Problem 1

V(G) = 4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Path # | Path | C1 | C2 | C3 |
| 1 | 2-3-7-9-12-15 | F | F | F |
| 2 | 2-3-4-9-10-12-13-15 | T | T | T |
| 3 | 2-3-4-9-12-15 | T | F | F |
| 4 | 2-3-7-9-12-13-15 | F | F | T |

Problem 2

V(G) = 6

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Path # | Path | C1 | C2 | C3 | C4 | C5 |
| 1 | 2-3-4-16 | T | T | F | X | X |
| 2 | 2-7-8-16 | T | F | X | X | X |
| 3 | 2-7-8-16 | F | X | X | T | X |
| 4 | 2-3-4-5-4-16 | T | T | T/F | X | X |
| 5 | 2-7-10-11-12-11-16 | F | X | X | F | T/F |
| 6 | 2-7-10-11-16 | F | X | X | F | F |

Problem 3

V(G) = 6

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Path # | Path | C1 | C2 | C3 | C4 | C5 |
| 1 | 2-14 | F | X | X | X | X |
| 2 | 2-3-4-7-2-14 | T/F | T | F | F | X |
| 3 | 2-3-4-7-2-14 | T/F | F | X | F | X |
| 4 | 2-3-4-5-7-8-9-10-7-2-14 | T/F | T | T | T/F | T |
| 5 | 2-3-4-5-7-8-9-7-2-14 | T/F | T | T | T/F | F |
| 6 | 2-3-4-7-8-9-7-2-14 | T/F | F | X | T/F | F |

Problem 4

V(G) = 7

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Path # | Path | C1 | C2 | C3 | C4 | C5 | C6 |
| 1 | 2-11-12-18 | F | X | X | X | F | X |
| 2 | 2-3-4-11-12-18 | T | F | X | X | F | X |
| 3 | 2-3-4-11-12-18 | T | T | F | X | F | X |
| 4 | 2-3-4-5-6-4-11-12-18 | T | T/F | T | T | F | X |
| 5 | 2-3-4-5-6-7-4-11-12-18 | T | T/F | T | F | F | X |
| 6 | 2-11-12-13-14-12-18 | F | X | X | X | T/F | F |
| 7 | 2-11-12-13-14-15-14-12-18 | F | X | X | X | T/F | T/F |

Legend: T = true, F = false, X = irrelevant