Assignment#04

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Subject: Graph Theory

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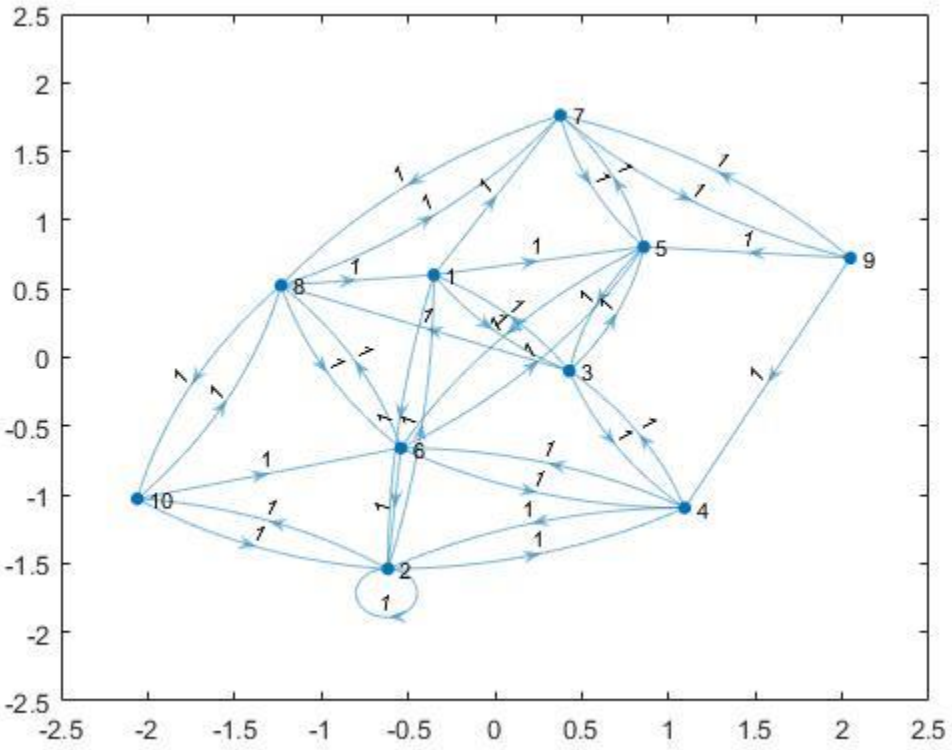

A=

0	1	1	0	0	0	0	0	0	0
1	0	0	1	0	0	0	0	0	0
1	0	0	1	1	0	0	0	0	0
0	1	1	0	0	1	0	0	0	0
0	0	1	0	0	1	1	0	0	0
0	0	0	1	1	0	0	1	0	0

0	0	0	0	1	0	0	1	1	0
0	0	0	0	0	1	1	0	0	1
0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	1	0	0

$$A^2 = A * A$$

2	0	0	2	1	0	0	0	0	0
0	2	2	0	0	1	0	0	0	0
0	2	3	0	0	2	1	0	0	0
2	0	0	3	2	0	0	1	0	0
1	0	0	2	3	0	0	2	1	0
0	1	2	0	0	3	2	0	0	1
0	0	1	0	0	2	3	0	0	1
0	0	0	1	2	0	0	3	1	0
0	0	0	0	1	0	0	1	1	0
0	0	0	0	0	1	1	0	0	1

$$A^3 = A^2 * A$$

0	4	5	0	0	3	1	0	0	0
4	0	0	5	3	0	0	1	0	0
5	0	0	7	6	0	0	3	1	0
0	5	7	0	0	6	3	0	0	1
0	3	6	0	0	7	6	0	0	2

