Assignment 12

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. **Due on 2019-04-24, 23:59 IST.**

1) Choose the correct statement:  **1 point**

- Engineering stress is roughly equal to the true stress at lower strains but the difference increases with increasing strain
- Engineering stress is significantly different from true stress at lower strains and the difference increases with increasing strain
- Engineering stress is significantly different from true stress at lower strains but the difference decreases with increasing strain
- Engineering stress is roughly equal to the true stress at all strain levels

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Engineering stress is roughly equal to the true stress at lower strains but the difference increases with increasing strain*

2) Which of the following materials would creep significantly at 100°C?  **1 point**

<table>
<thead>
<tr>
<th>Material</th>
<th>Tin</th>
<th>Lead</th>
<th>Zinc</th>
<th>Copper</th>
<th>Iron</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point (°C)</td>
<td>232</td>
<td>327</td>
<td>420</td>
<td>1083</td>
<td>1539</td>
</tr>
</tbody>
</table>

- Zn, Sn and Pb
- Zn
- Fe, Cu
- Sn and Pb

No, the answer is incorrect.
12.1 True stress and True Strain
12.2 Creep
12.3 Effect of Stress and Temperature on Creep
12.4 Creep Mechanisms
12.5 Composites
12.6 Isostrain Modulus
12.7 Isostress Modulus
12.8 Fracture
12.9 Ductile and Brittle Fracture
12.10 Role of Crack Size
12.11 Griffith's Criterion
12.12 Stress Concentration
12.13 Ductile to Brittle Transition
12.14 Enhancing Fracture Resistance
12.15 Toughening of Glass: Tempering
12.16 Toughening of Glass:

4) Creep can occur by ___________.
P: diffusion
Q: grain boundary sliding
R: cross-slip of dislocations

No, the answer is incorrect.
Score: 0
Accepted Answers:
P, Q and R

5) The temperature required to initiate creep in a material ________ when the stress is decreased.

No, the answer is incorrect.
Score: 0
Accepted Answers:
increases

6) A continuous aligned fiber composite is made of E-glass fibres and an epoxy resin matrix. The Young’s modulus (in GPa) of the composite along the direction of the fibers is found to be 40 GPa. The Young’s modulus of E-glass fiber = 85 GPa and that of epoxy resin = 12 GPa. Find the approximate volume fraction of the fibers.

No, the answer is incorrect.
Score: 0
Accepted Answers:
38

7) The significant features of a brittle fracture are ________ and ________.

No, the answer is incorrect.
Score: 0
Accepted Answers:
low energy absorption, significant plastic deformation
No, the answer is incorrect.
Score: 0

Accepted Answers:
low energy absorption, no significant plastic deformation

8) A higher surface energy ______ the formation/growth of cracks as the formation/growth of a crack creates new surfaces which ______ the total energy of the system.

- resists, increases
- favours, increases
- favours, decreases
- resists, decreases

No, the answer is incorrect.
Score: 0

Accepted Answers:
resists, increases

9) During fatigue the crack grows due to ________________.

- constant stress
- cyclic stress
- monotonically decreasing stress
- monotonically increasing load

No, the answer is incorrect.
Score: 0

Accepted Answers:
cyclic stress

10) Tempering of glass enhances fracture strength of glass by introducing ________________.

- residual compressive stresses in the surface but not inside
- residual tensile stress in the surface but not inside
- residual compressive stress inside but not on the surface
- residual tensile stress both on surface and inside

No, the answer is incorrect.
Score: 0

Accepted Answers:
residual compressive stresses in the surface but not inside