UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Pertama

Sidang Akademik 1997/98

September 1997

HGT 315 Kaedah Kuantitatif Dalam Geografi

Masa: [3 jam]

KERTAS PEPERIKSAAN INI MENGANDUNGI ENAM [6] SOALAN DI DALAM SEPULUH [10] HALAMAN.

Jawab EMPAT [4] soalan.

1. (a) Dengan memberikan contoh-contoh yang sesuai jelaskan perkara-perkara berikut:

   (i) Ukuran kecenderungan memusat

   (ii) Taburan kebarangkalian Normal

   (iii) Ukuran-ukuran serakan

   [15 markah]

   (b) Mengapakah statistik penting dalam kajian Geografi.

   [10 markah]

2. (a) Sekeping syiling dilambung 500 kali, kirakan kebarangkalian jumlah kepala tidak akan berbeza daripada 250 sebanyak,

   (i) lebih daripada 10

   (ii) lebih daripada 30

   [8 markah]

   (b) Dapatkan luas di bawah 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

   [6 markah]

.../2

(c) Berdasarkan kepada Jadual 1, kirakan,

(i) min berat dengan kaedah pengkodan

[5 markah]

(ii) berat median endapan

[3 markah]

(iii) kebarangkalian berat di antara 61.5 g hingga 72.3 g

[3 markah]

Jadual 1: Berat Endapan Dasar Sungai Kelang

Berat (g)	57-59	60-62	63-65	66-68	69-71	72-74	75-77
Kekerapan	2	6	19	42	27	6	3

3. (a) Jelaskan dengan ringkas dua jenis rekabentuk persampelan rawak yang lazim diaplikasikan dalam kajian Geografi.

[10 markah]

(b) Diandaikan anda telah diminta untuk memilih sebanyak 40 ladang sampel daripada satu populasi 98 buah ladang di Daerah A (Gambarajah 1).

(i) Nyatakan rekabentuk persampelan yang akan anda gunakan dan mengapa.

[5 markah]

(ii) Huraikan langkah-langkah yang perlu anda ambil untuk mendapat 40 ladang sampel seperti yang dikehendaki.

[10 markah]

../3

4. Dengan merujuk kepada gambarajah yang sesuai,

(a) Jelaskan aplikasi teori kebarangkalian kepada pembolehubah bertabur secara selanjar.

[8 markah]

(b) Tuliskan persamaan untuk p (kebarangkalian)

[2 markah]

(c) Jelaskan bagaimana skor-Z dan kelok piawai normal digunakan untuk menentukan pelbagai kebarangkalian pembolehubah yang bertabur secara selanjar.

[15 markah]

5. (a) Jelaskan apakah yang dimaksudkan dengan pekali korelasi (r).

[3 markah]

(b) Berikut adalah beberapa pasangan pembolehubah x dan y.

Nyatakan sama ada anda akan mendapat pekali korelasi r positif, negatif atau hampir 0.

	Pembolehubah x	Pembolehubah y
(i)	Ketinggian seseorang	Berat badan seseorang
(ii)	Bilangan pengundi yang berdaftar	Bilangan pengundi yang mengundi
(iii)	Altitud	Purata suhu
(iv)	Kedudukan latitud sesuatu tempat	Purata suhu
(v)	Jumlah isi keluarga	Tahap pendidikan keluarga
(vi)	Kadar keluaran dalam negara kasar	Kadar kematian bayi
(vii)	Pendapatan keluarga	Perbelanjaan keluarga
(viii)	Masa (jam) belajar untuk peperiksaan	Gred Peperiksaan

[8 markah]

.../4

(c) Dengan menggunakan gambarajah serakan berikan lakaran bagi nilai-nilai r yang berikut.

r = +1 r = -1 r = 0 r = -0.8

[4 markah]

(d) Jadual 2 menunjukkan jumlah pendapatan keluarga dan nilai harga rumah yang dimiliki oleh 12 keluarga di suatu kawasan perumahan.

Jadual 2: Pendapatan tahunan keluarga dan nilai rumah yang dimiliki

Bil Keluarga	1	2	3	4	5	6	7	8	9	10	11	12
Pendapatan Tahunan Keluarga (RM'000)	10	17	12	16	8	24	10	22	6	23	16	20
Nilai Rumah yang dimiliki (RM'000)	44	00	70	92	70	130	56	90	50	120	114	110

Kira pekali korelasi dan uji sama ada pendapatan tahunan keluarga mempunyai pertalian yang bererti pada aras keertian 0.05. Berikan ulasan tentang jawapan yang anda perolehi.

