

**SULIT**



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

**JABATAN KEJURUTERAAN AWAM**

**PENILAIAN ALTERNATIF**

**SESI DISEMBER 2020**

**DCW30112 : INDUSTRIAL STATISTICS**

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**NAMA PENYELARAS KURSUS : WAHIDA BINTI MOHAMAD NOOR**

**KAEDAH PENILAIAN : PEPERIKSAAN ONLINE**

**JENIS PENILAIAN : SOALAN ESEI BERSTRUKTUR (2 SOALAN)**

**TARIKH PENILAIAN : 7 JULAI 2021**

**TEMPOH PENILAIAN : 1 JAM**

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**LARANGAN TERHADAP PLAGIARISM (AKTA 174)**

**PELAJAR TIDAK BOLEH MEMPLAGIAT APA-APA IDEA, PENULISAN, DATA  
ATAU CIPTAAN ORANG LAIN. PLAGIAT ADALAH SALAH SATU  
PENYELEWENGAN AKADEMIK. SEKIRANYA PELAJAR DIBUKTIKAN  
MELAKUKAN PLAGIARISM, PENILAIAN BAGI KURSUS BERKENAAN AKAN  
DIMANSUHKAN DAN DIBERI GRED F DENGAN NILAI MATA 0.**

**(RUJUK BUKU ARAHAN-ARAHAN PEPERIKSAAN DAN KAEDAH PENILAIAN (Diploma) EDISI 6, JUN 2019,  
KLAUSA 17.3)**

**SECTION A : 50 MARKS**  
**BAHAGIAN A : 50 MARKAH**

**INSTRUCTION:**

This section consists of **TWO (2)** structured questions. Answer **ALL** questions.

**ARAHAN:**

*Bahagian ini mengandungi DUA(2) soalan struktur. Jawab SEMUA soalan.*

**QUESTION 1**

**SOALAN 1**

CLO1  
C3

- (a) i. Probability sampling technique is used when researcher plans to make Inferences about the population of interest. One type of probability sampling techniques is systematic sampling. Explain the systematic sampling calculation steps with example.

*Teknik pensampelan kebarangkalian digunakan apabila penyelidik bercadang untuk membuat kesimpulan mengenai populasi yang berminat. Salah satu teknik pensampelan kebarangkalian ialah pensampelan sistematik. Terangkan langkah pengiraan persampelan sistematik beserta contoh.*

[7 marks]

[7 markah]

CLO1  
C3

- ii. In designing a questionnaire, there are few things that should be taken into consideration in order to achieve the target of a survey. Interpret **FOUR (4)** things should be taken into consideration in designing a good questionnaire.

*Dalam merancang soal selidik, beberapa perkara yang perlu dipertimbangkan untuk mencapai sasaran tinjauan. Tafsirkan EMPAT (4) perkara harus diambil kira untuk merancang soal selidik yang baik.*

[8 marks]

[8 markah]

CLO1  
C3

- (b) Table 1(b) shows Mr. Kamal monthly expenses on various items. Illustrate the data using a pie chart that shows the percentage of each expenses. *Jadual B2(b) menunjukkan perbelanjaan bulanan Encik Kamal untuk pelbagai barang. Gambarkan data menggunakan carta pai dengan menunjukkan nilai peratusan setiap perbelanjaan.*

**Table 1(b): Mr. Kamal's monthly expenses****Jadual 1(b): Perbelanjaan bulanan En Kamal**

Item	Rent	Food	Clothing	Education	Savings
Expenditure (RM)	4000	5400	2800	1800	400

[10 marks]

[10 markah]

**QUESTION 2**  
**SOALAN 2**CLO1  
C3

- (a) A sample of 10 students in DBK showed the following credit hours taken during the second year of their programme. Identify range, mean, median and mode. *10 sampel pelajar DBK menunjukkan jam kredit yang telah diambil oleh mereka semasa berada di tahun kedua program. Tentukan julat, purata, median dan mod.*

24, 18, 21, 22, 19, 20, 18, 21, 18, 17

[10 marks]

[10 markah]

CLO1  
C3

- (b) In annual PSA Woodball Club election, there are three possible candidates. The probability of Mr Jefri, Mr. Kamal and Mr. Mawi being nominated are 0.15, 0.55 and 0.30 respectively. If the nominated candidates take part in the election, the probabilities that the election won by Mr Jefri, Mr Kamal and Mr. Mawi are 0.5, 0.65 and 0.4 respectively.

*Dalam pemilihan tahunan Kelab Woodball PSA, terdapat tiga kemungkinan Calon. Kebarangkalian Encik Jefri, Encik Kamal dan Encik Mawi dicalonkan masing-masing adalah 0.15, 0.55 dan 0.30. Sekiranya calon yang dicalonkan mengambil bahagian dalam pemilihan, kebarangkalian dimenangi oleh Encik Jefri, Encik Kamal dan Encik Mawi masing-masing adalah 0.5, 0.65 dan 0.4.*

- i. Construct a tree diagram for the above information  
*Bina gambarajah pokok untuk maklumat di atas.*

[7 marks]

[7 markah]

- ii. Calculate the probability of the possible candidates winning the election. Then, given that someone won the election, calculate the probability that the winner is Mr Jefri.

*Hitung kebarangkalian calon memenangi pilihan raya. Kemudian, jika seseorang memenangi pilihan raya, hitung kebarangkalian bahawa pemenangnya adalah Encik Jefri?*

[8 marks]

[8 markah]

**SOALAN TAMAT**

## DCW 30112 Industrial Statistics Formulae

$$1. K = \frac{\log n}{\log 2}$$

$$2. \text{mean } (x) = \frac{\sum x}{N} \text{ ungroup data}$$

$$3. \text{mean } (x) = \frac{(\sum fx)}{\sum f} \text{ group data}$$

$$4. \text{mode} = L_b + \left( \frac{d_1}{d_1 + d_2} \right) \text{ group data}$$

$$5. \text{median} = L_b + \left[ \frac{\frac{n}{2} - Cfb}{f_m} \right] \times c. i$$

$$6. Q_1 = L_B + \left[ \frac{\frac{n}{4} - Cfb}{f_{Q_1}} \right] \times c. i$$

$$7. Q_3 = L_B + \left[ \frac{\frac{3n}{4} - Cfb}{f_{Q_1}} \right] \times c. i$$

$$8. \text{Quartile range} = Q_3 - Q_1$$

$$9. \text{Quartile deviation} = \frac{1}{2}(Q_3 - Q_1)$$

$$10. D_k = L_b + \left[ \frac{\frac{kn}{10} - Cfb}{f_{D_k}} \right] \times c. i$$

$$11. P_k = L_b + \left[ \frac{\frac{kn}{100} - Cfb}{f_{P_k}} \right] \times c. i$$

## 12. Sample ungrouped data

$$s^2 = \frac{1}{n-1} \sum \left( x^2 - \frac{(\sum x)^2}{n} \right)$$

$$S = \sqrt{\frac{1}{n-1} \sum \left( x^2 - \frac{(\sum x)^2}{n} \right)}$$

## 13. Sample grouped data

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

$$s = \sqrt{\frac{1}{n-1} \sum \left( fx_m^2 - \frac{(\sum fx_m)^2}{n} \right)}$$

$$14. \text{Mean deviation} = \frac{\sum [x - \text{mean}]}{n} \text{ ungroup data}$$