JILA Clean Room Safety Quiz

(10 Questions)

1. Some of the noxious fumes released in the lithography bay away from the benches:
   A) Are vented to the outside.
   B) Are mixed with fresh air and returned to the clean room through HEPA filters for several minutes
   C) May find their way to the adjacent bays and corridor.
   D) All of the above.
   E) B & C only.

2. Why must special care be taken to identify the correct chemical storage containers?
   A) Some containers hold dangerous chemicals, including hydrogen fluoride and piranha solution.
   B) Dangerous chemicals require special care and attention.
   C) The room's amber lights may make it hard to see the true color of the container label.
   D) All of the above.
   E) A & B only.

3. Before entering the JILA Clean Room must:
   A) Be current on all JILA and EH&S safety requirements.
   B) Must don a clean-room gown, booties, safety glasses, hair covering and gloves.
   C) Set aside all food/beverage items.
   D) All of the above.

4. Which of the following rules must be observed in the JILA Clean Room?
   A) Use of Hydrofluoric Acid is restricted to the HF processing station.
   B) Chlorinated solvents are allowed.
   C) Heated vapor deposition (HMDS) and passive vapor etching is not allowed without permission of the lab manager.
   D) Users of the lithography bay and those wishing to use the eliminators in the fabrication bay must complete the EH&S Radiation Safety training and quiz.
   E) All of the above.
   F) A, C & D only.

5. Which additional rules must be observed in the JILA Clean Room?
   A) Label all containers with used chemicals as "waste".
   B) All chemicals and chemical containers must be covered and labeled.
   C) No glass or metal closed-vessel reactors are allowed.
   D) You must do a walk-through with the Clean Room Manager before being approved to use the JILA Clean Room.
   E) All of the above
   F) B & C
   G) B – D

6. Standard safety procedures in the JILA Clean Room include:
    A) Noticing any spills or containers already on the bench before you start work
    B) Not undertaking any chemical process or mixing without knowing what to expect and what might go wrong.
    C) Avoiding the use of incompatible materials at the same time
    D) Letting someone know you are going to work in the clean room and approximately when you'll return.
    E) All of the above
    F) A & C

7. Hydrofluoric (HF) acid is an extraordinary hazard because:
    A) It is a contact poison.
    B) It affects nerve function, and contact with skin may go unnoticed.
    C) It is readily absorbed and can cause deep tissue damage.
    D) Its fumes are just as harmful if not properly contained.
    E) It can cause osteoporosis.
    F) It can cause cardiac arrest.
    G) All of the above
    H) All of the above except E.

8. When using HF,
    A) Use only in the processing bench designated for HF use only.
    B) Always wear a face shield and/or work with the hinged sash down.
    C) Protective clothing is optional.
    D) Always wear MAPA gloves and vinyl coat apron.
    E) All of the above.
    F) All of the above except C.

9. If you are exposed to HF,
    A) Remove any affected clothing and set aside as hazardous material.
    B) Rinse the contact site with water immediately for 5 minutes.
    C) After rinsing, liberally apply the antidote calcium gluconate to the site.
    D) Seek immediate medical attention.
    E) All of the above.

10. Piranha solution
    A) Is one component of a two-part high explosive that is unstable above 10 degrees Celsius.
    B) Is a solution of sulfuric acid and dinitrogen tetroxide
    C) Can cause explosions with organic solvents
    D) Should only be used in a hood
    E) Should be handled only if you are wearing double nitrile or MAPA gloves
    F) All of the above.
    G) All of the above except B.