

SULIT



**KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI**

**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI**

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR

SESI I : 2023/2024

DPB30063: STATISTICS

TARIKH : 27 DISEMBER 2023

MASA : 11.15 AM – 1.15 PM (2 JAM)

Kertas ini mengandungi **TUJUH (7)** halaman bercetak.

Struktur (4 soalan)

Dokumen sokongan yang disertakan : Kertas Graf, Formula, Table

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi EMPAT (4) soalan berstruktur. Jawab semua soalan.

QUESTION 1**SOALAN 1**

CLO1

- a) State **FIVE (5)** sources from secondary data in order to obtain required data from the respondents.

Nyatakan **LIMA (5)** sumber data sekunder bagi mendapatkan data daripada responden.

[5 marks]

[5 markah]

- b) The table shows the number of customers at Kopi Kampus Cafe in 30 days.

Jadual menunjukkan bilangan pelanggan di Kafe Kopi Kampus selama 30 hari.

20	32	40	35	40	50	20	16	14	20
27	24	19	32	15	15	21	22	20	15
16	25	22	18	20	24	16	25	18	22

CLO2

- i. Represent frequency distribution table consisting of class interval, frequency, midpoint and class boundaries.

Wakilkan jadual taburan kekerapan yang mengandungi selang kelas, kekerapan, titik tengah dan sempadan kelas.

[10 marks]

[10 markah]

CLO2

- ii. From the table above, draw 'less than' ogive.

Daripada jadual di atas, lukis 'kurang daripada' ogif.

[10 marks]

[10 markah]

QUESTION 2**SOALAN 2**

The frequency distribution below shows the age of paddy field workers in Kg. Banat, Arau, Perlis.

Taburan kekerapan di bawah menunjukkan umur pekerja sawah di Kg. Banat, Arau, Perlis.

Age <i>Umur</i>	Number of workers <i>Bilangan pekerja</i>
31-40	5
41-50	4
51-60	10
61-70	13
71-80	5
81-90	3

- CLO2 a) From the table, simplify the calculation for mean and mode.
Daripada jadual, permudahkan kiraan min dan mod.
- [12 marks]
[12 markah]
- CLO2 b) From the data in (2a), calculate Pearson's Coefficient of Skewness 1 (PCS 1) and determine the skewness.
Daripada data (2a), Kira Pearson's Coefficient of Skewness 1 (PCS 1) dan tentukan kecondongan.
- [13 marks]
[13 markah]

QUESTION 3**SOALAN 3**

- CLO2 a) A bag contains 4 blue marbles and 7 red marbles. Muthu randomly picks a ball from the bag and replaces it in the bag. He mixes the marbles in the bag and then picks another marble at random from the bag. Represent the probability that Muthu picks a blue marble in his second draw.
- Sebuah beg mengandungi 4 guli biru dan 7 guli merah. Muthu mengambil guli secara rawak dari beg dan menggantikannya di dalam beg. Dia mencampurkan guli di dalam beg dan kemudian mengambil guli lain secara rawak daripada beg itu. Wakilkan kebarangkalian bahawa Muthu mengambil guli biru dalam cabutan keduanya.*
- [5 marks]
[5 markah]
- CLO2 b) i) Fifty students were asked if they watched football yesterday. 20 of the students are boys. 15 girls watched football yesterday. 30 students did not watch football yesterday. Prepare two- way table.
- Lima puluh pelajar ditanya sama ada mereka menonton bola sepak semalam. 20 daripada pelajar adalah lelaki. 15 orang gadis menonton bola sepak semalam. 30 pelajar tidak menonton bola sepak semalam. Sediakan jadual dua hala.*
- [10 marks]
[10 markah]
- CLO2 ii) A disease is known to exist in 2% of the population. A test is developed to determine whether or not if someone has a disease. Given that a person has a disease, the probability of the test is positive is 0.95. Given that a person does not have a disease, the probability of the test is positive is 0.03. A person is selected at random from the population and tested for this disease. From the above information,

Penyakit diketahui terdapat dalam 2% populasi. Ujian dibangunkan untuk membantu menentukan sama ada seseorang mempunyai penyakit atau tidak. Memandangkan seseorang itu menghidap penyakit, kebarangkalian ujian itu positif ialah 0.95. Memandangkan seseorang itu tidak mempunyai penyakit, kebarangkalian ujian itu positif ialah 0.03. Seseorang dipilih secara rawak daripada populasi dan diuji untuk penyakit ini. Daripada maklumat di atas,

- a. Construct a tree diagram.

Bina rajah pokok.

[8 marks]

[8 markah]

- b. Compute the probability of the test is positive.

Kirakan kebarangkalian ujian itu positif.

