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UNIVERSITI SAINS MALAYSIA

Second Semester Examination  
Academic Session 2007/2008

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**RPG 131 – Kaedah Kuantitatif Gunaan**  
**(Applied Quantitative Methods)**

Masa: 3 jam  
(Duration: 3 hours)

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Sila pastikan bahawa kertas peperiksaan ini mengandungi **SEPULUH** muka surat yang tercetak sebelum anda memulakan peperiksaan ini.

*Please check that this examination paper consists of **TEN** printed pages before you begin the examination.*

Pelajar dibenarkan menjawab semua soalan dalam Bahasa Inggeris ATAU Bahasa Malaysia sahaja.

*Students are allowed to answer all questions either in English OR in Bahasa Malaysia only.*

Jawab **LIMA** soalan sahaja. **Bahagian A** adalah **WAJIB** dan jawab **DUA** soalan dari **Bahagian B**.

*Answer **FIVE** questions only. **Section A** is **COMPULSORY** and answer **TWO** questions from **Section B**.*

Sila asingkan buku jawapan untuk setiap Bahagian.

*Please separate the answer book for each Section.*

**BAHAGIAN A (WAJIB)**  
**SECTION A (COMPULSORY)**

1. (a) Huraikan dan berikan definisi bagi jenis-jenis kaedah persampelan yang berlainan.
- (i) Persampelan kawasan
  - (ii) Persampelan rawak berstrata
  - (iii) Persampelan kemungkinan
  - (iv) Persampelan pertimbangan

*Explain and define the different types of sampling methods:*

- (i) *Area sampling*
- (ii) *Stratified random sampling*
- (iii) *Probability sampling*
- (iv) *Judgment sampling*

- (b) Dengan merujuk kepada beberapa contoh 1, huraikan perbezaan antara perkataan-perkataan yang diberikan.

- (i) Data kualitatif dan kuantitatif
- (ii) Sampel dan populasi
- (iii) Pembolehubah bergantung dan pembolehubah tidak bergantung
- (iv) Penyelidikan guna dan asli

*Explain the difference between the words given referring to some examples.*

- (i) *Qualitative and quantitative data*
- (ii) *A sample and a population*
- (iii) *Dependent variables and independent variables*
- (iv) *.Applied and basic/pure research*

(20 markah/marks)

2. (a) Sekumpulan 65 orang pekerja kontrak binaan bekerja untuk membina sebuah jeti bagi Pameran LIMA yang akan berlansung di Langkawi. **Jadual 1** di bawah menunjukkan jumlah hari yang diambil untuk menyiapkan jeti serta jarak jeti yang sempat disiapkan.

*A group of 65 construction workers worked on creating a jetty for the upcoming LIMA Exhibition in Langkawi. **Table 1** indicates the number of days they spent on constructing the jetty and the distance of jetty completed*

Jarak Jeti yang disiapkan (m) <i>Distance of jetty completed (m)</i>	Jumlah hari yang terlibat dalam pembinaan jeti (hari) <i>Number of days spent on constructing the jetty (days)</i>
9	5
15	7
18	9
20	10
24	14
26	16
29	18

**JADUAL 1 (TABLE 1)**

- (i) Apakah nilai intersep?  
*What is the value of the "intercept"?*
- (ii) Apakah nilai koefisien regresi  
*What is the value of the "regression coefficient"?*
- (iii) Berapakah jarak yang dapat disiapkan jika mereka bekerja selama 23 hari?  
*How much distance would they have covered if they spend 23 days working?*
- (iv) *How would you describe the relationship between both variables?*

(8 markah/marks)



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- (b) Gelugor mempunyai anggaran 60,000 penduduk yang berada di 5 zon. Dari keseluruhan populasi, 20,000 adalah lelaki, 10,000 adalah kanak-kanak dan selebihnya adalah wanita. Sebuah kajian survei dirancang bagi melihat persepsi wanita terhadap beberapa isu keselamatan. Tujuan kajian dibuat adalah untuk melihat persepsi wanita mengenai tahap keselamatan mereka di Gelugor.