3	0	0	6	7	0	0	6	2	0
1	0	0	3	6	0	0	6	3	0
0	1	3	0	0	6	6	0	0	3
0	0	1	0	0	2	3	0	0	1
0	0	0	1	2	0	0	3	1	0

$$A^4 = A^3 * A$$

9	0	0	12	9	0	0	4	1	0
0	9	12	0	0	9	4	0	0	1
0	12	18	0	0	16	10	0	0	3
12	0	0	18	16	0	0	10	3	0
9	0	0	16	19	0	0	15	6	0
0	9	16	0	0	19	15	0	0	6
0	4	10	0	0	15	15	0	0	6
4	0	0	10	15	0	0	15	6	0
1	0	0	3	6	0	0	6	3	0
0	1	3	0	0	6	6	0	0	3

$$A^5 = A^4 * A$$

0	21	30	0	0	25	14	0	0	4
21	0	0	30	25	0	0	14	4	0
30	0	0	46	44	0	0	29	10	0
0	30	46	0	0	44	29	0	0	10

0	25	44	0	0	50	40	0	0	15
25	0	0	44	50	0	0	40	15	0
14	0	0	29	40	0	0	36	15	0
0	14	29	0	0	40	36	0	0	15
0	4	10	0	0	15	15	0	0	6
4	0	0	10	15	0	0	15	6	0

$$A^6 = A^5 * A$$

51	0	0	76	69	0	0	43	14	0
0	51	76	0	0	69	43	0	0	14
0	76	120	0	0	119	83	0	0	29
76	0	0	120	119	0	0	83	29	0
69	0	0	119	134	0	0	105	40	0
0	69	119	0	0	134	105	0	0	40
0	43	83	0	0	105	91	0	0	36
43	0	0	83	105	0	0	91	36	0
14	0	0	29	40	0	0	36	15	0
0	14	29	0	0	40	36	0	0	15

$$A^7 = A^6 * A$$

0	127	196	0	0	188	126	0	0	43
127	0	0	196	188	0	0	126	43	0
196	0	0	315	322	0	0	231	83	0
0	196	315	0	0	322	231	0	0	83

0	188	322	0	0	358	279	0	0	105
188	0	0	322	358	0	0	279	105	0
126	0	0	231	279	0	0	232	91	0
0	126	231	0	0	279	232	0	0	91
0	43	83	0	0	105	91	0	0	36
43	0	0	83	105	0	0	91	36	0

$$A^8 = A^7 * A$$

323	0	0	511	510	0	0	357	126	0
0	323	511	0	0	510	357	0	0	126
0	511	833	0	0	868	636	0	0	231
511	0	0	833	868	0	0	636	231	0
510	0	0	868	959	0	0	742	279	0
0	510	868	0	0	959	742	0	0	279
0	357	636	0	0	742	602	0	0	232
357	0	0	636	742	0	0	602	232	0
126	0	0	231	279	0	0	232	91	0
0	126	231	0	0	279	232	0	0	91

$$A^9 = A^8 * A$$

0	834	1344	0	0	1378	993	0	0	357
834	0	0	1344	1378	0	0	993	357	0
1344	0	0	2212	2337	0	0	1735	636	0

0	1344	2212	0	0	2337	1735	0	0	636
0	1378	2337	0	0	2569	1980	0	0	742
1378	0	0	2337	2569	0	0	1980	742	0
993	0	0	1735	1980	0	0	1576	602	0
0	993	1735	0	0	1980	1576	0	0	602
0	357	636	0	0	742	602	0	0	232
357	0	0	636	742	0	0	602	232	0

$$B = A + A^2 + A^3 + A^4 + A^5 + A^6 + A^7 + A^8 + A^9$$

385	987	1576	601	589	1594	1134	404	141	404
987	385	601	1576	1594	589	404	1134	404	141
1576	601	974	2581	2710	1005	730	1998	730	263
601	1576	2581	974	1005	2710	1998	730	263	730
589	1594	2710	1005	1115	2985	2306	864	326	864
1594	589	1005	2710	2985	1115	864	2306	864	326
1134	404	730	1998	2306	864	711	1851	712	275
404	1134	1998	730	864	2306	1851	711	275	712
141	404	730	263	326	864	712	275	110	275
404	141	263	730	864	326	275	712	275	110