1. Tracing of Depth-First and Breadth-First traversal algorithms for Graphs GB and GC.

Start

|  |  |
| --- | --- |
| GB | GC |

|  |  |  |
| --- | --- | --- |
| **GB** | **Depth-First** |  |
| **Breadth-First** |  |
| **GC** | **Depth-First** |  |
| **Breadth-First** |  |

4 (a) Tracing of **Dijkstra’s** algorithm starting **from vertex a**

|  |  |
| --- | --- |
| GC | **Resulting Vertex-Weighted Graph**:  c  f  d  a  e  b  g |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pass: | Initially | **1** | **2** | **3** | **4** | **5** | **6** | **7** | predecessor |
| Active vertex: |  |  |  |  |  |  |  |
| **a** |  |  |  |  |  |  |  |  |  |
| **b** |  |  |  |  |  |  |  |  |  |
| **c** |  |  |  |  |  |  |  |  |  |
| **d** |  |  |  |  |  |  |  |  |  |
| **e** |  |  |  |  |  |  |  |  |  |
| **f** |  |  |  |  |  |  |  |  |  |
| **g** |  |  |  |  |  |  |  |  |  |

4 (b) Tracing of **Prim’s** algorithm starting **from vertex a**

|  |  |
| --- | --- |
| GC | **Resulting MST; Minimum Cost: \_\_\_\_**  c  f  d  a  e  b  g |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pass: | Initially | **1** | **2** | **3** | **4** | **5** | **6** | **7** | predecessor |
| Active vertex: |  |  |  |  |  |  |  |
| **a** |  |  |  |  |  |  |  |  |  |
| **b** |  |  |  |  |  |  |  |  |  |
| **c** |  |  |  |  |  |  |  |  |  |
| **d** |  |  |  |  |  |  |  |  |  |
| **e** |  |  |  |  |  |  |  |  |  |
| **f** |  |  |  |  |  |  |  |  |  |
| **g** |  |  |  |  |  |  |  |  |  |

4 (c) Tracing of **Kruskal’s** algorithm

|  |  |
| --- | --- |
| GC | **Resulting MST; Minimum Cost: \_\_\_\_**  c  f  d  a  e  b  g |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Edge |  |  |  |  |  |  |  |  |  |  |  |  |
| Weight |  |  |  |  |  |  |  |  |  |  |  |  |
| Status |  |  |  |  |  |  |  |  |  |  |  |  |