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NPTEL

Courses » Creep deformation of materials

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Unit 6 - Week 4

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Course outline

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Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.   **Due on 2019-02-27, 23:59 IST**

1) Continuum damage mechanics (CDM) based approach is useful for *1 point* creep life modelling than creep life modelling based on steady state creep rates from a single mechanism because

○ CDM approach accounts for the damage process which is not taken into account during modelling based on a single creep mechanism

○ CDM approach considers a constant stress while single creep mechanism based approach considers a constant temperature

○ CDM approach uses an exponential dependence on stress whereas single creep mechanism based approach uses a power law dependence on stress.

○ CDM approach does not account for instantaneous changes in stress whereas single creep mechanism based approach accounts for instantaneous changes in stress.

No, the answer is incorrect.
Score: 0

Accepted Answers:
CDM approach accounts for the damage process which is not taken into accou during modelling based on a single creep mechanism

2) In Ti-1100 alloy, the lamellar microstructure provides better creep *1 point* resistance than the bimodal microstructure because

○ The lamellar microstructure has higher elastic modulus than the bimodal microstructure

○ The lamellar microstructure has higher stacking fault energy than the bimodal microstructure

○ The lamellar microstructure provides greater geometric obstacles for dislocation motion than the bimodal microstructure

3) Addition of Zn to Cu improves the creep resistance of Cu because   **1 point**

○ Zn increases the elastic modulus of Cu

○ Zn increases the melting point of Cu

○ Zn reduces the stacking fault energy of Cu

○ Zn increases the grain size of Cu.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Zn reduces the stacking fault energy of Cu

4) Trace elements can sometimes reduce with the creep resistance of   **1 p[oint]**
materials because

○ They reduce the diffusivity of defects in the parent material

○ They enhance the diffusivity of defects in the parent material

○ They reduces the elastic modulus of the parent material

○ None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
They enhance the diffusivity of defects in the parent material

5) A test in which progressive creep deformation and time to rupture are measured is known as a creep

[ ]

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) rupture test
(Type: String) rupturetest

                                   1 point

6) The _____creep testing technique is less suitable for studying ceramics.

[ ]

No, the answer is incorrect.
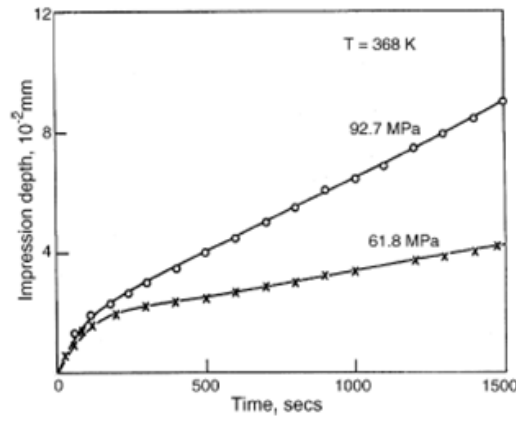**Score: 0**

Accepted Answers:
(Type: String) tensile
(Type: String) TENSILE

                                   1 point

7) The creep curves obtained from an impression creep test are shown below. If the diameter of the punch is 1 mm, the stress exponent of the creep deformation is _____

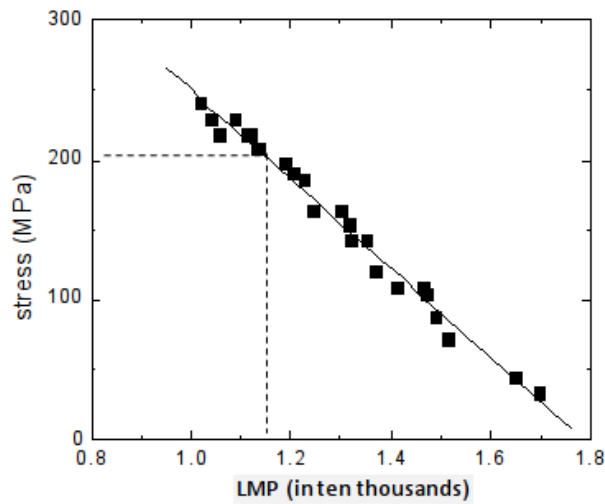Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 3.0

1 point

8) Below is the stress vs LMP plot for pure Ti. The LMP value for an applied stress of 200 MPa is _____

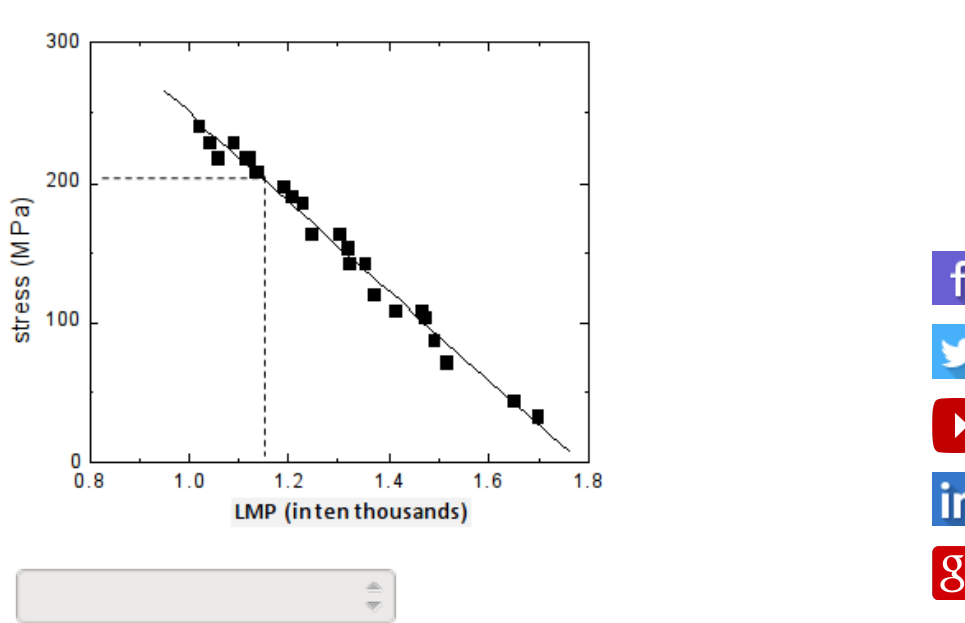**No, the answer is incorrect.**
Score: 0

Accepted Answers:
(Type: Numeric) 11500

1 point

9) The time to failure, if the test temperature is 300 °C and assuming the constant C is 15 for Ti is _____ hours

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 159

1 point

10) The impression creep strain rate is basically the ratio of the   *1 point*

○ Steady state punch velocity and diameter of the punch
○ Displacement of the punch and the diameter of the punch
○ Steady state punch velocity and the displacement of the punch
○ Steady state punch velocity and the largest dimension of the sample

No, the answer is incorrect.
Score: 0

Accepted Answers:
Steady state punch velocity and diameter of the punch

11) The concept of deformation mechanism maps for creep deformation of materials was proposed and developed by _____

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: String) M.F. Ashby
(Type: String) MF Ashby
(Type: String) M F Ashby
(Type: String) Ashby M F
(Type: String) Ashby.M.F
(Type: String) Ashby M.F
(Type: String) Ashby M.F.
(Type: String) M.F.Ashby
(Type: String) M.F Ashby

1 point

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