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Subject : **Project Management**

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Homework-1

Question 1

Please give the AoN and AoA networks of the following project.

Activity	Immediate successors
a	b,c
b	d
c	d,e,f
d	g
e	g
f	g
g	h
h	

Answer 1

AoN

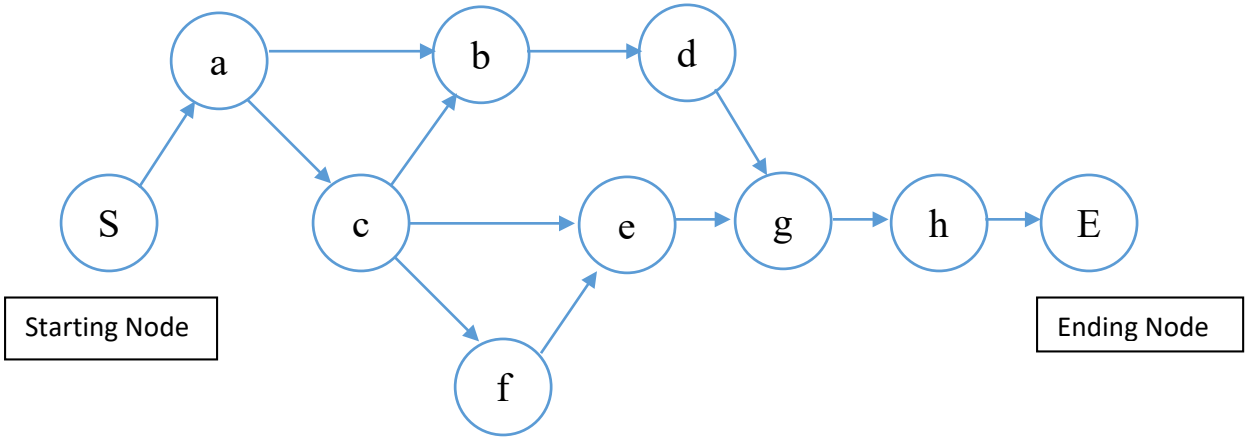


Fig : AoN Model

AoA

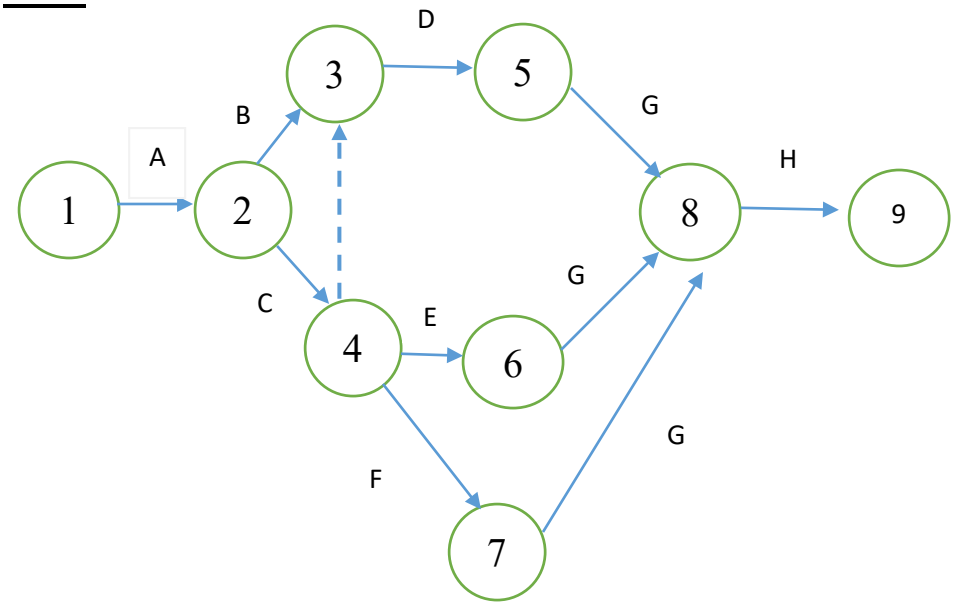


Fig : AoA Model

Question 2

please give the AoN and AoA network of the following project.

