1. Identify the framing members of post-and-beam construction specified in the drawing below.

   A
   D
   E
   C
   B

2. An important advantage of post-and-beam construction over standard wood framing or frames consisting of metal beams is its high _____ factor.

3. Beams are often joined by butting them together and locating the joint over a post. The bearing surface of the post should be increased by attaching _____ or using a heavy steel plate.

   A. angle irons
   B. beam hangers
   C. bearing blocks
   D. metal straps
4. Determine the 1/d ratio for a 4 x 4 solid post that is 10' long. Round your answer to the nearest whole number. Show your calculations in the space below.

5. Determine the 1/d ratio for a 6 x 6 solid post that is 14' long. Round your answer to the nearest whole number. Show your calculations in the space below.

6. Beams may consist of solid wood or may be built up in various ways. Identify the types of beams shown in the cross-sectional views below.

   A  
   B  
   C  
   D

7. Posts are usually evenly spaced along the length of the structure. To take full advantage of modular materials, the spacing should be based on standard increments of _____, 24”, and 48”.

   A. 16”
   B. 18”
   C. 20”
   D. 30”
8. Typical sill construction for a post-and-beam frame is shown in the illustration below. Identify the parts specified.

9. There are two basic types of roof beams. A transverse beam runs in the same direction as a common rafter. The other type runs parallel to the supporting side walls and is called a(n) _____ beam.

10. A post-and-beam frame consists of a limited number of joints. Metal connectors are often used to reinforce these joints. To increase the holding power of the metal connectors, they should be attached with bolts or _____.

11. A partition that runs parallel to a transverse beam has a ____ top plate.
   A. staggered
   B. horizontal
   C. supporting
   D. sloping

12. Special framing or support ____ (is, is not) required when non-load-bearing partitions run parallel to the floor planks.

13. Planks for floor or roof decks usually have a tongue-and-groove edge and are sometimes end matched. Standard thicknesses vary from _____.
   A. 1 1/2” to 3”
   B. 2” to 3”
   C. 2” to 4”
   D. 2” to 4 1/2”
14. In cold climates, plank roof structures located directly over heated areas require the same considerations as those applied to outside walls. Identify the items specified in the drawing below.

15. The illustrations below show two methods of building a plank-and-beam roof. Name each type.

16. Prefabricated wall units consisting of a foamed polystyrene or paper honeycomb core instead of 2 × 4 framing are called ____ panels.
17. Box beams made of plywood webs are often used in post-and-beam construction because of their high strength-to-weight ratio. They can be designed to span distances up to _____.
   A. 60'
   B. 80'
   C. 100'
   D. 120'

18. Laminated wood beams and arches are usually made from layers of (hardwood, softwood) glued together with waterproof adhesives.

19. In residential construction, laminated beams are generally straight or tapered. In institutional or commercial buildings, however, they are often formed into curves, arches, and other shapes. Provide the correct name for the standard forms shown below.

   A. 
   B. 
   C. 
   D. 
   E. 
   F. 

20. When fabricating long lengths of laminated arches and beams, it is usually necessary to join the ends of pieces that make up a given layer. A special finger joint is commonly used. These joints should be staggered at least ____ in adjacent layers.
   A. 16''
   B. 24''
   C. 32''
   D. 36''