UNIVERSITI SAINS MALAYSIA

Peperiksaan Kursus Semasa Cuti Panjang

Sidang Akademik 1997/98

April 1998

HGT 315 Kaedah Kuantitatif Dalam Geografi

Masa: [3 jam]

KERTAS PEPERIKSAAN INI MENGANDUNGI TUJUH [7] SOALAN DI DALAM TUJUH [7] HALAMAN.

Jawab EMPAT [4] soalan sahaja.

1. [a] Jelaskan bagaimana ukuran-ukuran kecenderungan memusat digunakan dalam menganalisis data Geografi.

[10 markah]

[b] Berdasarkan kepada konsep taburan normal, bagaimanakah sesuatu taburan itu menjadi pencongan positif, pencongan negatif dan bertaburan normal. Huraikan dengan bantuan gambarajah-gambarajah yang sesuai.

[15 markah]

2. [a] Sekiranya dalam satu taburan normal, purata ($\bar{x}$) ialah 80 dan sisihan piawai (s) ialah 23, kirakan

[i] kebarangkalian bagi x melebihi 103
[ii] kebarangkalian x kurang daripada ($\bar{x}$ - 1s)
[iii] kebarangkalian untuk x = 90

[15 markah]

[b] Kirakan keluasan dibawah keluk normal

[i] di antara z = 1.3 hingga z = 2.4
[ii] di antara z = -1.4 hingga z = 1.5
[iii] ke kanan daripada z = -0.8

[10 markah]

.../2

3. [a] Dalam musim wabak taun baru-baru ini, 12 kes dilaporkan di hari pertama, 18 kes pada hari kedua; dan 48 kes di hari ketiga. Tentukan min kadar pertumbuhan penyakit taun tersebut dengan mengandaikan pola pertumbuhan penyakit adalah berterusan.

[5 markah]

[b] Dalam masa empat tahun berturut-turut, seorang pekedai membeli minyak pada harga RM1.60; RM 1.80 ; RM2.10 dan RM2.50 seliter.

Kirakan purata harga minyak tersebut,

[i] jika beliau membeli sejumlah 1000 liter setiap tahun?

[ii] jika beliau membelanjakan jumlah wang yang sama banyak setiap tahun.

[8 markah]

[c] Berdasarkan data kekerapan di dalam Jadual 1 di bawah,

Jadual 1: Kekerapan kejadian hujan harian

X	462	480	498	516	534	552	570	588	606	624
kekerapan, f	98	75	56	42	30	21	15	11	6	2

Kirakan;

[i] purata melalui kaedah biasa dan kaedah pengkodan.
[ii] median.

[12 markah]

.../3

4. Jadual 2 menunjukkan jumlah hujan (mm) dan pengeluaran padi ('000 tan) di 12 kawasan tanaman padi.

Jadual 2: Jumlah hujan dan pengeluaran padi di 12 kawasan

Hujan mm	60	53	62	50	56	60	64	55	52	57	55	58
Pengeluaran Padi ('000 tan)	145	140	170	120	146	158	168	150	120	135	129	142

Dengan berpandukan kepada jadual tersebut, kira perkara-perkara berikut;

[i] Pekali korelasi (r) di antara hujan dan pengeluaran padi.

[ii] Uji samada perhubungan antara hujan dan pengeluaran padi bererti atau tidak pada aras keertian 0.05 dan 0.01.

5. Jadual 3 menunjukkan keputusan peperiksaan akhir bagi matapelajaran fizik dan matematik 10 orang pelajar yang dipilih secara rambang.

Jadual 3: Keputusan peperiksaan akhir bagi matapelajaran fizik dan matematik

Markah matematik (X)	75	80	93	65	87	71	98	68	84	77
Markah fizik (Y)	82	78	86	72	91	80	95	72	89	74

[i] Lukis gambarajah serakan.

[5 markah]

[ii] Dengan menggunakan kaedah kuasa dua terkecil lukis garisan regresi Y ke atas X.

[15 markah]

[iii] Anggarkan berapakah markah mata pelajaran fizik sekiranya pelajar memperolehi 85 markah untuk matematik?

[5 markah]

.../4

6. Data berkualiti tinggi dan teknik pengumpulan data yang mantap penting bagi analisis yang baik.

Bincangkan pernyataan di atas dalam konteks persampelan responden bagi suatu kajian sosio-ekonomi penduduk setinggan bandar di Malaysia.

[25 markah]

7. [i] Huraikan asas-asas utama kebarangkalian.

[15 markah]

[ii] Dengan merujuk kepada contoh-contoh yang sesuai, bezakan taburan kebarangkalian selanjar dengan taburan kebarangkalian tidak selanjar.

[10 markah]

.../Lampiran 1
.../5

Lampiran 1

Persamaan

$$Y = a_0 + a_1X$$

$$a_0 = \frac{(\sum Y)(\sum X^2) - (\sum X)\sum XY}{N\sum X^2 - (N\sum X)^2}$$

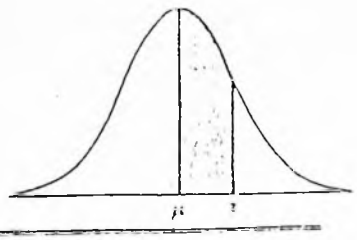
$$a_1 = \frac{N\sum XY) - (\sum X)(\sum Y)}{N\sum X^2 - (N\sum X)^2}$$

$$r = \frac{N\sum XY) - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (N\sum X)^2][N\sum Y^2 - (\sum Y)^2]}}$$

$$t = \frac{r\sqrt{N-2}}{\sqrt{1-r^2}}$$

.../Lampiran 2
.../6

Lampiran 2 (Jadual Taburan Normal)