Activity	Immediate predecessors
1	
2	
3	
4	1
5	2
6	3,4,5
7	3,4
8	6,7

Answer 2

AoN

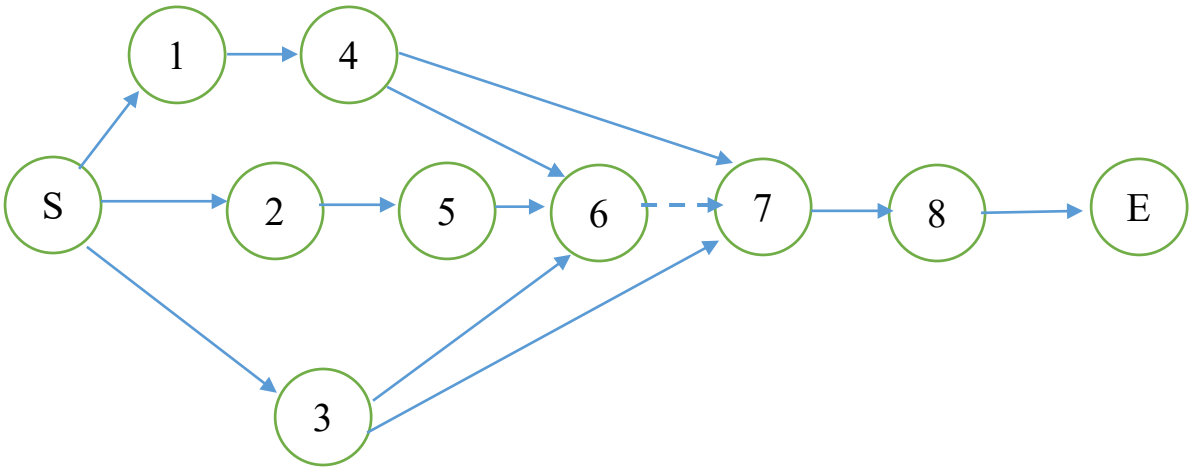


Fig : AoN Model

AoA

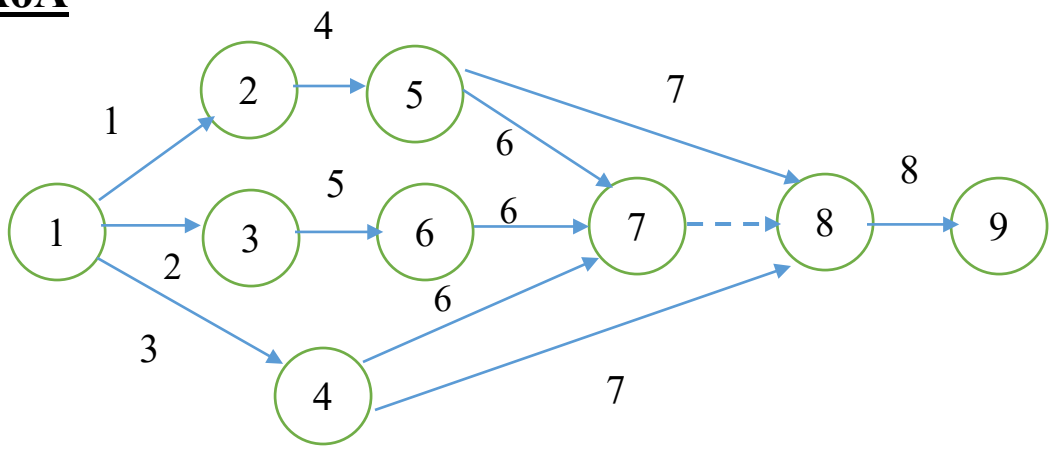
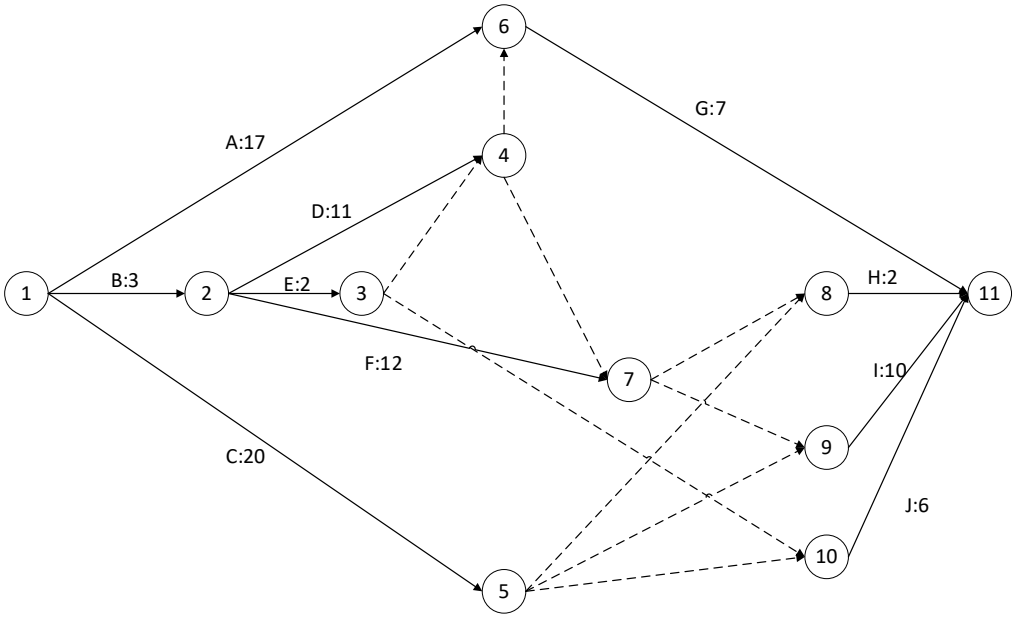


