

SULIT

POLITEKNIK
Jabatan Pengajian Politeknik

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENGAJIAN POLITEKNIK
KEMENTERIAN PENDIDIKAN MALAYSIA

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR

SESI JUN 2013

PB101: STATISTICS

TARIKH : 23 OKTOBER 2013
TEMPOH : 2 JAM (8.30 AM - 10.30 AM)

Kertas ini mengandungi TUJUH (7) halaman bercetak.
Bahagian ini mengandungi EMPAT (4) soalan, Jawab SEMUA soalan
Dokumen sokongan yang disertakan : Formula

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SULIT

PB101: STATISTICS

INSTRUCTION:

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

ARAHAN :

Bahagian ini mengandungi **EMPAT (4)** soalan . Jawab **SEMUA** soalan.

QUESTION 1

SOALAN 1

A sport science researcher is doing a study on performance of current athletes in 100 meters dash event. The following is the record (in seconds) of 30 male 100 meters sprinters compiled from national level competitions in the last 2 years.

Seorang penyelidik sains sukan menjalankan satu kajian terhadap prestasi atlet dalam acara lumba lari 100 meter. Berikut adalah rekod (dalam saat) 30 pelari pecut lelaki yang dicatatkan pada pertandingan peringkat kebangsaan dalam tempoh 2 tahun.

10.77 10.57 10.54 10.63 10.88

10.94 10.64 10.53 10.55 11.12

11.05 10.99 10.89 11.01 10.74

10.93 10.96 10.43 10.58 10.65

10.65 10.84 11.22 10.73 10.59

10.41 11.18 10.79 10.91 10.96

CLO 1

C3

Based on the data calculate:

Berdasarkan data di atas:

(a) Calculate

Kira:

(i) range

julat

(ii) number of classes

bilangan kelas

(iii) class width

lebar kelas

[6 marks]
[6 markah]

CLO1
C2

- (b) Construct a frequency distribution table which comprises of class interval, class boundary, frequency and midpoint.

Bina jadual taburan frekuensi yang mengandungi selang kelas, sempadan kelas, frequency dan titik tengah.

[12 marks]
[12 markah]

CLO1
C1

- (c) Draw

Lakarkan

- (i) Histogram

Histogram

- (ii) Frequency Polygon

Poligon Kekerapan

[7 marks]
[7 markah]

QUESTION 2

SOALAN 2

A sample of the monthly amount invested in the AMMAR Company's profit sharing plan by employees is organized into a frequency distribution table for further study.

Sampel amaun bulanan yang dilaburkan oleh pekerja-pekerja dalam pelan pembahagian keuntungan syarikat AMMAR ditunjukkan di dalam jadual taburan kekerapan untuk kajian seterusnya.

Amount Invested (RM) <i>Amaun yang dilaburkan (RM)</i>	Number of Employees <i>Bilangan Pekerja</i>
30 - 34	3
35 - 39	7
40 - 44	11
45 - 49	22
50 - 54	40
55 - 59	24
60 - 64	9
65 - 69	4

CLO1
C3

- (a) What is the range? (in RM)
Berapakah julatnya? (dalam RM)

[2 marks]

[2 markah]

CLO1
C3

- (b) Determine the interquartile range.
Tentukan julat antara kuartil.

[8 marks]

[8 markah]

CLO1
C3

- (c) Calculate the quartile deviation.
Kirakan sisihan kuartil.

[3 marks]

[3 markah]

CLO1
C3

- (d) Calculate the standard deviation.
Kirakan sisihan piawai.

[12 marks]

[12 markah]

QUESTION 3

SOALAN 3

Aaron Aziz has collected the following information on the price and quantities of selected imported food items for the year 2009 and 2010.

Aaron Aziz telah mengumpul maklumat berikut berkenaan harga dan kuantiti barangan import terpilih bagi tahun 2009 dan 2010.

Item Barang	Quantity (million kg) Kuantiti (juta kg)		Price per kg (RM) Harga per kg (RM)	
	2009	2010	2009	2010
Carrot Lobak merah	86.5	88.2	2.30	2.70
Red pepper Lada merah	55.4	49.5	5.50	5.80
Frozen chicken Ayam sejuk beku	44.2	50.3	7.40	6.90

Using the year 2009 as the base period, calculate:

Dengan menggunakan 2009 sebagai tahun asas, kirakan:

- CLO 2
C3 (a) Simple relative price index and simple aggregate price index. [11 marks]
Indeks harga relatif ringkas dan indeks harga agregat ringkas. [11 markah]
- CLO 2
C3 (b) Laspeyres quantity index for the year 2010. [4 marks]
Indeks kuantiti Laspeyres untuk tahun 2010. [4 markah]
- CLO 2
C3 (c) Paasche Price index for the year 2010. [4 marks]
Indeks Harga Paasche untuk tahun 2010. [4 markah]
- CLO 2
C3 (d) Give a conclusion for each of your answer in (a), (b) and (c). [6 marks]
Beri kesimpulan untuk setiap jawapan anda di (a), (b) dan (c). [6 markah]

CLO1
C3

- (b) Calculate Pearson's Product Moment Coefficient Correlation for the advertising expenditure (X) and the number of units of car sold (Y).

Kirakan koefisien Korelasi Momen Produk Pearson untuk perbelanjaan pengiklanan (X) dan bilangan kereta yang dijual (Y).

[12 marks]

[12 markah]

CLO1
C3

- (c) Based on your answer in (ii) interpret the meaning of the value obtained.

Berdasarkan jawapan anda di (ii), tafsirkan maksud nilai tersebut.

[3 marks]

[3 markah]

SOALAN TAMAT

QUESTION 4

SOALAN 4

The following table shows the monthly income, (Y) and years of working experience, (X) of seven randomly selected employees from a company in Mukah, Sarawak.

Jadual berikut menunjukkan pendapatan bulanan, (Y) dan tahun pengalaman bekerja, (X) tujuh pekerja yang dipilih secara rawak daripada sebuah syarikat di Mukah, Sarawak.

Month Bulan	Advertising Expenditure per month Perbelanjaan Pengiklanan per bulan (X)	Number of Car Sold per month Jumlah Jualan kereta per bulan (Y)
January	25	40
February	27	52
March	22	33
April	23	30
May	33	64
June	20	24
July	30	53

(a) Draw a scatter diagram.

[10 marks]

Lukiskan gambarajah sebaran.

[10 markah]

CLO1
C1

FORMULA

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

$$\text{Range} = \text{Highest Observed Value} - \text{Lowest Observed Value}$$

$$l = \frac{\text{range}}{k}$$

$$\bar{x} = \frac{\sum f_i x_i}{\sum f_i}$$

$$\bar{x} = L_m + \left[\frac{\frac{\sum f_i}{2} - \sum f_{m-1}}{f_m} \right] C$$

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

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

$$Q_1 = L_b + \left(\frac{\frac{N}{4} - \sum f_{BQ1}}{f_{BQ1}} \right) C$$

$$Q_3 = L_b + \left(\frac{\frac{3N}{4} - \sum f_{BQ3}}{f_{BQ3}} \right) C$$

$$D_k = L_b + \left(\frac{k \left(\frac{N}{10} \right) - \sum f_{BDk}}{f_{BDk}} \right) C$$

$$P_k = L_b + \left(\frac{k \left(\frac{N}{100} \right) - \sum f_{BPk}}{f_{BPk}} \right) C$$

$$\text{Mean Deviation} = \frac{1}{\sum f_i} [\sum f_i |x - \bar{x}|]$$

$$I = \frac{P_L}{P_o} \times 100$$

$$I = \frac{\sum P_L}{\sum P_o} \times 100$$

$$I = \frac{1}{n} \sum \left(\frac{P_L}{P_o} \times 100 \right)$$

$$I = \frac{\sum (P_L W)}{\sum (P_o W)} \times 100$$

$$II_L = \frac{\sum (P_L Q_o)}{\sum (P_o Q_o)} \times 100$$

$$IP = \frac{\sum (P_L Q_o)}{\sum (P_o Q_o)} \times 100$$

$$IF = \sqrt{\left(\frac{\sum P_L Q_o}{\sum P_o Q_o} \right) \times \left(\frac{\sum P_L Q_o}{\sum P_o Q_o} \right)}$$

$$IM = \frac{\sum P_L (Q_o + Q_o)}{\sum P_o (Q_o + Q_o)} \times 100$$

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

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

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

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