[10 markah]

6. Analisis regrasi dijalankan untuk melihat pertalian di antara gaji permulaan dengan gaji sekarang bagi sekumpulan pekerja di sebuah syarikat. Berikut adalah output daripada analisis yang telah dihasilkan melalui perisian *SPSS*.

Equation Number 1 Dependent Variable.. GASEK gaji sekarang

Block Number 1. Method: Enter GAPER

Variable (s) Entered on Step Number
1.. GAPER gaji permulaan

Multiple R .88012
R.Square
Adjusted R Square .77413
Standard Error 3246.14226

..J5

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	17092967800.01977	17092967800.0198
Residual	472	4973671469.79455	10537439.55465

F = Signif F = .0000

---------- Variables in the Equation----------

Variable	B	SE B	Beta	T	Sig T
GAPER	1.909450	.047410	.880117	40.276	.0000
(Constant)	771.282303	355.471941		2.170	.0305

End Block Number 1 All requested variables entered.

(a) Kira nilai F yang tidak ditunjukkan dalam output tersebut.

[5 markah]

(b) Kira nilai R Square

[5 markah]

(c) Jelaskan bagaimana anda boleh menguji hipotesis bahawa tidak terdapat pertalian linear di antara gaji permulaan (x) dan gaji sekarang (y).

[10 markah]

(d) Anggarkan gaji sekarang untuk dua orang pekerja sekiranya gaji permulaan masing-masing adalah RM10,000 dan RM12,000

[5 markah]

.../Lampiran 1
.../6

Lampiran 1

Persamaan

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

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

2. $r_s = 1 - \frac{6\Sigma D^2}{n^3 - n}$

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

4. $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$

5. Sisihan Piawai $\sigma_x = \sqrt{\Sigma x^2/n - x^2}$

6. Skor $Z = \frac{X - \bar{X}}{\sigma}$

7. Ciri-ciri Taburan Binomial

Min $\mu = Np$

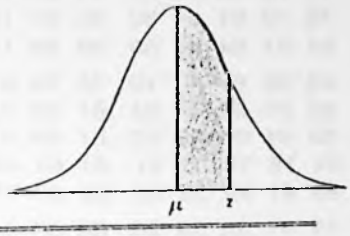
Varians, $\sigma^2 = Npq$

Pencongan, $\sigma^3 = (q-p)/\sqrt{(Npq)}$

Kurtosis, $\sigma^4 = 3 + (1-6pq)/Npq$

.../Lampiran 2
.../7

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									

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.../8

Lampiran 3 (Jadual Nombor Rawak)

09 18 82 00 97 32 82 53 95 27 04 22 08 63 01 83 38 98 73 74 04 27 85 80 44
90 04 58 54 97 51 98 15 06 54 94 03 88 19 97 91 87 07 61 50 68 47 66 46 59
73 18 95 02 07 47 67 72 62 69 62 29 06 44 64 27 12 46 70 18 41 36 18 27 60
75 76 87 64 90 20 97 18 17 49 90 42 91 22 72 95 37 50 58 71 93 82 34 31 78
54 01 64 40 56 66 28 13 10 03 00 68 22 73 98 20 71 45 32 95 07 70 61 78 13

08 35 86 99 10 78 54 24 27 85 13 66 16 88 73 04 61 89 75 53 31 22 30 84 20
28 30 60 32 64 81 33 31 05 91 40 51 00 78 93 32 60 46 04 75 94 11 90 18 40
53 84 08 62 33 81 59 41 36 28 51 21 59 02 90 28 46 66 87 95 77 76 22 07 91
91 75 75 37 41 61 61 36 22 69 50 26 39 02 12 55 78 17 65 14 83 48 34 70 55
89 41 59 26 94 00 39 75 83 91 12 60 71 76 46 48 94 97 23 06 94 54 13 74 08

77 51 30 38 20 86 83 42 99 01 68 41 48 27 74 51 90 81 39 80 72 89 35 55 07
19 50 23 71 74 69 97 92 02 88 55 21 02 97 73 74 28 77 52 51 65 34 46 74 15
21 81 85 93 13 93 27 88 17 57 05 68 67 31 56 07 08 28 50 46 31 85 33 84 52
51 47 48 64 99 08 10 72 36 21 94 01 99 13 45 42 83 60 91 91 08 00 74 54 49
99 55 96 83 31 62 53 52 41 70 69 77 71 28 30 74 81 97 81 42 43 86 07 28 34

