

國立高雄第一科技大學 101 學年度 碩士班 招生考試 試題紙

系所別：金融系碩士班金融組

組別：不分組

考科代碼：2412

考科：統計學

注意事項：

- 1、本科目得使用本校提供之電子計算器。
- 2、請於答案卷上規定之範圍作答，違者該題不予計分。

1. Let X and Y have the joint p.d.f $f(x,y)=1, 0<x<1, 0<y<1$, zero elsewhere. Find the p.d.f of the sum $Z=X+Y$. 【25%】
2. The defective rate of machine A is P_A , machine B is P_B , 300 products from machine A are randomly selected which yielded 195 defectives, 400 products from machine B yielded 220 defectives. Test whether or not the defective rate for machine A is different from the defective rate for machine B.(at 5% level of significance) 【15%】
3. 假設從常態分配($X \sim N(\mu, \sigma^2=25)$)中抽取 n 個樣本，並由此檢定平均數 μ , $H_0: \mu=30$ v.s $H_1: \mu<30$ (顯著水準 $\alpha=0.05$)；試問上述檢定之決策規則(棄卻域 reject region 型式)? 【5%】，若 $n=16$ ，求 $\mu=26.7$ 時之檢定力? 【5%】，若欲 $\mu=26.7$ 時之檢定力達 0.95，問至少需取多少樣本? 【10%】
4. 假設 A、B 兩股票之報酬率為完全正相關($\rho_{A,B}=1$)，意謂 A、B 兩股票之報酬率呈現什麼關係? 【5%】若 A、B 兩股票過去四期報酬率表現如表 4-1，試問 A、B 兩股票之相關係數為何? 【5%】若 A、B 兩股票過去四期報酬率表現如表 4-2，試問 A、B 兩股票之相關係數為何? 【5%】若 A 股票過去平均報酬率為 5%，報酬率之變異數為 20%；B 股票過去平均報酬率為 15%，報酬率之變異數為 30%；A、B 兩股票之相關係數為 0.6；若某甲持有 100 元欲完全投資於 A、B 兩股票，試問如何投資配置可使風險達最低(投資 A、B 兩股票各多少金額)? 【10%】

表 4-1

股票報酬率	time1	time 2	time 3	time 4
A	10%	7%	12%	15%
B	25%	28%	23%	20%

表 4-2

股票報酬率	time 1	time 2	time 3	time 4
A	10%	7%	13%	16%
B	25%	23%	27%	29%

5. 假設消費函數為 $C_t = \alpha + \beta Y_t + \epsilon_t$ (Y 表消費者所得， ϵ 為干擾項)，若欲了解金融海嘯前後消費行為是否有異，如何建構迴歸式(加入虛擬變數)來檢定。(請說明迴歸式及檢定方法)。
【15%】

標準常態分配表

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
0.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998