SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-641 035, TAMIL NADU

DEPARTMENT OF MECHANICAL ENGINEERING
QUESTION BANK

Academic Year	**2024-2025 (Odd)**	Semester	**III**
Year & Branch	**II MECH B**	Course	**23MET203 & Engineering Materials & Metallurgy**
Faculty i/c	**Dr. G. Yuvaraj**		

UNIT-I -MECHANICAL PROPERTIES AND DEFORMATION MECHANISMS

PART-A

1. Define slip.
Plastic deformation as the resultof dislocation motion; also, theshear displacement of two Adjacent planes of atoms.

2. Define twinning.
A twin boundary is a special type of grain boundary across which there is a specific mirror lattice symmetry; that is, atoms on one side of the boundary are located in mirror image positions of the atoms on the other side

3. What is a fracture?
Simple fracture is the separation of a body into two or more pieces in response to an imposed stress that is static (i.e., constant or slowly changing with time) and at temperatures that are low relative to the melting temperature of the material.

4. Write types of fractures.
- Ductile Fracture
- Brittle Fracture
- Fatigue fracture and
- Creep fracture.

5. What is fatigue fracture?
Materials subjected to extended cyclic loading may result in delayed fracture called fatigue fracture.

6. What is creep?
Under the influence of a constant applied stress many materials continue to deform indefinitely. This process is called creep.

7. What is brittle fracture?
The failure of a material without apartment plastic deformation is called brittle fracture.

8. What are transgranular and intergranular fracture?

In many brittle crystalline materials, crack propagation occurs along specific crystallographic planes; such a process is termed cleavage. This type of fracture is said to be transgranular in tragranular fracture because fracture cracks pass through grains. The fractured surface looks grainy or granular. In some alloys, crack propagation along grain boundaries is also possible; this is termed Intergranular fracture. This yields a relatively shiny and smooth fracture surface.

9. What are creep and creep resistance

Creep is the property of a material by which it deforms continuously under a steady load (yielding). The deformation during creep is no recoverable. The creep can produce fracture or rupture even though the applied stress is lower than the Ultimate stress. So the creep in materials should be avoided, particularly at high temperatures.

Creep resistance is the property of the material by which the continuation of creepIs stopped.

10. What are the two types of Deformation in metals?

- Elastic deformation
- plastic deformation

11. What is plastic deformation?

Deformation that is permanent or non recoverable after release of the applied load. It is accompanied by permanent atomic displacements.

12. What is Elastic deformation?

Deformation that is nonpermanent, that is, totally recovered upon release of an applied stress.