Let the open loop transfer function of a negative feedback closed loop system be \( \frac{K(s+1)}{s^3 + 2s^2 + 2s} \) where \( K \) is a non-positive real valued parameter. Consider the locus of the corresponding closed loop poles. The region of the real axis that does not lie on the root locus is

1) (0, 2)
2) (-1, 0)
3) (-\infty, -1)
4) (0, \infty)

No, the answer is incorrect.
Score: 0
Accepted Answers: (-1, 0)

2) In problem 1, which ONE of the following statements is TRUE about the locus of the closed loop poles?

- It would have 3 asymptotes
- It would have the positive real axis as the only asymptote
- It would have the negative real axis as the only asymptote
- It would have both the positive real axis and the negative real axis as asymptotes

No, the answer is incorrect.
Score: 0
Accepted Answers: It would have both the positive real axis and the negative real axis as asymptotes

3) In problem 1, which ONE of the following statements is TRUE about the locus of the closed loop poles?

- It has exactly one break-in point
- It has exactly one break-away point
- It has both a break-away and a break-in point
- It neither has a break-away point nor a break-in point

No, the answer is incorrect.
Score: 0
Accepted Answers: It has exactly one break-in point

4) In problem 1, the angle of departure (in °) of the root locus branch from the open loop at pole at -1+j is

- 45
- 90
- 135
- 225

No, the answer is incorrect.
Score: 0
Accepted Answers: 225

5) The closed loop system of problem 1 is stable for

- all \( K < 0 \)
- all \( K < -1 \)
- all \( K < -2 \)
If one had positive feedback in problem 1 with everything else remaining the same, which one of the following statements is TRUE?

- The locus of closed loop poles would have only one asymptote
- The closed loop system would be stable for all $K < 0$
- The locus of closed loop poles would have only one break-away point
- The locus of closed loop poles would partly lie in the right half complex plane

No, the answer is incorrect. Score: 0

Accepted Answers:
- The closed loop system would be stable for all $K < 0$

Let the open loop transfer function of a positive feedback closed loop system be $\frac{K(s - 2)}{(s^2 + 4s + 3)}$, where $K$ is a non-negative real valued parameter. Consider the corresponding locus of closed loop poles. Which one of the following statements is TRUE?

- The region $(-\infty, -3)$ lies on the root locus
- The region $(-\infty, -4)$ lies on the root locus
- The region $(-3, -1)$ lies on the root locus
- The region $(-1, 2)$ lies on the root locus

No, the answer is incorrect. Score: 0

Accepted Answers:
- The region $(-3, -1)$ lies on the root locus

In problem 7, which ONE of the following statements is TRUE about the locus of the closed loop poles?

- It would have 2 asymptotes
- It would not have any asymptotes
- It would have the negative real axis as the only asymptote
- It would have the positive real axis as the only asymptote

No, the answer is incorrect. Score: 0

Accepted Answers:
- It would have the positive real axis as the only asymptote

In problem 7, the break-away point is at $-1.87$

No, the answer is incorrect. Score: 0

Accepted Answers:
- $-1.87$

In problem 7, the value of $K$ at the break-away point is

- 0.1
- 0.25
- 1.65
- 14.5

No, the answer is incorrect. Score: 0

Accepted Answers:
- 0.25

In problem 7, the break-in point is at $5.87$

No, the answer is incorrect. Score: 0

Accepted Answers:
- 5.87

In problem 7, the value of $K$ at the break-in point is

- 0.1
- 0.54
- 2.25

No, the answer is incorrect. Score: 0

Accepted Answers:
- 0.54
13) In problem 7, the cross-over points are at

- **1 point**
  - $j, -j$
  - $1.5j, -1.5j$
  - $2.65j, -2.65j$
  - $3.32j, -3.32j$

No, the answer is incorrect. 
Score: 0
Accepted Answers: 
- $3.32j, -3.32j$

14) In problem 7, the value of $K$ at the cross-over points is

- **1 point**
  - 2
  - 4
  - 6
  - 10

No, the answer is incorrect. 
Score: 0
Accepted Answers: 
- 4

15) The closed loop system of problem 7 is stable for all

- **1 point**
  - $K > 0$
  - $K > 2$
  - $K < 4$
  - $K < 8$

No, the answer is incorrect. 
Score: 0
Accepted Answers: 
- $K < 4$