<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Which of the following should be removed in order to obtain a good penetrant test?</td>
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<tr>
<td></td>
<td>Varnish</td>
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<td></td>
<td>Oxides</td>
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<td></td>
<td>Plating</td>
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<td></td>
<td>All of the above</td>
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<tr>
<td>2</td>
<td>Which method is used to primarily to inspect small localized areas?</td>
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<tr>
<td></td>
<td>Method A</td>
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<td></td>
<td>Method B</td>
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<tr>
<td></td>
<td>Method C</td>
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<td></td>
<td>Method D</td>
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<tr>
<td>3</td>
<td>Large defects can be hidden under a paint surface because:</td>
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<td></td>
<td>The paint will fill in the cracks and change the fluorescence of the penetrant</td>
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<td></td>
<td>Paint is more elastic than metal and will not fracture</td>
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<td></td>
<td>The penetrant will adhere to the paint resulting in maximum fluorescence</td>
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<tr>
<td></td>
<td>All of the above apply</td>
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<tr>
<td>4</td>
<td>LPI can be used to test most materials provided the surface of the part is:</td>
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<td></td>
<td>Heated to a temperature above 100°F</td>
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<td></td>
<td>Is not extremely rough or porous</td>
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<tr>
<td></td>
<td>Smooth and uniform</td>
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<td></td>
<td>Cleaned with number 005 grit</td>
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<tr>
<td>5</td>
<td>Which level of penetrant is the most sensitive?</td>
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<tr>
<td></td>
<td>Level I</td>
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</table>
When performing a liquid penetrant test, the surface of the part under inspection should be:

- Slightly damp
- Clean and smooth to the touch
- Free of oil, grease, water and other contaminants
- All of the above

Dry developer should be checked ______ in order to ensure it is fluffy and not caked:

- Daily
- Weekly
- Monthly
- Every 500 parts run through it

When removing water washable penetrant the maximum water pressure should be:

- 25 psi
- 40 psi
- 50 psi
- 70 psi

When solvent removable penetrant is used:

- Care must be taken when removing the penetrant from the surface of the part
- It should be washed off the surface of the part at an angle of 45 degrees
- A low impact emulsifier should always be used
- A solvent removable emulsifier should also be used

Which developer form is used for dry powder developer?

- Form a
- Form b
- Form c
- Form d
The penetrants that are used to detect the smallest defects:
- Should only be used on aerospace parts
- Will also produce the largest amount of irrelevant indications
- Can only be used on small parts less than 10 inches in surface area
- Should not be used in the field

Which type of developer is considered the most sensitive?
- Water suspendable
- Water soluble
- Dry powder
- Nonaqueous wet

Which emulsifier is most sensitive to contact time when applied to the parts surface?
- Hydrophilic emulsifier
- Lipophilic emulsifier
- Fluorescent emulsifier
- Visible dye emulsifier

Dye vaporization or sublimation can result in:
- Penetrant fading
- Developer fading
- Emulsifier sensitivity
- Emulsifier fading

Developers come in a variety of forms and can be applied by:
- Dusting
- Dipping
- Spraying
- All of the above

Which developer form is used for water suspendible developer?
- Form a
- Form b
- Form c
- Form d
The total time that the penetrant is in contact with the part surface is called the:

- Soak time
- Baking time
- Dwell time
- Immersion time

When using a fluorescent penetrant, the brightness comparison is performed to:

- ASTM 410
- API 410
- ASNT TC-1A
- ASTM E 1417

The performance of a penetrant:

- Will remain consistent as long as it is stored in a temperature range of 50 to 100°F
- Will only degrade if the temperature exceeds 120°F
- Can be affected by contamination and aging
- Can be adjusted with the dwell time

Penetrant can be applied by:

- Dipping
- Brushing
- Spraying
- All of the above

If the surface of the part has been machined, sanded or grit blasted:

- The part may also require etching
- It can be immersed in penetrant for its entire dwell time
- It will require a shorter dwell time
- It will need to be heated in order to open any cracks that have been peened over

Which emulsifier system is water based?

- Hydrophilic emulsifier
- Lipophilic emulsifier
Type I emulsifier
- Form A emulsifier

How often should the UV light intensity be performed?
- When a new bulb is installed
- At startup of inspection cycle
- Every 8 hours
- All of the above

Developer is required to:
- Draw out the penetrant from the discontinuity
- Provide contrast between the penetrant and the parts background color
- Increase the penetrants fluorescence
- Both A and B

Which method of penetrant removal is post emulsified, hydrophilic?
- Method A
- Method B
- Method C
- Method D

For UV lights used in LPI, the accepted intensity is ______ microwatts per square centimeter.
- 100
- 500
- 700
- 1000

Most UV lights must be warmed up at least ___ minutes before beginning the inspection.
- 1
- 5
- 10
- 15