33 71 34 80 07 93 58 47 28 69 51 92 66 47 21 58 30 32 98 22 93 17 49 39 72
85 27 48 68 93 11 30 32 92 70 28 83 43 41 37 73 51 59 04 00 71 14 84 36 43
84 13 38 96 40 44 03 55 21 66 73 85 27 00 91 61 22 26 05 61 62 32 71 84 23
56 73 21 62 34 17 39 59 61 31 10 12 39 16 22 85 49 65 75 60 81 60 41 88 80
65 13 85 68 06 87 64 88 52 61 34 31 36 58 61 45 87 52 10 69 85 64 44 72 77

38 00 10 21 76 81 71 91 17 11 71 60 29 29 37 74 21 96 40 49 65 58 44 96 98
37 40 29 63 97 01 30 47 75 86 56 27 11 00 86 47 32 46 26 05 40 03 03 74 38
97 12 54 03 48 87 08 33 14 17 21 81 53 92 50 75 23 76 20 47 15 50 12 95 78
21 82 64 11 34 47 14 33 40 72 64 63 88 59 02 49 13 90 64 41 03 85 65 45 52
73 13 64 27 42 95 71 90 90 35 85 79 47 42 96 08 78 98 81 56 64 69 11 92 02

07 63 87 79 29 03 06 11 80 72 96 20 74 41 56 23 82 19 95 38 01 71 30 60 04
60 52 88 34 41 07 95 41 98 14 59 17 52 06 96 05 53 36 21 39 01 21 20 04 55
83 59 63 56 55 06 95 89 29 83 05 12 80 97 19 77 43 35 37 83 92 30 15 04 98
10 85 06 27 46 99 69 91 05 07 13 49 90 63 19 53 07 57 18 39 06 41 01 93 62
39 82 09 89 52 43 62 26 31 47 64 42 18 08 14 43 80 00 93 51 31 02 47 31 07

59 58 00 64 78 75 56 97 88 00 88 83 65 44 86 23 76 80 61 50 04 11 10 84 08
38 50 80 73 41 23 79 34 87 63 90 82 29 70 22 17 71 90 42 07 95 95 44 99 53
30 69 27 06 68 94 68 81 61 27 56 19 68 00 91 82 06 76 34 00 05 46 20 92 00
65 44 39 50 59 18 28 82 74 37 49 63 22 40 41 08 33 76 56 76 96 29 99 08 30
27 26 75 02 64 13 19 27 22 94 07 47 74 46 06 17 98 54 89 11 97 34 13 03 58

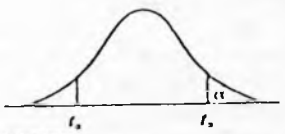
91 30 70 69 91 19 07 22 42 10 36 69 95 37 28 28 82 53 57 93 28 97 66 62 52
08 43 49 46 88 84 47 31 36 22 62 12 69 84 08 12 84 38 25 90 09 81 59 31 46
48 90 81 58 77 54 74 52 45 91 35 70 00 47 54 83 82 45 26 92 54 13 05 61 60
06 91 34 51 97 42 67 27 86 01 11 88 30 95 28 63 01 19 89 01 14 97 44 03 44
10 46 51 60 19 14 21 03 37 12 91 34 23 78 21 88 32 58 08 51 43 66 77 08 83

12 88 39 73 43 65 02 76 11 84 04 28 50 13 92 17 97 41 50 77 90 71 22 67 69
21 77 83 09 76 38 80 73 69 61 31 64 94 20 96 63 28 10 20 23 08 81 64 74 49
19 52 35 95 15 05 12 25 96 59 80 28 36 82 58 09 57 21 37 98 16 43 59 15 29
67 24 55 26 70 35 58 31 05 03 79 24 08 06 80 76 40 33 42 22 26 05 59 08 02
60 58 44 73 77 07 50 03 79 92 45 13 42 05 29 26 76 08 36 37 41 32 04 43 44

53 85 34 13 77 36 06 69 48 50 58 83 87 38 59 49 36 47 33 31 96 24 04 36 42
24 63 73 87 36 74 38 48 93 42 52 62 30 79 92 12 36 91 86 01 03 74 28 38 73
83 08 01 24 51 38 99 22 28 15 07 75 95 17 77 97 37 72 76 85 51 97 23 78 67
16 44 42 43 34 30 16 19 90 73 27 49 37 09 39 86 13 03 25 52 54 84 05 47 59
60 79 01 81 57 57 17 86 67 62 11 16 17 85 76 46 81 95 29 79 05 13 00 48 00

