

# 國立交通大學 98 學年度第 1 學期

## 博士班資格考筆試考試試題

土木工程學系 營管組

科目：工程進度規劃與控制

選考學生數：1

考試時間：60min

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I. An activity X has a duration of 15 days. Its early start date is Sep. 1, 2009, with a TF = 5, FF = 3, and INDF = 1 day(s). Activity X has 3 predecessors P1, P2, and P3. It has 2 successors S1 and S2. All dependency relationships are finish-to-start relationships. Please circle or answer the most appropriate answer for each question. (20%)

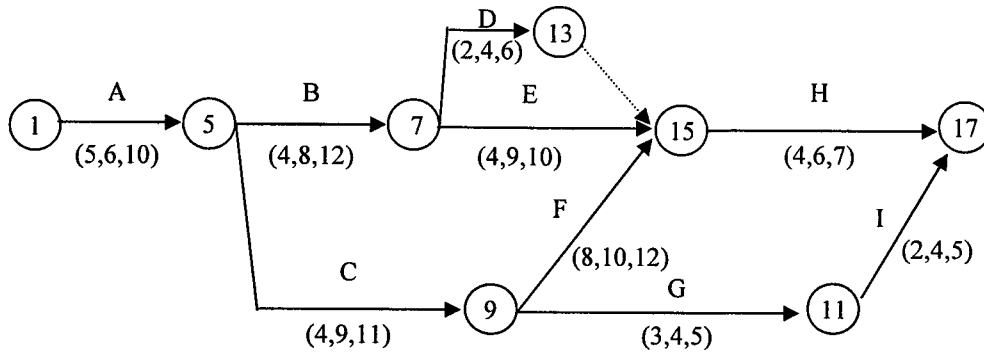
1. Activity X was delayed for 2 days because of late delivery of required materials. If all the rest of conditions were unchanged, would the start dates of S1 and S2 be affected? The delay would affect: (2%)  
(a) no activities (b) at least one activity (c) at most one activity (d) all activities.  
Would it affect project duration? (a) Yes (b) No.
2. Activity X was delayed for 4 days because of late delivery of required materials. If all the rest of conditions were unchanged, would the start dates of S1 and S2 be affected? The delay would affect: (2%)  
(a) no activities (b) at least one activity (c) at most one activity (d) all activities.  
Would it affect project duration? (a) Yes (b) No.
3. Activity X was delayed for 5 days because of late delivery of required materials. If all the rest of conditions were unchanged, would the start dates of S1 and S2 be affected? The delay would affect: (2%)  
(a) no activities (b) at least one activity (c) at most one activity (d) all activities.  
Would it affect project duration? (a) Yes (b) No.
4. Activity X was delayed for 6 days because of late delivery of required materials. If all the rest of conditions were unchanged, would the start dates of S1 and S2 be affected? The delay would affect: (2%)  
(a) no activities (b) at least one activity (c) at most one activity (d) all activities.  
Would it affect project duration? (a) Yes (b) No.
5. If activities P1, P2, and P3 were completed at their late finish date (LF), how many days could activity X be delayed without delaying activities S1 and S2? (3%)
6. If activities P1, P2, and P3 were all completed at their late finish date (LF), what would be the TF, FF, INTF, and INDF of activity X?

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graph LR
    Start[Start 0] --> A[A 3]
    Start --> B[B 2]
    A --> C[C 1]
    A --> D[D 3]
    C --> E[E 2]
    D --> E
    B --> End[End 0]
    E --> End
  
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[illegible]

III. In the following PERT network, the numbers in the parentheses underneath each activity name represents the most optimistic, most likely, and most pessimistic times of the activity. Please determine the minimum contract duration so that the project has more than 70% chance of being completed on time. (40%)



### Accumulated Probabilities for Standard Normal Distribution

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998