Fig : AoA Model

Question 3

please calculate the ES, EF, LS, LF, FF, TF time of every activity in the project.(the letter and number on the arc are activity and it's duration)



Answer 3

A		
0	17	0
0	17	0

B		
0	3	0
0	3	0

C		
0	20	0
0	20	0

D		
3	14	0
3	14	0

E		
3	5	0
3	5	0

F		
3	15	0
3	15	0

G		
17	24	0
17	24	0

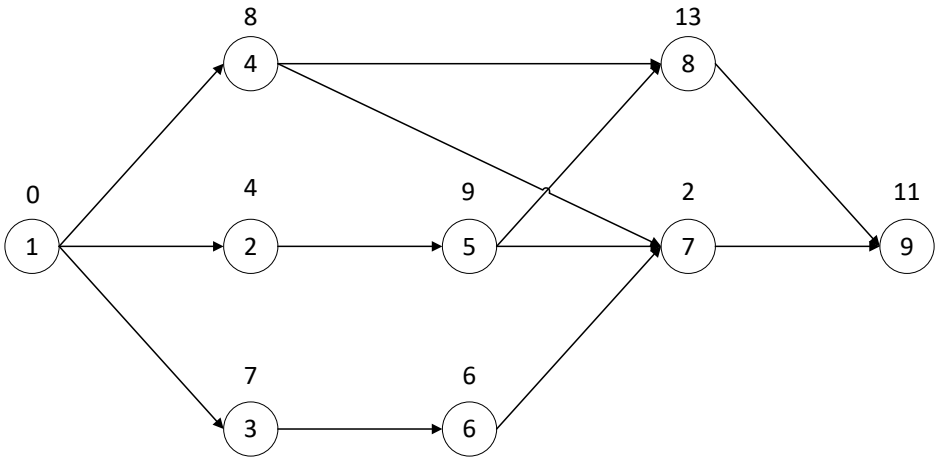
H		
20	22	0
20	22	0

I		
20	30	0
20	30	0

J		
20	26	0
20	26	0

Question 4

please calculate the ES, EF, LS, LF, FF, TF time of every activity in the project.(the number on the node is activity duration)



Answer 4

Early Start($\boldsymbol{ES_i}$): $ES_i = \max(EF_h)$, h is the immediate predecessor of activity i.