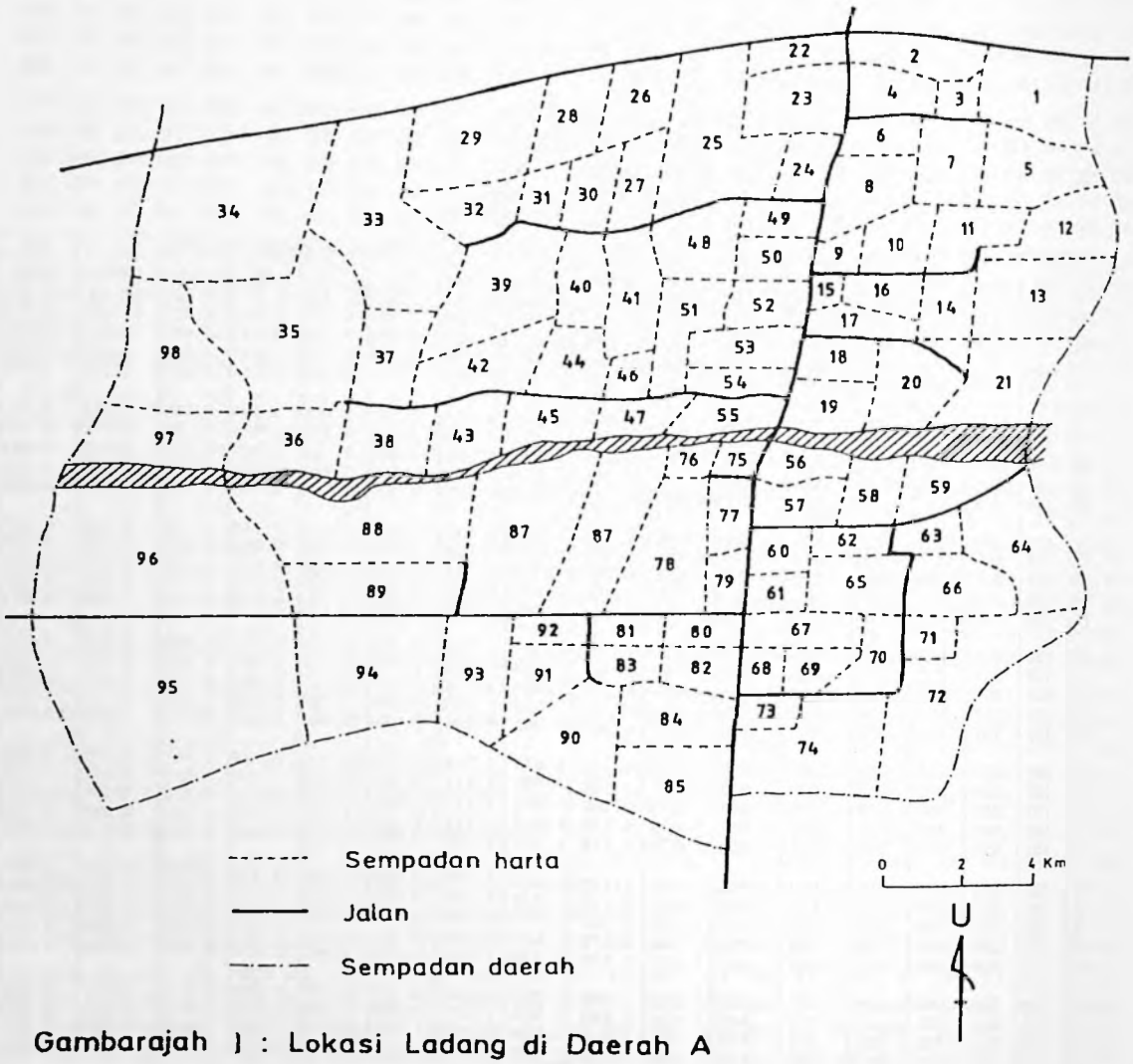
.../Lampiran 4
.../9

Lampiran 4 (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	3.104	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	∞

.../Gambarajah 1
.../10



Gambarajah 1 : Lokasi Ladang di Daerah A

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