*Gelugor has an overall estimated population of 60,000 distributed in 5 zones. Out of the whole population, 20,000 are men, 10,000 are kids while the rest are women. A survey is to be conducted to determine the perception of women on various safety issues. The objective of the survey is to examine how women felt about their general safety level in Gelugor.*

Taburan populasi adalah seperti berikut:  
*The distribution of the population is as follows:*

<b>Jenis populasi</b> <i>Type of population</i>	<b>Jumlah populasi</b> <i>Number of population</i>
Populasi keseluruhan bagi Gelugor <i>Whole population of Gelugor</i>	60,000
Populasi lelaki di Zon 1 <i>Population of men in Zone 1</i>	4,000
Populasi wanita di Zon 1 <i>Population of women in Zone 1</i>	8,000
Populasi lelaki di Zon 2 <i>Population of men in Zone 2</i>	5,000
Populasi wanita di Zon 2 <i>Population of women in Zone 2</i>	3,000
Populasi lelaki di Zon 3 <i>Population of men in Zone 3</i>	8,000
Populasi wanita di Zon 3 <i>Population of women in Zone 3</i>	15,000
Populasi lelaki di Zon 4 <i>Population of men in Zone 4</i>	1,000
Populasi wanita di Zon 4 <i>Population of women in Zone 4</i>	3,000
Populasi lelaki di Zon 5 <i>Population of men in Zone 5</i>	2,000
Populasi wanita di Zon 5 <i>Population of women in Zone 5</i>	1,000

**JADUAL 2/TABLE 2**

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Siapakah kumpulan populasi?  
*Who is the population group?*

Apakah saiz populasi kajian?  
*What is the population size for the study?*

Di manakah anda boleh mendapatkan rangka persampelan?  
*Where can you obtain the sampling frame?*

Siapakah sampel?  
*Who is the sample?*

Dengan andaian bahawa saiz sample bagi kajian ini adalah 500 orang wanita, berikan cadangan anda bagi jumlah responden dari setiap zon serta justifikasi bagi pemilihan tersebut.

Assuming that the study focuses on a sample size of 500 women, give your suggestion on the number of respondents from each zone and justify why you have done so.

(12 markah/marks)

3. (a) Berikan definisi-definisi berikut:  
*Give definition to the followings:*

- (i) Correlation
- (ii) Correlation Coefficient
- (lii) Null Hypothesis
- (lv) Alternative Hypothesis
- (v) Level of Significance
- (vi) Degree of Freedom

(12 markah/marks)

(b) (i) Apakah hasil pengujian hipotesis? Berikan contoh.

*What are the possible outcomes of hypotheses testing?  
 Give examples.*

(6 markah/marks)

(ii) Model keputusan mempunyai empat elemen. Namakan elemen-elemen tersebut.

*A decision model consists of four elements. Name all the elements.*

(2 markah/marks)

.....6/-



**Bahagian B**  
**Section B**

4. (a) Encik Omar, pemilik beberapa restoran di Pantai Timur Semenanjung Malaysia ingin mengetahui tentang perbezaan yang ketara dalam julat keuntungan. Beliau ingin mencuba beberapa pelan insentif untuk meningkatkan aras kecekapan restoran-restoran yang ketinggalan. Namun sebelum beliau melakukan perkara tersebut, beliau ingin memastikan bahawa idea beliau akan berjaya. Beliau meminta penyelidik untuk membantu beliau dalam isu tersebut.

Nyatakan, bagaimana penyelidik sepatutnya meneruskan kajian ini: sila tentukan perkara-perkara berikut dan nyatakan alasan-alasan:

- (i) Tujuan kajian
- (ii) Jenis kajian
- (iii) Unit analisis
- (iv) Jangka masa kajian

- (a) *Mr Omar, the owner of several restaurants on the East Coast of Peninsular Malaysia, is concerned about the wide differences in his profit margins. He would like to try some incentive plans for increasing the efficiency levels of those restaurants that lag behind. But before he actually does this, he would like to be assured that the idea would work. He asked a researcher to help him on this issue.*

*Indicate, how the researcher should proceed this case: determine the following and give reasons:*

- (i) *The purpose of study*
- (ii) *Type of research*
- (iii) *The unit of analysis.*
- (iv) *The time horizon for the study.*

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- (b) Sampel umur pelancong Malaysia yang terbang daripada Singapura ke Hong Kong adalah:  
38,21,66,47,55,17,72,65,33 dan 47.
- (i) Hitungkan julat
  - (ii) .Hitungkan deviasi purata
  - (iii) Hitungkan sisihan piawai

*The ages of a sample of Malaysian tourists flying from Singapore to Hong Kong were:*

*38,21,66,47,55,17,72,65,33 and 47.*

- (i) *Compute the range*
- (ii) *Compute the mean deviation*
- (iii) *Compute the standard deviation.*

Age (months)	Frequency
2-6	2
6-12	5
12-16	10
16-20	4
20-24	2

© Umur sampel penggerudi yang boleh didapati di Tool Rental Sdn Bhd disusun mengikut frekuensi pengagihan berikut.

- (a) Hitungkan julat
- (b) Hitungkan sisihan piawai sampel
- (c) Hitungkan deviasi sampel

© *The ages of a sample of drills available for rental at Tool Rental Sdn Bhd organized into the following frequency distribution.*

- (a) Estimate the range
- (b) Estimate the sample standard deviation
- (c) Estimate the sample variance.

