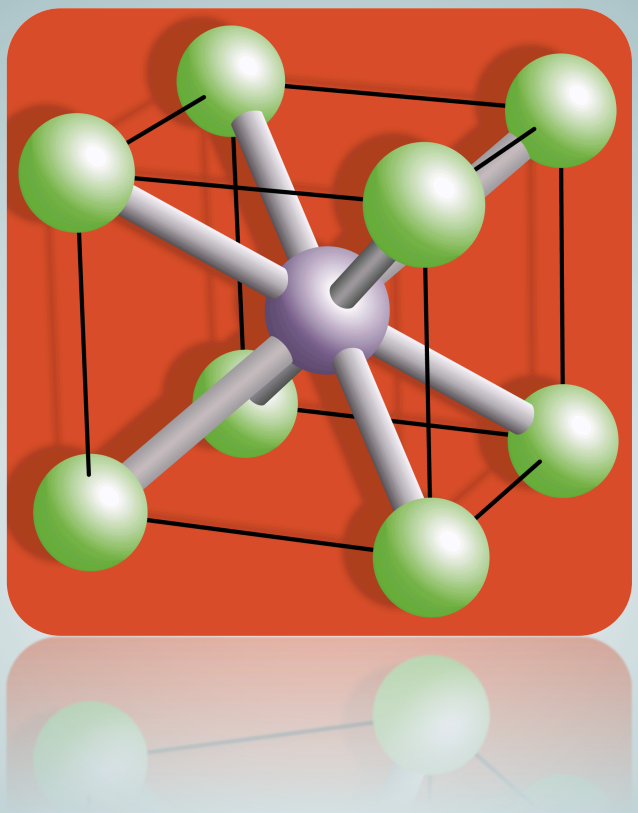
Materials

Test 02. Topic 4 - Topic 7



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2nd Test MATERIALS. L4-L7		Nº	Mark
ACADEMIC YEAR:	Date:		
Surname:	Name:		

Shade the correct box considering that, at least, one of them is valid. **(10 minutes)**

1.- From tensile tests we obtain material ductility parameters such as:

- ☐ yield strength
- ☐ strain under maximum load
- ☐ elongation at break
- ☐ tensile strength

2.- The extensometer used in the tensile test of a specimen

- ☐ registers elongation
- ☐ directly measures the strain
- ☐ always requires contact points with the specimen
- ☐ evaluates the separation of the clamps that fix the specimen

3.- The necking of a specimen tested under tension:

- ☐ begins when it reaches the maximum point of the curve
- ☐ is related to the reduction of area
- ☐ is very low or zero in brittle materials
- ☐ is measured with the extensometer.

4.- The unloading in the tensile test of a steel from the plastic zone (without breaking):

- ☐ softens steel
- ☐ stiffens steel
- ☐ increases the yield strength of steel
- ☐ makes steel more flexible.

5.- The ductile type fracture is characterized by a breaking surface:

- ☐ with a shiny appearance
- ☐ of low roughness
- ☐ with coalescent microvoids (grouped)
- ☐ with reduction of notorious area

6.- Brittle type fracture is characterized by having a breaking surface:

- ☐ with a matte appearance
- ☐ low roughness (cleavage)
- ☐ with coalescent microvoids (grouped)
- ☐ with small or no area reduction

7.- The footprint left by a spherical indenter on the surface of a steel:

- ☐ allows to obtain the Vickers hardness
- ☐ is produced with a sclerometer
- ☐ allows to obtain the Rockwell A hardness
- ☐ Can determine the Brinell or Rockwell B hardness

8.- The admissible stress (σ_C) necessary to suddenly propagate a crack (of length "a") is

- ☐ less than the theoretical tensile strength of the material (σ_R)
- ☐ independent of the geometry of the material
- ☐ proportional to $a^{1/2}$
- ☐ proportional to $a^{-1/2}$

9.- It has been proven, experimentally, that the behavior in fatigue of low number of cycles in components free of cracks, follows the law of

- ☐ Paris
- ☐ Coffin-Manson
- ☐ Palmgren – Miner
- ☐ Basquin

10.- The endurance of a material

- ☐ is its fatigue limit
- ☐ is determined from Wöhler's diagram
- ☐ is represented as ΔK_{th}
- ☐ is its fatigue life