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	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.6	.4998	.4998	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999
3.9	.5000									

.../Lampiran 3

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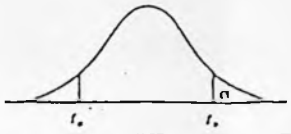
Lampiran 3 (Jadual T)



ν	Level of significance (P)										Level of significance (P)							ν
	.90	.80	.70	.60	.50	.40	.30	.25	.20	.10	.05	.025	.02	.01	.005	.001		
1	.158	.325	.510	.727	1.000	1.376	1.963	2.414	3.078	6.314	12.706	25.452	31.821	63.657	127.32	636.619		1
2	.142	.289	.445	.617	.816	1.061	1.386	1.604	1.886	2.920	4.303	6.205	6.965	9.925	14.089	31.598		2
3	.137	.277	.424	.584	.765	.978	1.250	1.423	1.638	2.353	3.182	4.176	4.541	5.841	7.453	12.941		3
4	.134	.271	.414	.569	.741	.941	1.190	1.344	1.533	2.132	2.776	3.495	3.747	4.604	5.598	8.610		4
5	.132	.267	.408	.559	.727	.920	1.156	1.301	1.476	2.015	2.571	3.163	3.365	4.032	4.773	6.859		5
6	.131	.265	.404	.553	.718	.906	1.134	1.273	1.440	1.943	2.447	2.969	3.143	3.707	4.317	5.959		6
7	.130	.263	.402	.549	.711	.896	1.119	1.254	1.415	1.895	2.365	2.841	2.998	3.499	4.029	5.405		7
8	.130	.262	.399	.546	.706	.889	1.108	1.240	1.397	1.860	2.306	2.752	2.896	3.355	3.832	5.041		8
9	.129	.261	.398	.543	.703	.883	1.100	1.230	1.383	1.833	2.262	2.685	2.821	3.250	3.690	4.781		9
10	.129	.260	.397	.542	.700	.879	1.093	1.221	1.372	1.812	2.228	2.634	2.764	3.169	3.581	4.587		10
11	.129	.260	.396	.540	.697	.876	1.088	1.214	1.363	1.796	2.201	2.593	2.718	3.106	3.497	4.437		11
12	.128	.259	.395	.539	.695	.873	1.083	1.209	1.356	1.782	2.179	2.560	2.681	3.055	3.428	4.318		12
13	.128	.259	.394	.538	.694	.870	1.079	1.204	1.350	1.771	2.160	2.533	2.650	3.012	3.372	4.221		13
14	.128	.258	.393	.537	.692	.868	1.076	1.200	1.345	1.761	2.145	2.510	2.624	2.977	3.326	4.140		14
15	.128	.258	.393	.536	.691	.866	1.074	1.197	1.341	1.753	2.131	2.490	2.602	2.947	3.286	4.073		15
16	.128	.258	.392	.535	.690	.865	1.071	1.194	1.337	1.746	2.120	2.473	2.583	2.921	3.252	4.015		16
17	.128	.257	.392	.534	.689	.863	1.069	1.191	1.333	1.740	2.110	2.458	2.567	2.898	3.222	3.965		17
18	.127	.257	.392	.534	.688	.862	1.067	1.189	1.330	1.734	2.101	2.445	2.552	2.878	3.197	3.922		18
19	.127	.257	.391	.533	.688	.861	1.066	1.187	1.328	1.729	2.093	2.433	2.539	2.861	3.174	3.883		19
20	.127	.257	.391	.533	.687	.860	1.064	1.185	1.325	1.725	2.086	2.423	2.528	2.845	3.153	3.850		20
21	.127	.257	.391	.532	.686	.859	1.063	1.183	1.323	1.721	2.080	2.414	2.518	2.831	3.135	3.819		21
22	.127	.256	.390	.532	.686	.858	1.061	1.182	1.321	1.717	2.074	2.406	2.508	2.819	3.119	3.792		22
23	.127	.256	.390	.532	.685	.858	1.060	1.180	1.319	1.714	2.069	2.398	2.500	2.807	3.101	3.767		23
24	.127	.256	.390	.531	.685	.857	1.059	1.179	1.318	1.711	2.064	2.391	2.492	2.797	3.090	3.745		24
25	.127	.256	.390	.531	.684	.856	1.058	1.178	1.316	1.708	2.060	2.385	2.485	2.787	3.078	3.725		25
26	.127	.256	.390	.531	.684	.856	1.058	1.177	1.315	1.706	2.056	2.379	2.479	2.779	3.067	3.707		26
27	.127	.256	.389	.531	.684	.855	1.057	1.176	1.314	1.703	2.052	2.373	2.473	2.771	3.056	3.690		27
28	.127	.256	.389	.530	.683	.855	1.056	1.175	1.313	1.701	2.048	2.368	2.467	2.763	3.047	3.674		28
29	.127	.256	.389	.530	.683	.854	1.055	1.174	1.311	1.699	2.045	2.364	2.462	2.756	3.038	3.659		29
30	.127	.256	.389	.530	.683	.854	1.055	1.173	1.310	1.697	2.042	2.360	2.457	2.750	3.030	3.646		30
40	.126	.255	.388	.529	.681	.851	1.050	1.167	1.303	1.684	2.021	2.329	2.423	2.704	2.971	3.551		40
60	.126	.254	.387	.527	.679	.848	1.046	1.162	1.296	1.671	2.000	2.299	2.390	2.660	2.915	3.460		60
120	.126	.254	.386	.526	.677	.845	1.041	1.156	1.289	1.658	1.980	2.270	2.358	2.617	2.860	3.373		120
∞	.126	.253	.385	.524	.674	.842	1.036	1.150	1.282	1.645	1.960	2.241	2.326	2.576	2.807	3.291		∞

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