Expert Technical Training’s "Advanced CNC Milling and Drilling" Quiz Key

Here are the answers to the quiz:

1. What is the maximum rpm you should run a holder if it is unbalanced in a V-tapered spindle?
   ___ 4,000 rpm
   ___ 6,000 rpm
   _x_ 8,000 rpm
   ___10,000 rpm

2. Unless it has a special design to ensure Z-Axis accuracy, V-tapered tooling should never be run faster than...
   ___ 6,000 rpm
   ___ 8,000 rpm
   ___10,000 rpm
   _x_ 12,000 rpm

3. Countless tests have proven which of the following tool tapers to be superior in radial and axial stiffness, z-axis repeatability and performance for high speeds?
   ___ CAT
   _x_ HSK
   ___ BT
   ___ SK

4. You should never use a cutter that has _________________ in a hydraulic holder, a milling chuck or in high speed applications.
   _x_ Weldon flats
   ___ Hybrid coatings
   ___ Multiple inserts
   ___ Through-spindle coolant

5. One of the key limiting factors of a C-frame mill design is...
   ___ Workpiece visibility
   ___ Top-end rpm
   ___ Tool-magazine capacity
   _x_ Y-axis rigidity

6. What is the name of the rotational axis that corresponds with the Y-linear axis?
7. The machine ____________ plays a key role in isolating and absorbing vibrations and shock from the cutting operation on the machine as well as surrounding impacts on the shop floor.

___ Column
___ Frame
___ Ways
_x_ Foundation

8. If the _________________ is too long on a machine, it may whip in the center, causing machine-component- and part-damaging vibrations.

___ Linear Guide Way
_x_ Ball Screw
___ Rack and Pinion
___ Box Way

9. Using a ________________ in your CAM program eliminates 90 degree corner moves, saving on tool and machine life, as well as increasing part quality.

___ Radial Lead-in
_x_ Smoothing-radius
___ Collision check
___ Radial Step-over

10. A material’s machinability rating is a(n) ______________ value given to a particular material’s ease with which it is machined.

___ Objective
_x_ Subjective
___ Standardized
___ Letter

11. _________________ is a measure of the linear-distance that a single point on the outside edge of the cutter is moved around the circumference as the cutter rotates in one minute.

___ Feed rate
_x_ Cutting Speed
12. Using (an) _________________ can destroy the effectiveness and efficiency of a cut when machining ferrous alloys with coated-carbide cutters.

_ x_ Flood coolant  
___ Air blast  
___ Air/Mist blast  
___ Chipbreakers

13. When taking a depth of cut that is smaller than the full radius of the cutter, the actual amount of the cutter that is engaged into the workpiece is called the...

___ Actual Diameter  
___ Actual Engagement  
___ Effective Radius  
_ x_ Effective Diameter

14. A standard for maximum Length to Diameter (L:D) ratio for normal sized (not micromachining) cutters being held outside the holder, without having to slow rpm and feed, is...

___ 2:1  
___ 3:1  
_ x_ 4:1  
___ 5:1

15. _____ is a man-made synthetic cutter that has greater thermal resistance than diamond.

_ x_ CBN  
___ CVD  
___ PCBD  
___ PCD

16. _________________ is the secondary ingredient used in tungsten carbide cutters that acts as a binder, and has a dramatic affect on the overall hardness of the carbide itself.

___ Aluminum  
___ Iron-carbide  
_ x_ Cobalt  
___ Silicon
17. The ________________ of the cutter is responsible for generating the essential aluminum-oxide in a high-speed cut in ferrous materials.

___ Geometry
___ Thickness
___ Speed
_x_ Coating

18. To perform high speed machining, all holders and components should be balanced to a rating of __________ for the rpm they will be run.

___ G1.0
___ G1.5
___ G2.0
_x_ G2.5

19. High speed machining (which might more appropriately be called “High-Efficiency Machining”) works because the ______________ and ______________ are controlled at the point of cut.

_x_ Heat, Vibration
___ RPM, Feed rate
___ Loads, Limits
___ Time, Temperature

20. High-speed machining begins at 8,000 rpm and 100 ipm.

___ True
_x_ False