# Unit 8 - Week 6

Course outline

How to access the portal?

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

- ● Passivity
- ○ Interaction of Cathodic Polarization with an Active-Passive Metal
- ● Interaction of Anodic Polarization with an Active-Passive Metal
- ○ Passivation and Mixed Potential Theory: Case Studies
- ● Passivation and Mixed Potential Theory: Case Studies (Cont...)
- ○ **Quiz : Assignment 6**
- ○ Assignment 6 - Solution

Week 7

Week 8

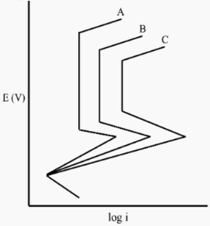
Live Session

## Assignment 6

**The due date for submitting this assignment has passed.**
**As per our records you have not submitted this assignment.**

**Due on 2019-10-09, 23:59 IST.**

1) Consider that three different metals A, B and C immersed in an acidic solution exhibits active-passive behavior and their E(V) vs log i plot is shown in the figure below. Which of the following shows the correct sequence for the increase in passivation tendency? *1 point*



○ A < B < C
○ B < C < A
○ C < A < B
○ C < B < A

No, the answer is incorrect.
Score: 0

Accepted Answers:
*C < B < A*

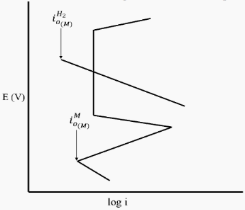
2) Based on the plot provided in Q1, which of the following shows the correct sequence of increase in passive current density ($i_P$)? *1 point*

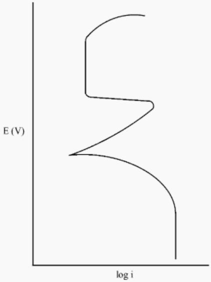
○ A < B < C
○ B < C < A
○ C < A < B
○ C < B < A

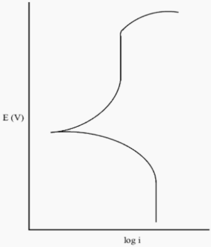
No, the answer is incorrect.
Score: 0

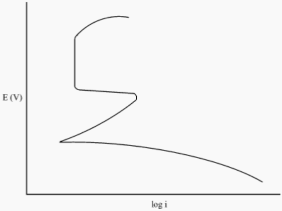
Accepted Answers:
*A < B < C*

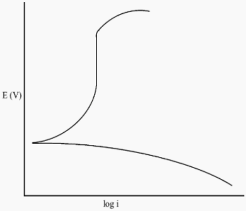
3) Which of the following shows the correct experimental polarization plot (E vs log i) for the figure as shown below? *1 point*



○ 

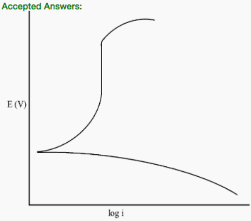
○ 

○ 

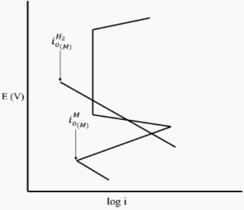
○ 

No, the answer is incorrect.
Score: 0

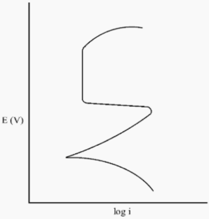
**Accepted Answers:**



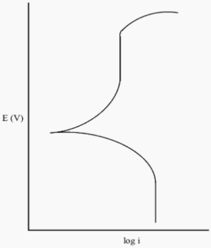
4) Which of the following shows the correct experimental polarization plot (E vs log i) for the figure as shown below? ***1 point***



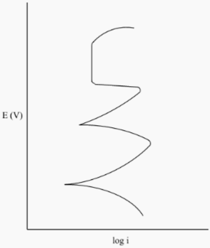
○

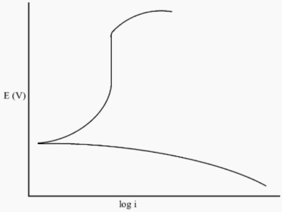


○



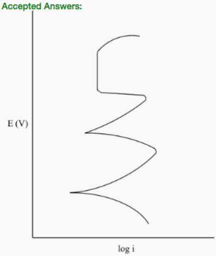
○



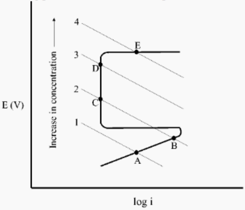
○ 

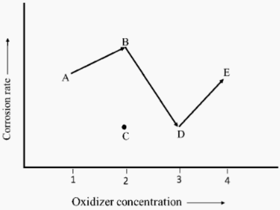
No, the answer is incorrect.
Score: 0

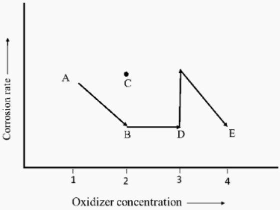
Accepted Answers:

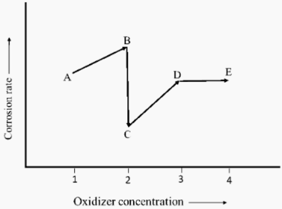


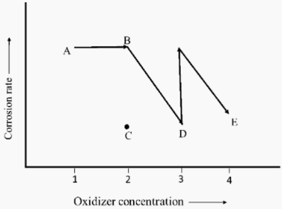
5) The E vs log i plot shows the effect of oxidizer concentration on a metal exhibiting active-passive behaviour. Which of the following plots shows the correct sequence of corrosion rate vs increase in oxidizer concentration? *1 point*



○ 

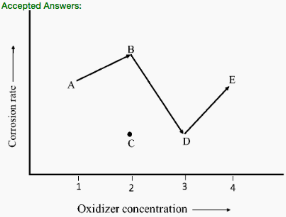
○ 

○ 

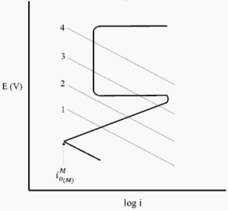
○ 

No, the answer is incorrect.
Score: 0

Accepted Answers:



6) Consider that a metal M is immersed in an acidic solution exhibiting active-passive behavior. Which of the following cathodic reactions (as shown in the figure below) will result in spontaneous passivity? *1 point*



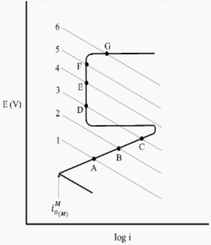
○ Reaction 1
○ Reaction 2
○ Reaction 3
○ Reaction 4

No, the answer is incorrect.
Score: 0

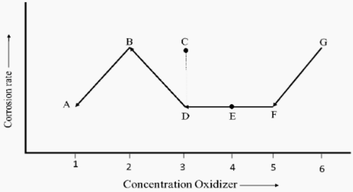
Accepted Answers:
*Reaction 4*

7) The E vs log i plot shows the effect of oxidizer concentration on a metal exhibiting active-passive behaviour. Which of the following plots shows the correct sequence of corrosion rate vs decrease in oxidizer concentration?

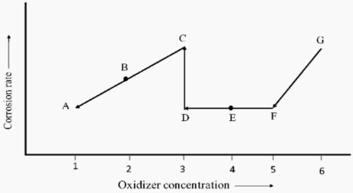
*1 point*



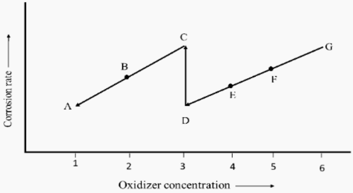
○



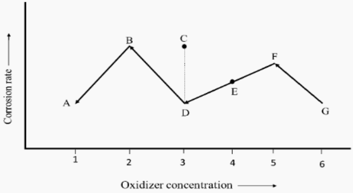
○



○

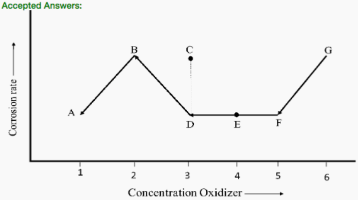


○



No, the answer is incorrect.
Score: 0

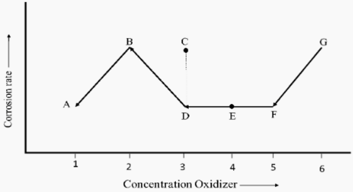
Accepted Answers:



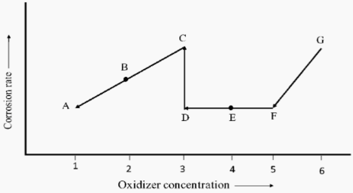
8) Based on Q7, if the metal is scratched due to mechanical disturbance at point D, which of the following plots shows the correct sequence of corrosion rate vs decrease in oxidizer concentration?