[2 marks]

[2 markah]

QUESTION 4**SOALAN 4**

The following table shows the weight and height obtained by 10 students (1, 2, 3, 4, 5, 6, 7, 8, 9 and 10) in Politeknik Nilai.

Jadual berikut menunjukkan berat dan tinggi yang diperolehi dari 10 (1, 2, 3, 4, 5, 6, 7, 8, 9 dan 10) orang pelajar Politeknik Nilai.

	1	2	3	4	5	6	7	8	9	10
Weight (Kg) <i>Berat (Kg)</i>	60	62	63	65	61	68	69	70	72	74
Height (Cm) <i>Tinggi (Cm)</i>	155	165	155	150	170	145	175	170	185	190

CLO2

- a) Based on the above data, simplify the linear regression equation by using Least Square Method.

Berdasarkan data di atas, permudahkan persamaan regresi linear dengan menggunakan Kaedah Kuasa Dua Terkecil.

[12 marks]

[12 markah]

CLO2

- b) A test has been given to all students who desire to enter college. It is known that the test scores are normally distributed with a mean 500 and standard deviation 100. It is suspected that the average of the test scores is different from 500. A randomly selected sample of 64 freshmen shows a mean of 520 with level of significant of 0.01. Is there sufficient evidence to support the claim that the average test scores are different from 500? Prepare your answer.

Ujian telah diberikan kepada semua pelajar yang ingin memasuki kolej. Adalah diketahui bahawa markah ujian adalah taburan normal dengan min 500 dan sisihan piawai 100. Adalah disyaki bahawa purata markah ujian berbeza daripada 500. Sampel yang dipilih secara rawak daripada 64 pelajar baru menunjukkan min 520 dengan tahap signifikan 0.01. Adakah terdapat

bukti yang mencukupi untuk menyokong dakwaan bahawa purata markah ujian adalah berbeza daripada 500? Sediakan jawapan anda.

[13 marks]

[13 markah]

SOALAN TAMAT

FORMULA STATISTICS

$$k = 1 + 3.3 \log_{10} n$$

$$R = \text{Highest value} - \text{Lowest value}$$

$$c = \frac{\text{Range}}{k}$$

$$\bar{x} = \frac{\sum fx}{\sum f}$$

$$\hat{x} = Lm + \left[\frac{\frac{\sum f}{2} - \sum fm^{-1}}{fm} \right] C$$

$$\hat{x} = Lb + \left[\frac{f_0 - f_1}{(f_0 - f_1) + (f_0 - f_2)} \right] C$$

$$\hat{x} = \bar{x} - 3(\bar{x} - \hat{x})$$

$$MD = \frac{1}{\sum f} [\sum f(x - \bar{x})]$$

$$s^2 = \frac{1}{\sum f - 1} \left[\sum fx^2 - \frac{(\sum fx)^2}{\sum f} \right]$$

$$s = \sqrt{s^2}$$

$$cv = \frac{s}{\bar{x}} \times 100$$

$$PCS 1 = \frac{\bar{x} - \hat{x}}{s}$$

$$PCS 2 = \frac{3(\bar{x} - \hat{x})}{s}$$

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

$$\rho = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

$$b = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

$$a = \frac{\sum y}{n} - b \frac{\sum x}{n}$$

$$y = a + bx$$

$$P(A) = \frac{n(A)}{n(S)}$$

$$P(A \cup B) = P(A) + P(B)$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$P(B|A) = \frac{P(A \cap B)}{P(A)}$$

$$\bar{x} \pm Z_{\alpha/2} \frac{\alpha}{\sqrt{n}}$$

$$z = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$$

$$t = \frac{\bar{x} - \mu}{\frac{s}{\sqrt{n}}}$$

t Table

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
Z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%
	Confidence Level										

Table entry for z is the area under the standard normal curve to the left of z .

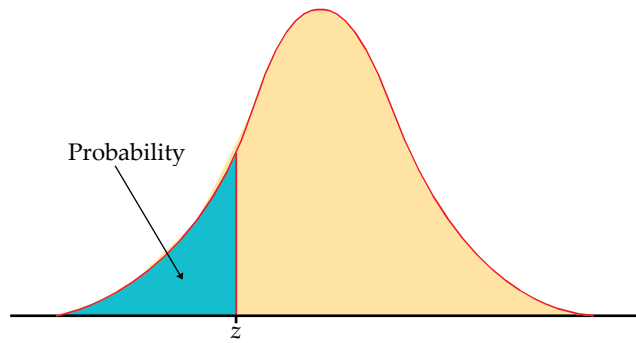


TABLE A

Standard normal probabilities

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.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	.0037	.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	.1314	.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	.2296	.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
0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

