

淡江大學九十三年學年度碩士班招生考試試題

系別：國際貿易學系
資訊管理學系

科目：統計學

准帶項目請打「○」否則打「×」
簡單型計算機
○

本試題共 2 頁

本試題雙面印製

- 一、(10%)請敘述中央極限定理(Central Limit Theorem)。
- 二、(15%) A sample of the reading scores of 36 fifth-graders has a mean of 85. The standard deviation of the sample is 12.
 - (1) Find the point estimate of the mean reading scores of all fifth-graders.
 - (2) Find the 95% confidence interval of the mean reading scores of all fifth-graders.
- 三、(15%)已知某系有 1000 位學生，其中有 100 位女生。今欲隨機抽出 20 位學生參加社區服務；令 X 表示抽出之 20 位學生中女生的人數。
 - (1) 求 X 之機率分配。
 - (2) 求抽出 20 位學生中恰有 6 位女生的機率？(只須列出求機率之數學式)
 - (3) X 之近似機率分配為何？
- 四、(20%)隨機抽查 A 城市 150 位有工作能力的居民，其中有 15 人失業，隨機抽查 B 城市 100 位有工作能力的居民，其中有 5 人失業，試以 p-值法檢定二城市的失業率是否相同。(取顯著水準 0.05)
- 五、(20%)某工程師欲比較兩部功能一樣，但型式不同的電腦的處理速度。假設電腦的處理速度呈常態分布，今隨機設計 4 組程式以作測試並記錄處理時間，如下：

程式	1	2	3	4
電腦1	70	60	65	72
電腦2	77	63	68	63

根據以上資料，在顯著水準 0.05 下，檢定電腦 1 的處理速度是否較快？
- 六、(20%)某研究單位欲從 6 個家庭所得與儲蓄額的資料，研究家庭所得與儲蓄額之關係，其資料如下：

家庭所得(萬元)	6	2	5	4	6	7
儲蓄額 (千元)	8	1	2	3	4	6

進行簡單線性迴歸分析時，以儲蓄額為反應變數 Y，以家庭所得為解釋變數 X。

 - (1) 求樣本迴歸線。
 - (2) 求判定係數 R^2 ，並解釋之。
 - (3) 求家庭所得每增加一萬元，其平均儲蓄額增加或減少多少？
 - (4) 張三家庭所得為 5.6 萬元，預測其儲蓄額為多少？並求 90% 的信賴區間。

◀ 注意背面尚有試題 ▶

淡江大學九十三年學年度碩士班招生考試試題

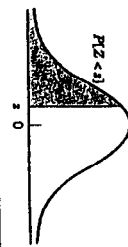
系別：國際貿易學系
資訊管理學系

科目：統計學

准帶項目請打「○」否則打「x」
簡單型計算機
○

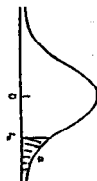
本試題共 2 頁

TABLE Standard Normal Probabilities



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.5	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003
-3.3	.0005	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0006	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0036	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1312	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2297	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

TABLE Percentage Points of Distributions



α	0.25	.10	.05	.025	.01	.005	.0025	.001
1	1.000	3.078	6.314	12.706	31.821	38.204	50.923	63.657
2	1.106	1.806	2.920	4.303	6.965	7.699	8.925	9.925
3	1.163	1.638	2.353	3.182	4.541	4.857	5.312	5.841
4	1.191	1.533	2.132	2.776	3.747	3.961	4.315	4.804
5	1.224	1.476	2.015	2.571	3.385	3.574	3.810	4.072
6	1.259	1.442	1.965	2.447	3.143	3.287	3.470	3.707
7	1.295	1.418	1.925	2.365	2.968	3.106	3.215	3.459
8	1.332	1.397	1.895	2.306	2.806	3.016	3.106	3.355
9	1.370	1.383	1.873	2.262	2.661	2.933	3.111	3.250
10	1.409	1.372	1.857	2.228	2.528	2.870	3.018	3.169
11	1.449	1.363	1.796	2.201	2.411	2.820	3.016	3.085
12	1.490	1.356	1.782	2.179	2.306	2.776	2.914	3.012
13	1.532	1.350	1.771	2.160	2.214	2.746	2.896	2.977
14	1.575	1.345	1.761	2.145	2.145	2.718	2.864	2.977
15	1.619	1.341	1.753	2.131	2.092	2.694	2.837	2.947
16	1.664	1.337	1.746	2.119	2.049	2.674	2.813	2.921
17	1.710	1.333	1.740	2.109	2.015	2.656	2.790	2.898
18	1.757	1.330	1.734	2.101	2.000	2.640	2.775	2.878
19	1.805	1.328	1.729	2.093	2.000	2.630	2.759	2.861
20	1.854	1.325	1.725	2.086	2.000	2.624	2.744	2.845
21	1.903	1.323	1.721	2.080	2.000	2.619	2.732	2.831
22	1.952	1.321	1.717	2.074	2.000	2.615	2.720	2.819
23	2.001	1.319	1.714	2.069	2.000	2.612	2.710	2.807
24	2.050	1.318	1.711	2.064	2.000	2.610	2.700	2.797
25	2.099	1.316	1.708	2.060	2.000	2.608	2.692	2.787
26	2.148	1.315	1.706	2.056	2.000	2.607	2.684	2.779
27	2.197	1.314	1.705	2.052	2.000	2.606	2.678	2.771
28	2.246	1.313	1.704	2.048	2.000	2.605	2.672	2.763
29	2.295	1.311	1.703	2.045	2.000	2.604	2.667	2.756
30	2.344	1.310	1.702	2.042	2.000	2.603	2.662	2.750
40	2.412	1.303	1.694	2.021	2.000	2.599	2.656	2.740
60	2.398	1.296	1.687	2.000	2.000	2.595	2.651	2.689
80	2.359	1.289	1.681	1.980	2.000	2.591	2.646	2.617
120	2.326	1.282	1.675	1.960	2.000	2.587	2.641	2.516