*1 point*

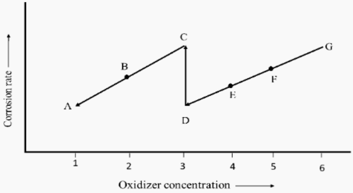
○



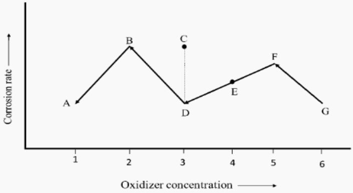
○



○

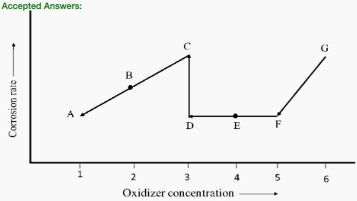


○



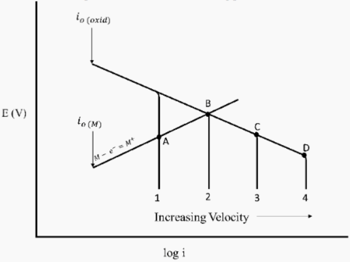
No, the answer is incorrect.
Score: 0

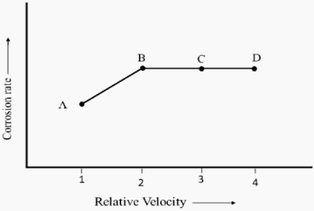
Accepted Answers:

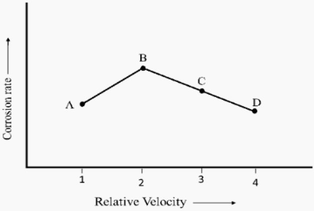


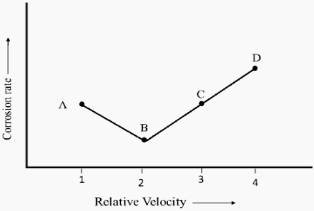
9) Figure below shows the E vs log i plot for the effect of velocity on a metal M exhibiting active behaviour with a diffusion controlled cathodic process. Which of the following plots shows the correct sequence of corrosion rate vs relative velocity?

*1 point*

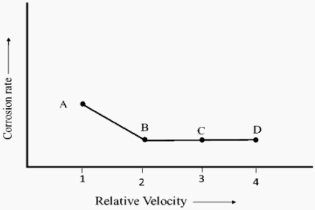


○ 

○ 

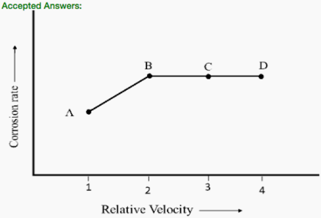
○ 

○



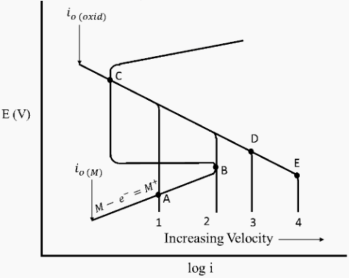
No, the answer is incorrect.
Score: 0

Accepted Answers:

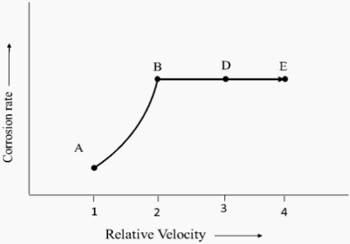


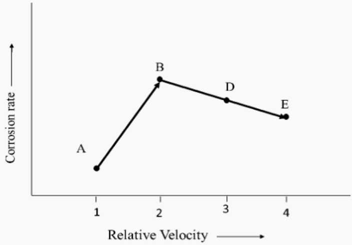
10) The E vs log i plot shows the effect of velocity on the electrochemical behaviour of an active-passive metal with a diffusion controlled cathodic process. The starting material is freshly prepared sample. Which of the following plots shows the correct sequence of corrosion rate vs relative velocity?

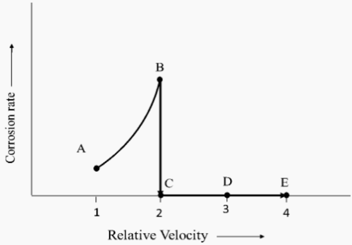
*1 point*

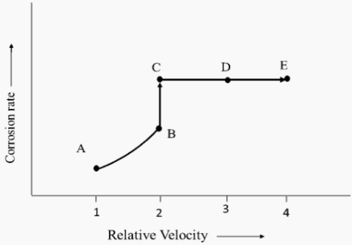


○

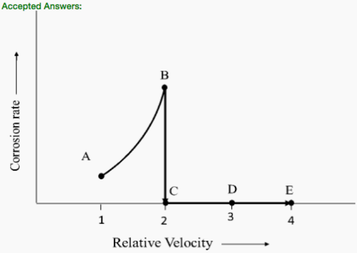


○ 

○ 

○ 

No, the answer is incorrect.
Score: 0

Accepted Answers: