SULIT

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN MALAYSIA

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR

SESI DISEMBER 2018

DPB1013: STATISTICS

TARIKH : 17 APRIL 2019
MASA : 2.30 PETANG - 4.30 PETANG (2 JAM)

Kertas ini mengandungi **SEMBILAN (9)** halaman bercetak.
Struktur (4 soalan)

Dokumen sokongan yang disertakan : Formula

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
C1

(a) State the types of data (qualitative or quantitative) for each following characteristics:
Nyatakan jenis data (kualitatif atau kuantitatif) bagi setiap ciri-ciri yang berikut:

i. Number of family member
Bilangan ahli keluarga

ii. Blood glucose level
Tahap glukosa darah

iii. Eye color
Warna mata

iv. Marital status
Status perkahwinan

v. Ethnicity
Etnik

[5 marks]
[5 *markah*]

(b) Affan has been working on programing and updating a Website for his company for the past 7 months. The following data represent the number of hours that Affan worked for each month.

24, 25, 31, 50, 53, 66, 78

Affan telah bekerja dalam pengemaskinian dan pengaturcaraan laman web untuk syarikatnya selama 7 bulan yang lalu. Data berikut mewakili bilangan jam bekerja bagi Affan pada setiap bulan.

24, 25, 31, 50, 53, 66, 78

Based on the above data, you are required to find :

Berdasarkan data diatas, anda dikehendaki untuk mencari

i. Mean

Min

ii. Median

Median

iii. Mode

Mod

[5 marks]

[5 *markah*]

CLO1
C2

(c) A salesman keeps a record of the number of shops he visits each day.

Seorang jurujual menyimpan rekod bilangan kedai yang dikunjungi setiap hari.

Shops visited *Kedai yang dikunjungi*	Frequency *Kekerapan*
0 – 9	3
10 – 19	8
20 – 29	21
30 – 39	60
40 – 49	21

Table 1 (c)

Based on the frequency Table 1 (c) above, you are required to:

Berdasarkan Jadual 1 (c) kekerapan , anda dikehendaki:

i. Calculate

Kirakan

a. Mean.

Min .

[5 marks]

[*5 markah*]

b. Median.

Median .

[5 marks]

[*5 markah*]

c. Mode.

Mod.

[3 marks]

[*3 markah*]

ii. Determine the form of data divergence.

Tentukan bentuk serakan data.

[2 marks]

[2 *markah*]

QUESTION 2

SOALAN 2

CLO1
C1

(a) Find the mean deviation from mean of the data (given mean = 64)

Cari sisihan min daripada purata data tersebut (Min diberi = 64)

45 55 63 76 67 84 75 48 62 65

[5 marks]

[*5 markah*]

CLO1
C2

(b) The quality of lightbulbs, estimated life span (burning hours) for 100 bulbs for brand A are stated as below.

Untuk memeriksa tahap kualiti jenama mentol lampu, anggaran jangka hayat (jam pembakaran) untuk 100 biji mentol bagi bagi jenama A adalah seperti di bawah.

Life span of bulbs (in hours) *Jangka hayat mentol lampu (dalam jam)*	Brand A *Jenama A*
0–50	15
50–100	20
100–150	18
150–200	25
200–250	22
	100

Table 2 (b)

Based on the Table 2 (b) above, you have to find:

Berdasarkan Jadual 2 (b) di atas, anda dikehendaki untuk mencari:

i. Mean.
Min.

[5 marks]
[*5 markah*]

ii. Standard deviation.
Sisihan piawai.

[10 marks]
[*10 markah*]

CLO1
C2

(c) Using information in (b), compare two brands of lightbulbs if brand B has standard deviation of 37.51 and mean 136.5. Which brand has more life span consistency , by calculating coefficient of variation, CV ?

Dengan menggunakan maklumat di (b), bandingkan dua jenama mentol lampu jika jenama B mempunyai sisihan piawai 37.51 dan min 136.5. Manakah antara jenama tersebut yang mempunyai jangka hayat yang lebih konsisten,dengan mengira pekali variasi, CV?

[5 marks]
[*5 markah*]

QUESTION 3

SOALAN 3

CLO1
C1

(a) The survey result of the average monthly rents (in RM) for one-bedroom apartments and two-bedroom apartments in randomly selected metropolitan areas are shown in Table 3 (a). Determine if there is a relationship between the rents by using Spearman Rank correlation coefficient.

Hasil tinjauan purata sewa bulanan (dalam RM) bagi pangsapuri satu bilik tidur dan pangsapuri dua bilik tidur di kawasan metropolitan yang dipilih secara rawak adalah seperti Jadual 3 (a) yang ditunjukkan di bawah. Tentukan samada terdapat hubungan antara sewa dengan menggunakan pekali korelasi pangkat Spearman.

One-bedroom, *x* ***Satu bilik tidur, x***	**Two-bedroom, *y*** ***Dua bilik tidur, y***
782	1223
486	902
451	739
529	954
618	1055
520	875
845	1455

Table 3 (a)

[10 marks]
[*10 markah*]

CLO1
C2

(b) A doctor wishes to know whether there is a relationship between a mother's weight (in kg) and her newborn baby's weight (in kg).
Seorang doctor ingin mengetahui sama ada terdapat hubungan antara berat ibu (dalam kg) dengan berat bayi yang baru dilahirkan (dalam kg).

Mother's weight, x *Berat ibu, x*	Baby's weight, y *Berat bayi, y*
79.8	3.0
72.6	3.7
84.8	4.2
95.3	3.2
88.9	4.0
64.4	4.2
93.0	3.4
97.5	3.9

Table 3 (b)

From the Table 3 (b), you are required to:
Daripada Jadual 3 (b) *di atas, anda dikehendaki untuk:*

i. Draw a scatter plot.
Lukiskan plot selerak.

[6 marks]
[*6 markah*]

ii. Identify the regression equation, $y = a + bx$ by using least squared method.
Kenalpasti persamaan regresi, $y = a + bx$ *dengan menggunakan kaedah kuasa dua terkecil.*

[9 marks]
[*9 markah*]

QUESTION 4
SOALAN 4

CLO2
C3

(a) The data below shows the number of calories listed per serving for selected ready-to-eat cereals.
Data di bawah menunjukkan bilangan kalori bagi setiap hidangan bijirin siap sedia yang disenaraikan.

130	190	140	80	100	120	220	220	110	100
210	130	100	90	210	120	200	120	180	120
190	210	120	200	130	180	260	270	100	160
190	240	80	120	90	190	200	210	190	180
115	210	110	225	190	130				

Table 4 (a)

From the above Table 4 (a), you are required to:
Daripada jadual di atas, anda dikehendak:

i. Construct a frequency distribution that consist of class interval, frequency, class boundaries and midpoint.
Membina jadual taburan kekerapan yang mengandungi saiz kelas, kekerapan, sempadan kelas dan titik tengah.

[10 marks]
[*10 markah*]

ii. Draw a frequency polygon.
Lukiskan polygon kekerapan.

[5 marks]
[*5 markah*]

CLO2
C3

(b) In winter, the probability that it rains on any one day is 5/7.
Pada musim sejuk, kebarangkalian hujan untuk mana-mana satu hari ialah 5/7.

i. Using a tree diagram, show all the possible combinations for two consecutive days. Write the probabilities for each of the branches.
Menggunakan gambarajah pokok, tunjukkan semua kombinasi kemungkinan selama dua hari berturut-turut. Tulis kebarangkalian bagi setiap dahan.

[6 marks]
[*6 markah*]

ii. Calculate the probability that it will rain on both days.
Kirakan kebarangkalian hujan bagi 2 hari.

[2 marks]
[*2 markah*]

iii. Calculate the probability that it will rain on at least once day.
Kirakan kebrangkalian hujan bagi sekurang-kurangnya satu hari.

[2 marks]
[*2 markah*]

SOALAN TAMAT

STATISTICS FORMULA

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

Range = highest value – lowest value

Size class = Range / k

Mean= $\frac{\sum fx}{\sum f}$

Median = $L_m + \left(\frac{n/2 - \sum fm^{-1}}{f_m} \right) C$

Mode = $L_b + \left(\frac{\Delta 1}{\Delta 1 + \Delta 2} \right) C$

mean deviation = $\frac{1}{\sum f} (\sum f \mid x - \bar{x} \mid)$

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

$s = \sqrt{s^2}$

CV = (std deviation / mean) x 100

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

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

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

$y = a + bx$

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

Estimation = $\bar{x} \pm z_{\alpha/2} (\sigma / \sqrt{n})$

Hyphotesis for small mean, $T = (\bar{x} - \mu_0) / (s / \sqrt{n})$

Hyphotesis for large mean, $T = (\bar{x} - \mu_0) / (\sigma / \sqrt{n})$

Probability = n (A) / n (S)

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

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

$(A \mid B) = P(A \cap B) \; / \; P(B)$