5. **Jadual 3:** Maklumat pelajar-pelajar yang menyertai Larian Pulau Pinang  
(**Table 3:** Information on students' participation in Penang Bridge Run)

<b>Nama:</b> <i>Name</i>	<b>Jantina</b> <i>Gender</i>	<b>PNGK</b> <i>CGPA</i>	<b>Minat terhadap acara</b> <i>Interest towards the event</i>	<b>Tahap kecergasan (markah)</b> <i>Stamina level (marks)</i>	<b>Kelajuan berlari (m/s)</b> <i>Running Speed (m/s)</i>	<b>Pingat</b> <i>Medal</i>
Samy	Lelaki <i>Male</i>	2.9	Sangat minat <i>Very interested</i>	15	3	gangsa
Abdullah	Lelaki <i>Male</i>	3.5	Tidak minat <i>Not interested</i>	21	6	perak
Rusi	Perempuan <i>Female</i>	3.2	Sangat tidak minat <i>Not interested at all</i>	35	4	gangsa
Maya	Perempuan <i>Female</i>	3.1	Tiada pendapat <i>No opinion</i>	35	8	emas
Remmy	Lelaki <i>Male</i>	2.7	Tidak minat <i>Not interested</i>	45	9	emas
Lily	Perempuan <i>Female</i>	2.3	Sangat minat <i>Very interested</i>	cedera	cedera	
Darmin	Lelaki <i>Male</i>	2.7	Tidak minat <i>Not interested</i>	20	6	perak
See Yew	Perempuan <i>Female</i>	3.4	Sangat tidak minat <i>Not interested</i>	16	4	perak
Narmila	Perempuan <i>Female</i>	3.5	Tiada pendapat <i>No opinion</i>	47	8	emas
Siti	Perempuan <i>Female</i>	3.2	Tiada pendapat <i>No opinion</i>	49	9	emas
Muhamad	Lelaki <i>Male</i>	2.6	Tidak minat <i>Not interested</i>	16	3	gangsa
Shanti	Perempuan <i>Female</i>	2.7	Sangat minat <i>Very interested</i>	19	6	perak



- (a) Berdasarkan **Jadual 3**, apakah kategori skala pembolehubah-pembolehubah berikut:

*Referring to Table 3, what are the scale categories of the following variables:*

- (i) Jantina (*Gender*)
- (ii) PNGK (*CGPA*)
- (iii) Minat terhadap acara (*Interest towards the event*)
- (iv) Kelajuan berlari (*Running Speed*)
- (v) Pingat (*Medal*)

(5 markah/marks)

- (b) (i) Yang manakah pembolehubah tidak bergantung?  
*Which is the independent variable?*
- (ii) Lakarkan graf perhubungan antara kelajuan berlari dan ketinggian lompatan.  
*Draw a graph showing the relationship between running speed and height of jump.*
- (iii) Lakarkan garisan "line of best fit"  
*Draw the "line of best fit"*
- (iv) Berapakah nilai korelasi antara tahap kecergasan dan kelajuan berlari?  
*What is the correlation value between stamina level and running speed?*
- (v) Apakah yang boleh disimpulkan mengenai perhubungan ini?  
*What conclusion can you make of the relationship?*

(12 markah/marks)

- (c) Apakah perbezaan di antara data primer dan data sekunder.

*What is the difference between primary data and secondary data.*

(3 markah/marks)

6. Isikan tempat kosong di dalam **Jadual 4** di bawah dan kira  $r$  dengan menggunakan purata dan sisihan piawai

Fill in the blank in the **Table 4** below and calculate  $r$  using means and standard deviation.

Student	X	Y	X <sup>2</sup>	Y <sup>2</sup>	XY
1	<u>(a)</u>	23	169	<u>(d)</u>	299
2	15	<u>(b)</u>	<u>(c)</u>	484	330
3	16	24	256	576	384
4	12	20	144	400	240
5	12	19	144	361	228
6	13	22	169	484	286
7	13	22	169	484	286
8	9	17	<u>(e)</u>	289	153
9	8	16	64	256	128
10	9	15	81	225	136

$$\Sigma X = \text{(f)} \quad \Sigma Y = \text{(g)} \quad \Sigma X^2 = \text{(h)} \quad \Sigma Y^2 = \text{(i)} \quad \Sigma XY = \text{(j)}$$

(20 markah/marks)

### FORMULA

Pearson Product Moment Formula  $(r) = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$

$$y = a + bx$$

$$a = \frac{\Sigma y}{N} - b \frac{\Sigma x}{N}$$

$$b = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{N\Sigma x^2 - (\Sigma x)^2}$$