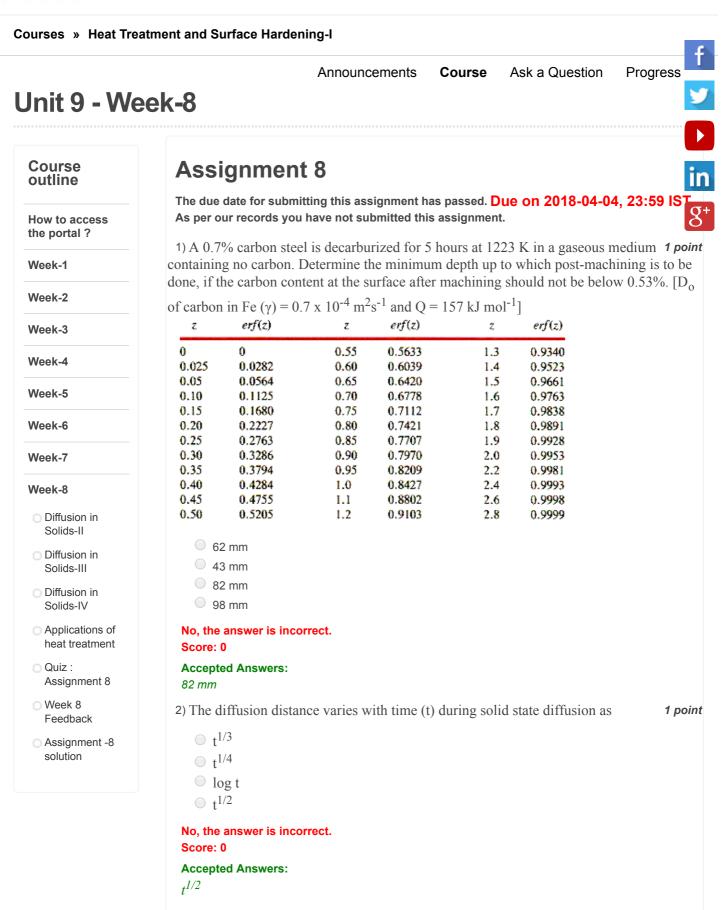
Х

reviewer2@nptel.iitm.ac.in ▼



3) Hari wanted to diffuse nitrogen from a gaseous phase in to pure iron at 948 K. If *1 point* the surface concentration is maintained at 0.2 wt% N, then concentration of nitrogen at 2

Heat Treatment and Surface Hardening-I - - Unit 9 - Week-8

mm from the surface after 25 h will be $___×10^{-2}$ wt%. (given that diffusion coefficient of nitrogen in iron at 948 K is 1.9×10^{-11} m²/s)

• 4.6 • 5.7 • 6.5 • 7.3 No, the answer is incorrect. Score: 0 Accepted Answers: 5.7 4) If the diffusion coefficient of oxygen ion in a metal oxide is 5×10^{-14} m²/s at 1423 ¹ p K and 8×10^{-10} m²/s at 1448 K, then activation energy required for diffusion is KJ/mol.

6651.4
5362.6
4234.7
3169.2

No, the answer is incorrect. Score: 0

Accepted Answers: 6651.4

5) Interstitial diffusion is faster than the vacancy diffusion in solid state diffusion **1** point due to

Small probability of finding a free interstitial site around interstitial atom in case of interstitial diffusion

High probability of finding a free interstitial site around interstitial atom in case of interstitial diffusion

Small activation energy required for vacancy diffusion

Large activation energy required for interstitial diffusion

No, the answer is incorrect. Score: 0

Accepted Answers:

High probability of finding a free interstitial site around interstitial atom in case of interstitial diffusion

6) Two rods P and Q containing A-40 wt% B and A-10wt% B, respectively, are **1** point joined together to form a diffusion couple. After 300 hours of annealing at 1000°C, the concentration of B (in wt%) in rod Q at a distance 0.4mm from the interface will be

_____. (Take, diffusion coefficient, D = 5 x 10^{-13} m²s⁻¹).

32.1 %
21.3 %
17.3 %
11.2 %
No, the answer is incorrect.

Score: 0

Accepted Answers: 21.3 %

7) In question no.6. the distance (in mm) at which the concentration of B reaches 1 point
 20 wt% in the rod Q will be

0.65	
0.75	
No, the answer is incorrect. Score: 0	
Accepted Answers: 0.45	
8) Which of the following element	will diffuse at a fastest rate in Fe 1 pc
Cr Ni H W	
No, the answer is incorrect. Score: 0	
Accepted Answers: H	in 8⁺
	burize a steel gear at 1173 K. If activation energy required for 1 point 37.85 KJ/mol, then the time required to carburize similar steel gear at
 3.3 5.2 6.3 7.1 	
No, the answer is incorrect. Score: 0	
Accepted Answers: 3.3	
10)The error function of 0 is 1 -1 0 Not defined	1 point
No, the answer is incorrect. Score: 0	
Accepted Answers: 0	
Previous Page	End

Heat Treatment and Surface Hardening-I - - Unit 9 - Week-8





Funded by

Government of India Ministry of Human Resource Development

Powered by