Early Finish($\boldsymbol{EF_i}$): $EF_i = ES_i + d_i$

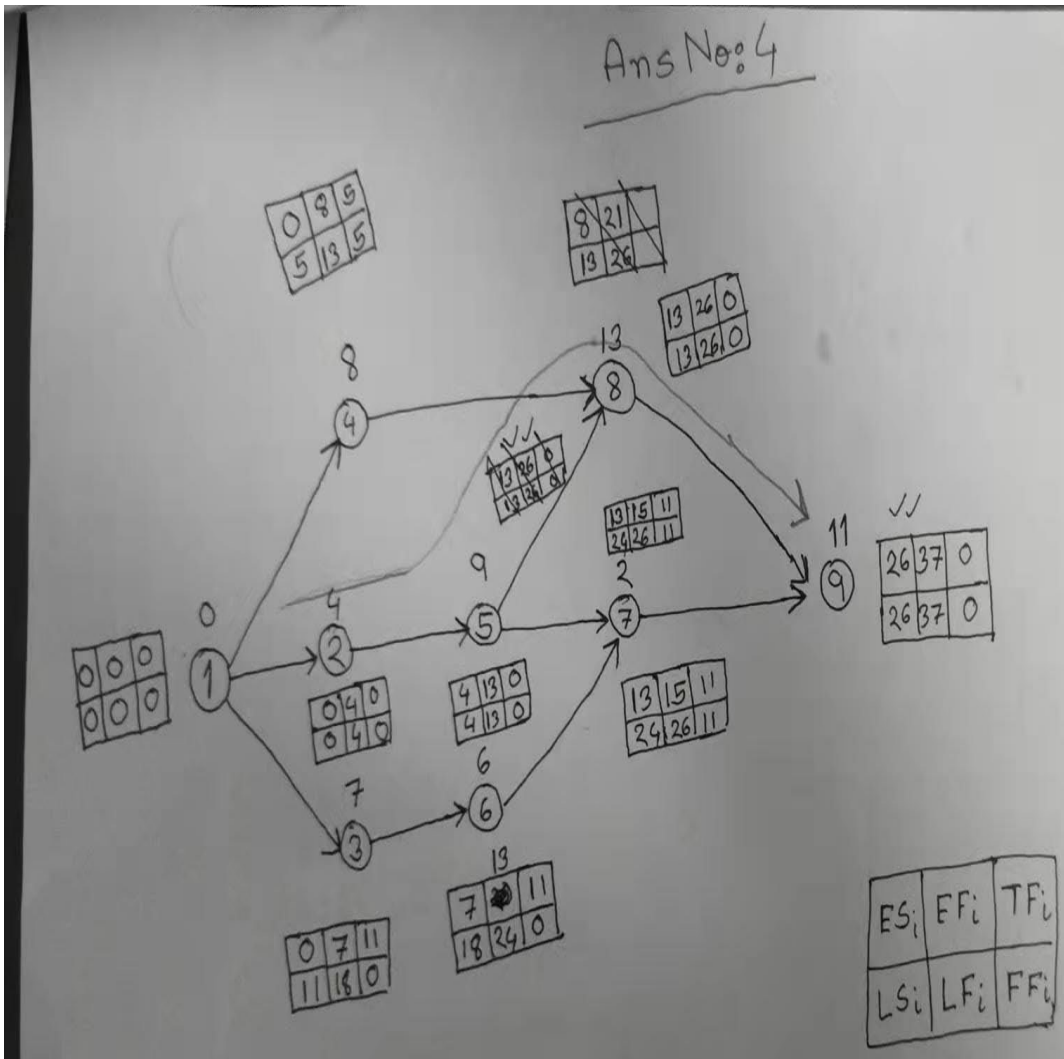
Late Finish ($\boldsymbol{LF_i}$): $LF_i = \min(LS_j)$, j is the immediate successor of i.

Late Start ($\boldsymbol{LS_i}$): $LS_i = LF_i - d_i$

Total Float ($\boldsymbol{TF_i}$): the total slack denotes the allowable time delay of an activity without causing a delay in the project. $TF_i = LS_i - ES_i = LF_i - EF_i$.

Free Float ($\boldsymbol{FF_i}$): the allowable delay in the activity finish time without affecting the earliest possible start time of all immediate successors. $FF_i =$ min (ES_j)-EF_i, j is the immediate successor of activity i.

Ans No: 4



1

0	0	0
0	0	0

2

0	4	0
0	4	0

3

0	7	11
11	18	0

4

0	8	5
5	13	5

5

4	13	0
4	13	0

6

7	13	11
18	24	0

7

13	15	11
24	26	11

8

13	26	0
13	26	0

9

26	37	0
26	37	0