

Iowa State University
Department of Mechanical Engineering
Collegiate Design and Student Organization Shop

Machine-Specific Laboratory Safety Examination

To use machinery outlined in the machine-specific section of the safety manual you must complete relevant quiz sections and score a minimum of 80%. Only the quiz sections relevant to the machinery being used needs to be filled out and the remaining quiz sections can be left blank. During the calendar year additional machine-specific quizzes can be taken to further your certification.

Students scoring less than 80% on an individual section **MUST** retake the exam for the failed sections until a minimum score of 80% is achieved before certification can be awarded for said machinery. All quizzes must be signed and dated.

Exam Instructions: Match the "best" term on the right to complete the statement on the left. Some terms may be used more than once but not all terms are used in all sections.

Name (Clearly Printed): _____

Signature: _____

Date: _____

Lathes

- 1) The proper PPE to wear when operating either lathes is _____ and _____.
- 2) Using _____ on a cutting tool is an effective way to keep the tool sharp.
- 3) Make sure to have long _____ restrained, remove _____, and never wear clothing such as _____ which could get caught in the machine.
- 4) If coolant has dripped on the floor clean it up promptly with a _____.
- 5) To turn off the large lathe _____.
- 6) To turn off the small lathe _____.
- 7) Ensure the _____ is removed before starting the lathe.
- 8) The large lathe is equipped with a _____, whereas the small lathe is not.

- A) Safety Glasses; Closed Clothes Shoes
- B) Safety Glasses; Gloves
- C) Coolant
- D) Hair, hanging jewelry, neck ties
- E) Neck ties, hanging jewelry, neck ties
- F) Mop
- G) Shopvac
- H) Turn the red handle to the center and switch the master switch to off.
- I) Turn the gold knob to disengage the drive and flip the red handle to the center to shut off motor.
- J) Chuck Key
- K) Shield

Band saws

- 1) The proper PPE to wear when operating the band-saws is _____ and _____.
- 2) Use a _____ on the vertical band-saw when cutting small materials will keep the end user from getting too close to the saw.
- 3) Be sure to clean _____ spills from around the horizontal band-saw.
- 4) _____ must be closed when operating the vertical band-saw
- 5) The vertical band-saw has an emergency shut-off switch.
- 6) The horizontal band-saw should automatically shut-off when it reaches its lowest point in its travel.
- 7) Since the horizontal band-saw automatically shuts off when it reaches the bottom of its travel it is ok to leave it unattended. _____
- 8) Keep _____ a safe distance away from the machine

- A) Safety Glasses, Closed-toed Shoes
- B) Safety Glasses, Gloves
- C) Push-stick
- D) Coolant
- E) Maintenance Panel
- F) False
- G) True
- H) Bystanders
- I) MAPP Gas

*** Certain answers may be used more than once and others might not be used at all.

CNC Mill

- 1) The proper PPE to wear when operating the CNC Mill is _____ and _____.
- 2) Direct _____ away from people and yourself
- 3) Never operate the CNC mill under _____.
- 4) Make sure to flip up _____ when not using the mill or when a CNC program is running.
- 5) The emergency kill switch is the _____.
- 6) To clean off the table of the CNC use a _____ or Shopvac.
- 7) Remove loose clothing, jewelry, and/or support long _____

- A) Safety Glasses, Closed-toed Shoes**
- B) Safety Glasses, Gloves**
- C) Air Nozzle**
- D) Vise Wrench**
- E) The influence of drugs or alcohol**
- F) Table knobs**
- G) Lockout box behind the control panel**
- H) Red switch on the control panel**
- I) Broom**
- J) Hair**
- K) Neckties**

CNC Foam Router

- 1) The proper PPE to wear when operating the CNC Foam Router is _____ and _____.
- 2) Make sure the _____ is on whenever operating the router.
- 3) The emergency kill switch on the Router is _____.
- 4) Keep clear of the _____ and _____ whenever router is operating.
- 5) Ensure _____ are kept a safe distance away from router during operating.

- A) Safety Glasses, Closed-toed Shoes**
- B) Safety Glasses, Gloves**
- C) Vacuum**
- D) Air Nozzle**
- E) On the vacuum**
- F) Non-existence.**
- G) Track; Rails**
- H) Table Knobs; Rails**
- I) Bystanders**

Welding

1. It is unsafe to open a cylinder unless the gauges diaphragm is _____.
2. It is unsafe to stand _____ the regulators gauges when the cylinder valve is being opened.
3. Always use the proper _____ eye protection when welding or plasma cutting
4. NEVER lubricate regulating gauges or hose fittings with _____.
5. The rule for beginning welders is to never attempt heating, cutting, or welding on _____.
6. One must wear long-legged pants with out _____ when working in the shop.
7. One can get _____ if any part of the body is exposed during a welding operation.
8. Remove the electrode from the _____ when work is finished.
9. Use on clean _____ rags to clean welding cables.
10. Never dip an electrode holder in _____ to cool it.
11. Workstations should be _____ to prevent an arc flash from injuring people.
12. *Never _____ on a welding cable to force it over an obstruction.*
13. Before leaving for the day you should properly _____ and put away all welding equipment.
14. When doing any type of electrical welding, make sure the floor area, welding gloves, shoes and clothes are _____.

- A. In Front Of**
- B. Hollow Castings or Containers**
- C. Dry**
- D. Sunburned**
- E. Released**
- F. Shaded**
- G. Cuffs**
- H. Oil**
- I. Electrode Holder**
- J. Tested**
- K. Wet**
- L. Long Sleeves**
- M. Safety Observer**
- N. Clear**
- O. Shielded**
- P. Face Shield**
- Q. Water**
- R. Gas Cylinder**