**Pretest Info Section Fastening Systems & Safety**

1. What are some advantages of EATs (Explosive Actuated Tools) or PATs (Powder Actuated Tools) over drilling and using anchors for fastening? **Completely portable and requires no external source of power**

2. What is the most important factor in safe efficient use of PATs? **Operator training**

3. What are the three main components of a PAT fastening system? **Tool, fastener, and powerload**

4. What is the term used to describe a PAT where the expanding gas of the powder load acts on a captive piston which, in turn, drives the fastener into the work? **Indirect acting**

5. What are the two classes of PATs? **Low velocity and high velocity**

6. What is the term used to describe the substance you are fastening to? **Base materials**

7. What are the three unsuitable characteristics for base materials? **Too hard, too brittle, and too soft**

8. What device is used for a center-punch test? **Fastener**

9. What are the three results of a center-punch test? **Point impression without damage to fastener, Point is blunted, and Material cracks or shatters**

10. What is the minimum edge distance when firing in concrete? **50 mm**

11. What is the minimum distance between fasteners when firing in concrete? **75 mm**

12. What is the result of firing into concrete that is too thin? **Concrete breaks away and reduces holding power**

13. When is it ok to fire into a mortar joint in block construction? **It is a horizontal joint**

14. How is holding power increased when fastening soft materials (wood or Styrofoam insulation) to concrete? **Large washer**

15. What is the minimum edge distance when firing into steel? **12.7 mm**

16. What is the minimum distance between fasteners or from a cut or weld when firing into steel? **50 mm**
17. What is the purpose of a knurled shaft on a fastener for steel? More holding power

18. How many pounds of pull are exerted on a fastener when two foot pounds of torque are applied to a nut on a threaded stud? 400 pounds

19. What is the proper time to load a PAT? Just before firing it