

大葉大學九十二學年度碩士班甄試試題紙

所 別	組別	考 試 科 目 (中 文 名 稱)	考 試 日 期	考 試 時 間	備 註
工業工程	甲	生產管理	12月9日	09:00~10:30	可使用不可程式 P2-1 計算機

註：備註欄若未註明可攜帶計算機或其他資料作答時，考生一律不准攜帶。

1. Demand for rug-cleaning machine at Clyde's U-Rent-It is shown the following table. Machines are rented by the day only. Profit on the rug cleaners is \$10 per day. Clyde has four rug-cleaning machines. Assume that Clyde's stocking decision is optimal, what is the implied range of excess cost per machine. (20%;無過程者不給分)

Demand	0	1	2	3	4	5
Frequency	0.30	0.20	0.20	0.15	0.10	0.05

2. 考慮指派問題，已知成本表如下：

人員\工作	1	2	3	4
A	6	8	9	5
B	9	6	5	6
C	7	7	8	5
D	8	7	6	8

試以匈牙利法分析最佳指派結果？(20%;無過程者不給分)

3. 某項產品的壽命服從指數分配(Exponential distribution)，且其平均值(mean)為三年，
 (a) 計算該項產品超過3年不失效的機率。(5%)
 (b) 計算該產品使用不到2年即失效之機率。(5%)

4. 假設已知兩岸直航之運輸成本(元/噸)及貨物吞吐量如下表：

From\To	廈門	上海	供給量(噸)
基隆	\$400	\$500	2000
台中	\$300	\$600	1500
高雄	\$600	\$800	1000
需求量(噸)	3000	1500	總量(噸): 4500

- a) 請以運輸問題之觀念，寫出最小運輸成本之數學規劃模型(20%;需說明各決策變數之意義)。
 b) 請以西北角法求一可行起始解(10%)?

5. The cost (y dollars) of manufacturing a lot of a certain product depends on the lot size(x). Summary quantities were n=20,

$$\sum y_i = 1843.21, \quad \sum y_i^2 = 170044.53, \quad \sum x_i = 23.92, \quad \sum x_i^2 = 29.29 \text{ and } \sum x_i y_i = 2214.66$$

- a) Use linear regression to develop the least-squares line. (10%)
 b) If the manufacturing manager says that the lot size of a lot of a certain product will be 1.5, please develop a forecast for the cost (dollars) of manufacturing the products.(10%)

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工業工程	甲	生產管理	12月9日	09:00~10:30	P2-2

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6. Records show that the demand for dishwasher detergent during the lead time is normally distributed, with an average of 250 boxes and $\sigma_L = 22$. What safety stock should be carried for a 99 % cycle-service level? (10%) What is reorder point? (10%)

Standardized Normal Cumulative Distribution Function from $-\infty$ to $+Z$

Z	0	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
.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