Solution No 1:

In the network there are 7 possible paths to get from the starting point at node 1 and travel through the network to end at node 8.

Possible Paths:

1-2-3-5-7-8=A-C-E-H-K=5+11+7+6+3=32

1-2-3-5-6-8=A-C-E-I-J=5+11+7+5+8=36

1-3-5-7-8=B-E-H-K=7+7+6+3=23

1-3-5-6-8=B-E-I-J=7+7+5+8=27

1-4-5-6-8=D-F-I-J=3+9+5+8=25

1-4-5-7-8=D-F-H-K-=3+9+6+3=21

1-4-6-8=D-G-J=3+12+8=23

Hence the critical path is the longest distance with the shortest possible time i.e.

=1-2-3-5-6-8-

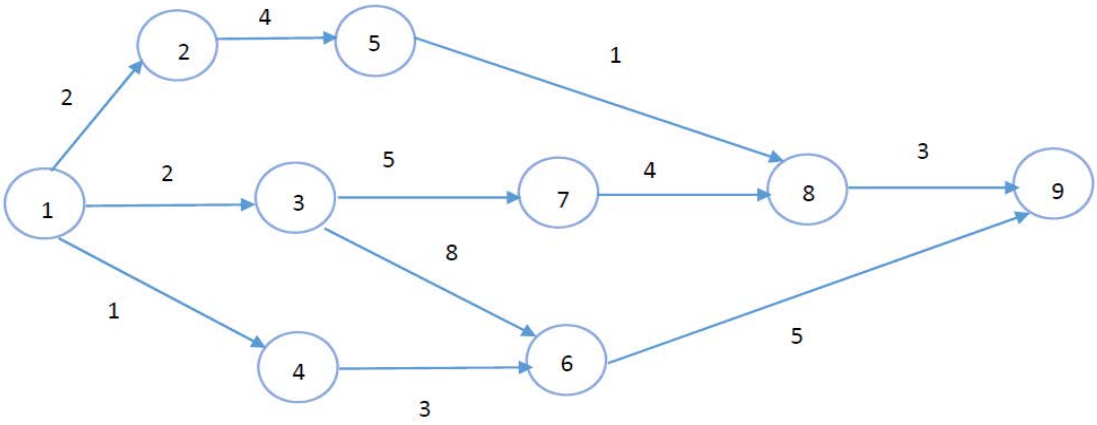
=A-C-E-I-J

=5+11+7+5+8

=36

Solution No 2:

a) Network



b)

Event	EST
1	0
2	2
3	2
4	1
5	6
6	10
7	7
8	11
9	15

EST of any activity is the EST of its tail event

Activity	Time in Hours	EST	EFT
1-2	2	0	2
1-3	2	0	2
1-4	1	0	1
2-5	4	2	6
3-6	8	2	10
3-7	5	2	7
4-6	3	1	4
5-8	1	6	7
6-9	5	10	15
7-8	4	7	11
8-9	3	11	14

EFT=EST +Duration of the activity

Solution No 3:

Event	LFT
1	0
2	7
3	2
4	7
5	11
6	10
7	8
8	12
9	15

LFT of any activity is the LFT of its head event

Activity	Time in Hours	LST	LFT
1-2	2	5	7
1-3	2	0	2
1-4	1	6	7
2-5	4	7	11
3-6	8	2	10
3-7	5	3	8
4-6	3	7	10
5-8	1	11	12
6-9	5	10	15
7-8	4	8	12
8-9	3	12	15

LST=LFT- Duration of the activity

Possible Paths:

1)1-2-5-8-9=2+4+1+3=10

2)1-3-7-8-9-=2+5+4+3=14

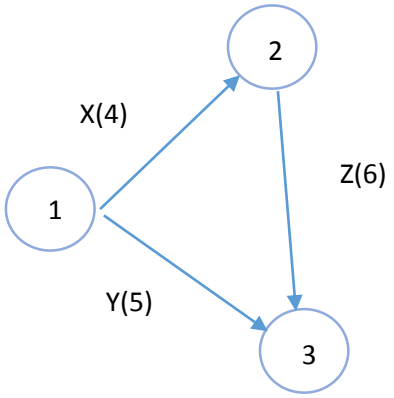
3)1-3-6-9=2+8+5=15

4)1-4-6-9=1+3+5=9

Hence 1-3-6-9 is the critical path with duration 15

Solution No 4:

a) Network:



b) Time Estimates

Activity	Duration	EST	EFT	LST	LFT
1-2	4	0	4	0	4
1-3	5	0	5	5	10
2-3	6	4	10	4	10

c) Possible Paths:

Time taken to complete the activities in two paths are:

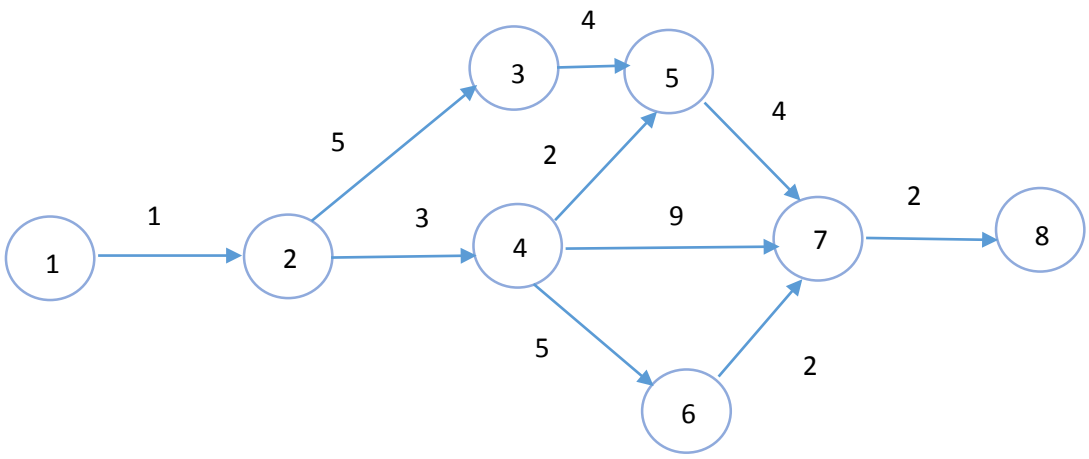
1)1-2-3=4+6=10

2)1-3=5

Hence 1-2-3 is the critical path and the duration is 10 days.

Solution No 5:

a) Network



b) Possible Paths:

1)1-2-3-5-7-8=1+5+4+4+2=16

2)1-2-4-5-7-8=1+3+2+4+2=12

3)1-2-4-7-8=1+3+9+2=15

4)1-2-4-6-7-8-=1+3+5+2+2=13

Hence the critical path is 1-2-3-5-7-8=16