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Courses » Theory of Production Processes

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## Unit 7 - Week 6

### Course outline

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Week 6

Lecture 26: Yield criteria for ductile materials

Lecture 27: Flow rules, Plastic stress strain relationships

Lecture 28: Classification of metal working processes

Lecture 29: Mechanics of metal working

Lecture 30: Temperature in metalworking: Hot and cold working

### Assignment 6

The due date for submitting this assignment has passed. **Due on 2018-03-07, 23:59 IST.**

#### Submitted assignment

1) Due to strain hardening 1 point

- Strength Increases
- Strength is decreases
- Strength is not affected
- Strength first increases, then decreases

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

**Accepted Answers:**  
*Strength Increases*

2) In hot working process, metal is heated above a temperature, known as 1 point

- Critical temperature
- Recrystallization temperature
- Melting temperature
- Ductile to brittle transition temperature

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

**Accepted Answers:**  
*Recrystallization temperature*

3) According to Von mise's yield criterion, the second invariant of stress deviator is 1 point

- $\frac{1}{6} [(s_1 - s_2)^2 + (s_2 - s_3)^2 + (s_3 - s_1)^2]$
- $\frac{1}{9} [(s_1 - s_2)^2 + (s_2 - s_3)^2 + (s_3 - s_1)^2]$

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4) Deformation under condition of temperature and strain rate such that recovery takes place simultaneously with the deformation is called as **1 point**

Hot working process

Cold working process

Strain hardening process

None of these

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

**Accepted Answers:**  
*Hot working process*

5) Prandtl Reuss equation is applicable for **1 point**

Perfectly rigid body

Ideal plastic solid body

Elastic-plastic solid body

Perfectly elastic body

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

**Accepted Answers:**  
*Elastic-plastic solid body*

6) Which of the following statement is/are correct for Maximum shear stress theory? **1 point**

(i) Yield occurs when maximum shear stress reaches a critical value.

(ii) For the case of uniaxial tension, yield stress in shear is equal to  $s_0 / 3$

Only i

Only ii

Both i and ii

None of these

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

**Accepted Answers:**  
*Only i*

7) The true sliding strain for a low carbon steel bar which is doubled in length by forging is **1 point**

0.307

0.5

0.693

1.0

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

**Accepted Answers:**  
*0.693*

8) In open die forging, a disc of diameter 200 mm and height 60 mm is compressed without any barreling effect. The final diameter of the disc is 400 mm. The true strain is **1 point**

- 1.986
- 1.686
- 1.386
- 0.602

No, the answer is incorrect.

Score: 0

Accepted Answers:

1.386

9) A solid cylinder of diameter 100 mm and height 50 mm is forged between two frictionless flat dies to a height of 25 mm. The percentage change in diameter is 1 point

- 0
- 2.07
- 20.7
- 41.4

No, the answer is incorrect.

Score: 0

Accepted Answers:

41.4

10) Which of the following statement is /are correct for the cold working process? 1 point  
(i) Strain hardening will take place in cold working process  
(ii) In cold working process, recovery is not active

- Only i
- Only ii
- Both i and ii
- None of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

Both i and ii

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