Assignment 7

The due date for submitting this assignment has passed. Due on 2018-09-26, 23:59 IST.

As per our records you have not submitted this assignment.

1) Which of the following are true for climb process?
   - A. Climb is non-conservative process
   - B. Climb also act as source and sink for vacancies
   - C. Whole dislocation line move up or down simultaneously
   - D. Formation of jogs leads to step wise climb of dislocations

   - All A, B, C and D
   - Only A, B and D
   - Only A, B and C
   - Only B and D

   No, the answer is incorrect.

   Score: 0

   Accepted Answers:
   - Only A, B and D

2) Which of the sections of dislocation represents a Kink?

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   National Programme on Technology Enhanced Learning
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3) Which of the following are true regarding steps (Kinks and Jogs) formed at right angle to the original dislocation?  
A. Kinks formed on edge dislocations have screw dislocation like character  
B. Kinks formed on screw dislocations have edge dislocation like character  
C. Jogs formed on edge dislocations have edge dislocation like character  
D. Jogs formed on screw dislocations have screw dislocation like character  

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
Only A, B and D

4) Which of the following are true for glide process?  
A. Kinks formed on edge dislocation aid glide  
B. Kinks formed on screw dislocation aid glide  
C. Jogs formed on screw dislocation aid glide  
D. Jogs formed on edge dislocation aid glide  

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
Only A, B and D

5) If the expression of velocity of dislocation (V) for FCC and HCP materials are given as $V = \tau^m A$ where $\tau$ is applied shear stress (resolved) and $A$ is constant. Then which of the following options is true for "m"?  
A. $m \approx 1.0$ for pure metals  
B. $m \approx 0.1$ for pure metals  
C. $m \approx 2.5$ for pure alloys  
D. $m \approx 25$ for pure alloys  

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
Only A and D
6) If the Burgers vector of a screw dislocation is given as \( \mathbf{b}^\ast = [0 \ 1 \ 1] \) which is gliding on \((1 \ 1 \ 1)\) plane, then it can cross-slip to which one of the following planes?

- \((1 \ 1 \ 1)\)
- \((1 \ 1 \ 1)\)
- \((0 \ 1 \ 1)\)

No, the answer is incorrect.
Score: 0
Accepted Answers:
Only A and C

7) Which method of dislocation observation can be used irrespective of whether the dislocation density is low or high?

P: Decoration method
Q: X-Ray Diffraction method
R: Surface method
S: Transmission electron tomography

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

8) If edge dislocation with Burgers vector \( \mathbf{b}_0 \) splits into two partial dislocations with Burgers vector as shown below, then find the force acting between screw component of partial dislocation where \( b_{1x} \) and \( b_{2x} \) are resolve Burgers vector for edge components while \( b_{1y} \) and \( b_{2y} \) are resolve Burgers vector for screw components.
9. Which of the following factors have strong influence on velocity of dislocations? 
I. Applied shear stress 
II. Purity of crystals 
III. Stacking Fault Energy of the material 
IV. Types of dislocations 

- Only I and II 
- Only I, II and III 
- Only I and IV 
- Only I, II and IV 

No, the answer is incorrect. 
Score: 0 
Accepted Answers: 
Only I, II and IV

10. If two edge dislocations move as shown below, then select the correct option which represents dislocations with steps, after intersection?
No, the answer is incorrect.
Score: 0
Accepted Answers: