

**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 : 2024/2025**

**DPB30093: QUANTITATIVE METHODS**

**TARIKH : 05 DISEMBER 2024**

**MASA : 11.30 PAGI – 01.30 PETANG (2 JAM)**

Kertas ini mengandungi **LAPAN (8)** halaman bercetak.

Struktur (4 soalan)

Dokumen sokongan yang disertakan : Kertas Graf dan Formula

**JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN**

(CLO yang tertera hanya sebagai rujukan)

**SULIT**

**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**

- CLO1 a) i) Describe the meaning of statistics.  
*Terangkan maksud statistik.*
- [6 marks]  
[6 markah]
- ii) State **FOUR (4)** data collection methods.  
*Nyatakan EMPAT (4) kaedah pengumpulan data.*
- [4 marks]  
[4 markah]
- CLO1 b) Zira has just launched her new scarf called ZEE. She wanted to determine the number of customers who visited her shop to buy it within one month. Table 1 shows the data.  
*Zira baru sahaja lancarkan tudung barunya iaitu ZEE. Beliau berminat untuk menentukan bilangan pelanggan yang telah melawat kedainya untuk membeli tudung ZEE dalam tempoh sebulan. Jadual 1 menunjukkan data.*

| Day<br><i>Hari</i> | Number of customers<br><i>Bilangan pelanggan</i> |
|--------------------|--------------------------------------------------|
| 1 – 5              | 10                                               |
| 6 – 10             | 15                                               |
| 11 – 15            | 20                                               |
| 16 – 20            | 17                                               |
| 21 – 25            | 24                                               |
| 26 – 30            | 14                                               |

Table 1: Number of customers that visited and bought the ZEE scarf

*Jadual 1: Bilangan pelanggan yang melawat dan membeli tudung ZEE*

Based on the above information, compute the value of:

*Berdasarkan maklumat di atas, kirakan nilai:*

i) Mean

*Min*

[5 marks]

[5 markah]

ii) Mode

*Mode*

[4 marks]

[4 markah]

iii) Median

*Median*

[6 marks]

[6 markah]

**QUESTION 2****SOALAN 2**

A market survey was done on a sample of 30 customers that purchased sweet Lavender perfume from Zamani Enterprise. Then, the data was categorized by age groups.

*Satu tinjauan telah dibuat terhadap 30 sampel pelanggan yang membeli pewangi manis Lavender daripada Zamani Enterprise. Kemudian, data tersebut dikategorikan mengikut umur pelanggan.*

| Age (in years)<br><i>Umur (tahun)</i> | Number of<br>customers<br><i>Bilangan<br/>pelanggan</i> | Midpoint<br>(x)<br><i>Titik tengah<br/>(x)</i> | fx<br><i>fx</i> | Cumulative<br>frequency<br><i>Kekerapan<br/>terkumpul</i> | Lower Class<br>Boundaries<br><i>Sempadan<br/>Kelas Bawah</i> |
|---------------------------------------|---------------------------------------------------------|------------------------------------------------|-----------------|-----------------------------------------------------------|--------------------------------------------------------------|
| 18 – 20                               | 8                                                       | <i>a</i>                                       | <i>b</i>        | <i>c</i>                                                  | <i>d</i>                                                     |
| 21 – 23                               | 5                                                       | 22                                             | <i>e</i>        | 13                                                        | 20.5                                                         |
| 24 – 26                               | 7                                                       | <i>f</i>                                       | 175             | <i>g</i>                                                  | 23.5                                                         |
| 27 – 29                               | 5                                                       | 28                                             | <i>h</i>        | 25                                                        | 26.5                                                         |
| 30 – 32                               | 5                                                       | <i>i</i>                                       | 155             | 30                                                        | 29.5                                                         |
|                                       | $\Sigma = 30$                                           |                                                | $\Sigma = j$    |                                                           |                                                              |

Based on the frequency distribution table above:

*Berdasarkan jadual taburan kekerapan di atas:*

- CLO1 a) Fill in the blank (*a - j*) with the correct figure.  
*Isikan tempat kosong pada (a - j) dengan nilai yang betul.*

[10 marks]

[10 markah]

- CLO1 b) Draw a histogram and frequency polygon.  
*Lukiskan histogram dan poligon kekerapan.*

[10 marks]

[10 markah]

- CLO1 c) Compute the value of mean and mode.

*Kirakan nilai min dan mod.*

[5 marks]

[5 markah]

### QUESTION 3

#### SOALAN 3

- CLO1 a) The table below shows the weight in (kg) of 50 new intake students from Seberang Perai Polytechnic.

*Jadual di bawah menunjukkan berat dalam (kg) 50 pelajar ambilan baharu dari Politeknik Seberang Perai.*

| Weight (in kg)<br><i>Berat (dalam kg)</i> | Number of students<br><i>Bilangan pelajar</i> |
|-------------------------------------------|-----------------------------------------------|
| 30 – 40                                   | 15                                            |
| 41 – 51                                   | 4                                             |
| 52 – 62                                   | 21                                            |
| 63 – 73                                   | 4                                             |
| 74 – 84                                   | 6                                             |

Based on the data above, calculate:

*Berdasarkan data di atas, kirakan*

- i) Mean  
*Min*

[4 marks]

[4 markah]

- ii) Mode  
*Mod*

[4 marks]

[4 markah]

iii) Standard deviation.

*Sisihan Piawai*

[7 marks]

[7 markah]

- CLO1 b) Zess Empire Sdn Bhd is a dealership of luxury cars imported from Japan. The company decides to restructure its staff to the new portfolio according to age. The age distribution of staff in the company is as follows:

*Zess Empire Sdn Bhd ialah pengedar kereta mewah yang dimport dari Jepun. Syarikat itu memutuskan untuk menyusun semula kakitangan mereka kepada portfolio baharu mengikut umur. Taburan umur kakitangan dalam syarikat adalah seperti berikut:*

| Age<br>Umur                     | 20 – 25 | 26 – 31 | 32 – 37 | 38 – 43 | 44 – 49 | 50 – 55 |
|---------------------------------|---------|---------|---------|---------|---------|---------|
| Number of<br>Staff<br>Bil. Staf | 3       | 6       | 15      | 26      | 10      | 3       |

Referring to the above data, analyze the value of Pearson Coefficient of Skewness 2 (PCS2).

*Dengan merujuk data di atas, analisis nilai Pekali Kepencongan Pearson 2 (PCS2).*

[10 marks]

[10 markah]

## QUESTION 4

## SOALAN 4

CLO1 a) Given the following set of data:

*Diberikan data seperti berikut:*

15 18 22 26 30 22 20

Calculate

*Kirakan*

i. Mean

*Min*

[2 marks]

[2 markah]

ii. Median

*Median*

[2 marks]

[2 markah]

iii. Mode

*Mod*

[1 mark]

[1 markah]

iv. Standard Deviation

*Sisihan Piawai*

[5 marks]

[5 markah]

- CLO1 b) The data sets **X** and **Y** show a positive linear relationship. Determine the correlation between the **X** and **Y** sets below by using Pearson Product-Moment Correlation Coefficient ( $r$ ) between these two sets of data.

*Set data X dan Y menunjukkan hubungan linear yang positif. Tentukan perkaitan antara set X dan Y di bawah dengan menggunakan Pekali Korelasi Momen-Produk Pearson ( $r$ ) di antara kedua-dua set data ini.*

|          |   |    |    |    |    |
|----------|---|----|----|----|----|
| <b>X</b> | 2 | 4  | 6  | 8  | 10 |
| <b>Y</b> | 5 | 10 | 15 | 20 | 25 |

[15 marks]

[15 markah]

**SOALAN TAMAT**



## FORMULA QUANTITATIVE METHODS

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

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

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

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

$$\tilde{x} = Lm + \frac{[\sum f - \sum fm^{-1}]}{\sum fm} \times C$$

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

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

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

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

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

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

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

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

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

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

$$y = a + bx$$

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

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

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

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

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