Post emulsified penetrants:
- Are most often used in the field
Should never be used in the field
Require a separate emulsifier to break the penetrant down and make it water washable
Require a separate emulsifier to break down the cleaner and make it solvent removable

**White light intensity at the surface of the part when using fluorescent penetrant should be:**

- A minimum of 100 foot-candles
- A maximum of 100 foot-candles
- A minimum of 50 foot-candles
- A maximum of 2 foot-candles

**Once the surface of the part has been cleaned properly, penetrant can be applied by:**

- Spraying
- Brushing
- Dipping
- All of the above

**Which of the following is an advantage to LPI?**

- Large areas can be inspected
- Parts with complex shapes can be inspected
- It is portable
- All of the above is an advantage

**Developers are used to:**

- Make the penetrant fluoresce
- Reduce the dwell time
- Pull trapped penetrant material out of the defect
- All of the above

**Solvent suspendable developers are applied by:**

- Dipping
- Brushing
- Spraying
- Immersion
34 The water content of water washable penetrants:
- Should be performed daily
- Should be performed weekly
- Should be performed monthly
- Must be checked regularly

35 A penetrant must:
- Change viscosity in order to spread over the surface of the part
- Spread easily over the surface of the material
- Have a low flash point
- Be able to change color in order to fluoresce

36 Which developer form is used for nonaqueous Type I developer?
- Form a
- Form b
- Form c
- Form d

37 Which developer is commonly considered as the least sensitive?
- Dry developer
- Non-aqueous wet developer
- Hydrophilic developer
- Lipophilic developer

38 Dry developer can be applied:
- To a wet part
- To a partially wet part but needs to be placed in a dryer immediately
- To a dry part
- All of the above

39 Water soluble developers consist of a group of chemicals that are:
- Saturated in water and experience a chemical shift allowing it to fluoresce on the parts surface
- Only used on rough porous surfaces
- Dissolved in water
- Not to be used on galvanized parts
Water suspendible developers consist of a group of chemicals that are:
- Saturated in water and experience a chemical shift allowing it to fluoresce on the parts surface
- Only used on rough porous surfaces
- Dissolved in water
- Insoluble in water but can be suspended in the water after mixing or agitation

Penetrants are designed to:
- Perform equally
- Perform the same no matter who manufacturers them
- Shift in grade and value when the temperature changes
- Remain fluid so it can be drawn back to the surface of the part

When a permanent record is required which type of developer can be used:
- Lacquer developer
- Nonaqueous developer
- Layered developer
- Peeling developer

When penetrant is first received from the manufacturer:
- A sample of fresh solution should be collected and stored as a standard for future comparison
- It should be compared to the previous batch of penetrant
- It should be mixed with the used penetrant in order to increase its sensitivity
- It should be compared to the previous penetrants sensitivity

The advantage that liquid penetrant testing has over an unaided visual inspection is that:
- The actual size of the discontinuity can be measured
- The depth of the defect can be measured
- The cause of the impact can be seen
- It makes defects easier to see for the inspector

Which type of penetrant is a visible penetrant?
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td><strong>46</strong> A good cleaning procedure will:</td>
<td>- Remove all contamination from the part and not leave any residue that may interfere with the inspection process</td>
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<tr>
<td></td>
<td>- Remove a small amount of metal from the surface of the part</td>
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<td></td>
<td>- Should leave the part slightly fluorescent in order to identify any discontinuities</td>
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<td></td>
<td>- Should etch the part slightly only if it is made from 4041 aluminum</td>
</tr>
<tr>
<td><strong>47</strong> It is well recognized that machining, honing, lapping and hand sanding will result:</td>
<td>- In a better penetrant inspection</td>
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<td></td>
<td>- In a longer dwell time in order to produce adequate penetration of the penetrant</td>
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<td></td>
<td>- Longer dwell times</td>
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<td></td>
<td>- Metal smearing</td>
</tr>
<tr>
<td><strong>48</strong> Which penetrant method is easiest to use in the field?</td>
<td>- Fluorescent, post-emulsifiable</td>
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<td></td>
<td>- Visible dye, water washable</td>
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<tr>
<td></td>
<td>- Visible dye, solvent removable</td>
</tr>
<tr>
<td></td>
<td>- Fluorescent, water washable</td>
</tr>
<tr>
<td><strong>49</strong> Which type of penetrant is a fluorescent penetrant?</td>
<td>- Type I</td>
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<td></td>
<td>- Type II</td>
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<td></td>
<td>- Type III</td>
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<td></td>
<td>- Type IV</td>
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<td><strong>50</strong> What is the optimal temperature of penetrant materials and the part under inspection in order to obtain the best results?</td>
<td>- 50 to 80º F</td>
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<td>- 80 to 120º F</td>
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<td></td>
<td>- 35 to 100º F</td>
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80 to 100°F