中原大學 100 學年度 碩士班 入學考試

3 月 19 日 10:30~12:00

科目： 心理學方法

心理學系實驗、認知及發展心理學組 、心理學系社會、人格、計量及工商心理學組 、心理學系臨床心理學組

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請留意此科考試包含 **I.心理及教育統計學**、**II.心理測驗**、**III 心理實驗法**三部分，

各佔 **33 分**、**34 分**、及 **33 分**。題目卷最後是附錄，分別是 **Critical t-values** 與 **Z**

Table。

I. 心理及教育統計學

1. Professor Chung aimed to test a hypothesis, he invited 25 students participate his research, got data with M = 30 and s = 9。For some unknown reason, he did same experiment again but with 100 subjects. At the second run, the data had similar M and s as first run. If the results of hypothesis testing in both runs were the same, please explain is any change in the probability of error/correct, when the professor made his conclusion for both experiments. (5%)

2. X Co. analyzes the data collecting for years, and finds that Test A（M = 70, s = 5） correlated with performance（M = 100, s = 10）. The correlate coefficient is 0.8. Mike's score of test A is 80. Please find the probability that Mike can catch the performance score of 120. (8%)

3. Please explain why one can make the conclusion of 'if there is any difference between Means' from analyzing the variance i.e. MSb/MSw (7%)

4. Mr. Chang hypothesized that the new method of teaching can improve student's performance. In this semester, he randomly assigned 20 students into 2 groups, one for traditional teaching and the other for new method. At the end of semester, he gave same examination to both groups and obtained the results as following. (13%)

New method	56	70	75	59	50	62	72	46	45	75
Traditional method	40	35	65	30	60	55	45	60	45	65

(a) Please make a conclusion for Mr. Chang with α = 0.05
(b) The Board was not satisfied with the results. The Board wanted to know 'is the new method can help more students catch the cut-off point (which is 60)'. Please describe how to analyze this data in order to meet with the requirement. (No need of calculation)

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II. 心理測驗

5. How does a test developer determine whether a new instrument possess construct validity? Please discuss the approaches for construct validation. (12%)

6. Please discuss the features of a test. (10%)

7. Explain the key terms:
   (a) item-validity index　(6%)
   (b) method of empirical keying (6%)

III. 心理實驗法

8. Explain the methods and functions of (a) random sampling, (b) random assignment, (c) matching, and (d) counterbalancing in experimental design. (16%)

9. Assume that you want to study the impact of mood on explicit memory (explicit memory can be tested by tasks such as free recall). In addition, assume that you will use some kind of mood induction procedure to conduct your experiment. (a) Will you use a between-subject design or a within-subject design for manipulating mood? Why? (b) How to determine the sample size? (c) How to control the experimenter effects? (17%)

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Appendix I. Critical t-values

	alpha = (1-tailed)	0.25	0.1	0.05	0.025	0.01	0.005	0.001
	alpha= (2-tailed)	0.5	0.2	0.1	0.05	0.02	0.01	0.002
degrees of freedom (df)								
1		1.000	3.078	6.314	12.706	31.821	63.657	318.309
2		0.816	1.886	2.920	4.303	6.965	9.925	22.327
3		0.765	1.638	2.353	3.182	4.541	5.841	10.215
4		0.741	1.533	2.132	2.776	3.747	4.604	7.173
5		0.727	1.476	2.015	2.571	3.365	4.032	5.893
6		0.718	1.440	1.943	2.447	3.143	3.707	5.208
7		0.711	1.415	1.895	2.365	2.998	3.499	4.785
8		0.706	1.397	1.860	2.306	2.896	3.355	4.501
9		0.703	1.383	1.833	2.262	2.821	3.250	4.297
10		0.700	1.372	1.812	2.228	2.764	3.169	4.144
11		0.697	1.363	1.796	2.201	2.718	3.106	4.025
12		0.695	1.356	1.782	2.179	2.681	3.055	3.930
13		0.694	1.350	1.771	2.160	2.650	3.012	3.852
14		0.692	1.345	1.761	2.145	2.624	2.977	3.787
15		0.691	1.341	1.753	2.131	2.602	2.947	3.733
16		0.690	1.337	1.746	2.120	2.583	2.921	3.686
17		0.689	1.333	1.740	2.110	2.567	2.898	3.646
18		0.688	1.330	1.734	2.101	2.552	2.878	3.610
19		0.688	1.328	1.729	2.093	2.539	2.861	3.579
20		0.687	1.325	1.725	2.086	2.528	2.845	3.552
21		0.686	1.323	1.721	2.080	2.518	2.831	3.527
22		0.686	1.321	1.717	2.074	2.508	2.819	3.505

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23		0.685	1.319	1.714	2.069	2.500	2.807	3.485
24		0.685	1.318	1.711	2.064	2.492	2.797	3.467
25		0.684	1.316	1.708	2.060	2.485	2.787	3.450
26		0.684	1.315	1.706	2.056	2.479	2.779	3.435
27		0.684	1.314	1.703	2.052	2.473	2.771	3.421
28		0.683	1.313	1.701	2.048	2.467	2.763	3.408
29		0.683	1.311	1.699	2.045	2.462	2.756	3.396
30		0.683	1.310	1.697	2.042	2.457	2.750	3.385
31		0.682	1.309	1.696	2.040	2.453	2.744	3.375
32		0.682	1.309	1.694	2.037	2.449	2.738	3.365
33		0.682	1.308	1.692	2.035	2.445	2.733	3.356
34		0.682	1.307	1.691	2.032	2.441	2.728	3.348
35		0.682	1.306	1.690	2.030	2.438	2.724	3.340
36		0.681	1.306	1.688	2.028	2.434	2.719	3.333
37		0.681	1.305	1.687	2.026	2.431	2.715	3.326
38		0.681	1.304	1.686	2.024	2.429	2.712	3.319
39		0.681	1.304	1.685	2.023	2.426	2.708	3.313
40		0.681	1.303	1.684	2.021	2.423	2.704	3.307
41		0.681	1.303	1.683	2.020	2.421	2.701	3.301
42		0.680	1.302	1.682	2.018	2.418	2.698	3.296
43		0.680	1.302	1.681	2.017	2.416	2.695	3.291
44		0.680	1.301	1.680	2.015	2.414	2.692	3.286
45		0.680	1.301	1.679	2.014	2.412	2.690	3.281
46		0.680	1.300	1.679	2.013	2.410	2.687	3.277
47		0.680	1.300	1.678	2.012	2.408	2.685	3.273
48		0.680	1.299	1.677	2.011	2.407	2.682	3.269
49		0.680	1.299	1.677	2.010	2.405	2.680	3.265
50		0.679	1.299	1.676	2.009	2.403	2.678	3.261

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Appendix II. Z Table

Shows the amount of the distribution falling between the Z and the mean.

The leftmost column has the z value with an accuracy of tenths and the topmost column adds accuracy to the hundredths.

Z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706

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1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998
3.5	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998	0.4998
3.6	0.4998	0.4998	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.7	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999
3.8	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999	0.4999