Homework - Operating Drilling Machines

Student Name_____ Date: _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Assuming that a drill press operator has selected the proper tool, assured his own safety and adequately clamped the workpiece, what other considerations should he make before starting the drill press? 1) _____
   A) Set up the correct speed and feed. Select a cutting tool
   B) Make sure he has his foreman's consent
   C) Consult a drill feed chart and set the drill RPM. Then calculate the feed per revolution
   D) Get lubricating oil, turn on the machine and make a chip. If it is long and and blue, the feed and speed are just right

2) If the drilling speed is too high for the diameter of the drill and for the material being drilled, the result is: 2) _____
   A) Chips jammed in the flutes
   B) More feed is required to get the drill to cut and it often breaks
   C) A rough hole
   D) The margins or outer corners will break down

3) Which of the following is the correct RPM for drilling a 1.000 inch diameter hole in SAE 4140 if the CS is 50 SFM? 3) _____
   A) 1600 B) 160 C) 250 D) 25

4) If the drilling speed is too low for the diameter of the drill and the material being drilled 4) _____
   A) The margin or outer corners are broken down
   B) The cutting edges become dulled
   C) Chips become jammed in the flutes
   D) More feed is required to get the drill to cut thus breaking the drill

5) When using a sensitive drill press, you can tell if the feed is approximately right in soft steel, if the: 5) _____
   A) Chip is in short segments B) Chips come out long and stringy
   C) Chips come out blue or violet in color D) Chip is a tightly rolled helix

6) Which of the following could be an acceptable feed for a 1/2 (.500) inch diameter drill in low carbon steel? 6) _____
   A) 90 SFM B) .005 inch per revolution (IPR)
   C) 720 revolutions per minute D) 2 inches per minute

7) Coolants may be divided into two groups, the mineral and animal oils and the: 7) _____
   A) Air coolants B) Water soluble oils
   C) Lubricants D) Refrigerants

8) Which cutting fluid would be be best for reaming or tapping low carbon steel? 8) _____
   A) Sulfurized oil B) Soluble oil C) Lubricating oil D) Kerosene

9) Jamming of drills, when drilling deep holes, can be avoided by using a procedure called: 9) _____
   A) Withdrawal B) Pecking C) Chipping D) Alternating

10) The depth stop on a drill press is used for: 10) _____
A) Alerting the operator by ringing a bell when the drilling tool is approaching the depth where it should stop
B) Keeping the quill from falling out by stopping it at full depth
C) Limiting its stroke and thus preventing the drill from drilling into the table
D) Detecting when the drill has stopped cutting and then shutting off the machine

11) Workholding devices are used on drilling machines because: 11) _____
A) They help to reduce worker fatigue that results from holding the workpiece by hand
B) They keep the workpiece from turning with the drill and they provide a rigid setup that is safe
C) They always automatically position the place to be drilled directly under the spindle and then guide the drill
D) All of the above

12) Which of the following are all workholding devices? 12) _____
A) Strap clamps, C-clamps, vee blocks, angle plates and drill chucks
B) Jigs and fixtures, vises, angle plates, vee-blocks, wigglers and C-clamps
C) Vises, vee-blocks, wigglers, strap clamps and C-clamps
D) Strap clamps, angular vises, C-clamps, vee blocks and angle plates

13) Parallels are used for: 13) _____
A) Heavy, rough drilling
B) Scribing a parallel line along a shaft
C) Aligning a center punch mark on round stock in vee-blocks
D) Spacing workpieces off the drill press table or vise.

14) When a long workpiece is supported so it can spring down from the drilling pressure, what can be the result? 14) _____
A) The drill will get overheated and loose its temper
B) The work will fly off the machine
C) The drill may be broken
D) The drill may become dull

15) Angle drilling is done by: 15) _____
A) An angular workpiece
B) An angle drill press
C) Angle iron
D) A tilting type table or angular vise

16) Vee-blocks are mostly used on the drill press for: 16) _____
A) A substitute step block
B) Quick drilling jobs without the need for clamps or other hold downs
C) Holding round stock for cross drilling
D) Holding round stock in a vertical position to drill deep holes lengthwise of the material

17) A wiggler is a: 17) _____
A) Device like a fishing lure that indicates approximate RPM of the drill
B) Spring loaded, scribe like indicator that can be trued to center by pushing on a ball near its point
C) Shop term for a workpiece without clamps that has caught in a drill and is spinning around
D) Hold down device that allows the workpiece to "wiggle" until it is centered under the drill spindle

18) An angular, odd shaped workpiece cannot be mounted satisfactorily on the drill table or in a vise. It has one machined surface and the hole to be drilled must be parallel to it. How can this work be set up? 18) _____

A) A special fixture would have to be made
B) There is no way to clamp it, so you would have to hold it with your hands
C) It can be clamped in vee-blocks
D) It can be clamped to an angle plate

19) It is sometimes a good idea to start a tap with a drill press since: 19) _____

A) If you get tired turning the tap by hand, you can always turn on the machine
B) Taps are prone to go in crooked when started by hand
C) You can put a lot of force on the tap with the drill press feed handle
D) All of the above

20) Jigs and fixtures are primarily used in: 20) _____

A) Production manufacturing operations
B) Maintenance type machine shops
C) Small machine shops
D) School shops