30 ft to 400 ft

9. Match the elements of the truss shown in the diagram with their names:
   a) web members
   b) top chord
   c) panel point (joint)
   d) bottom chord
   e) panel

10. What are the 2 methods of computational analysis we used to determine forces in trusses?
    A) Joints, Sections

11. List three defining criteria for a "true" truss.
    A) Straight members, Joint Loaded, Pinned Joints

12. The truss shown below is...
    A) Stable and determinate

13. On the truss shown below, mark each member with either T for tension, C for compression or 0 for a no-force (zero) member.

14. Truss members are always considered as being connected with _______ connections.
    A) pinned

15. The truss shown is:
    A) Stable and Determinate
16. What types of forces are present within the truss elements?
   A) axial tension and compression

17. Joint loaded flat trusses are examples of
   A) coplanar, concurrent force systems.

18. Given the equation \( k = 2j-r \), a truss with 9 members, 5 joints, and 3 reactions (as shown below) is expected to be:
   A) Stable and Indeterminate

19. With the given loading condition, what type of force is expected in the diagonal member?
   A) Compression

20. The truss shown at the right is
   A) unstable

21. The truss shown at the right is
   A) stable and indeterminate

22. Which of the following is NOT a criteria for a "true" truss
   A) pinned connections
   B) straight members
   C) relatively small deflections
   D) \( m = 2j-r \)
   A) D
23. Make a sketch of a Vierendeel "truss".  

Note: Rigid Connections

24. The truss shown at the right is  

A) stable and determinate.

25. The Firth of Forth railway bridge, opened in 1890, is a classic instance of:  

A) a cantilever truss bridge.