

**KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA****PEPERIKSAAN AKHIR
SEMESTER DISEMBER 2005/2006**

NAMA KURSUS	:	STATISTIK EKONOMI DAN PERNIAGAAN
KOD KURSUS	:	EKN3201A
TARIKH	:	
TEMPAT	:	
MASA	:	

NO. MATRIK	:	_____
NAMA PROGRAM	:	_____

ARAHAN KEPADA CALON

- i. Sila jawab SEMUA soalan di bahagian A dan DUA soalan di bahagian B
- ii. Jawab di atas buku jawapan yang disediakan
- iii. Guna buku sifir yang disediakan

JANGAN BUKA BUKU SOALAN INI SEHINGGA DIBERITAHU

KERTAS SOALAN INI MENGANDUNGI 13 MUKASURAT BERCETAK

BAHAGIAN A (60 MARKAH)
SECTION A (60 MARKS)

Arahan: Jawab **SEMUA** soalan.
*Instruction: Answer **ALL** questions.*

Soalan 1 (5 markah)

Jabatan Sumber Manusia di sebuah syarikat berminat untuk mengetahui purata tahun bekerja sebelum para pekerja bersara. Sampel 11 orang pekerja menunjukkan maklumat seperti berikut:

26 21 18 19 16 21 24 22 24 21 12

- a. Apakah nilai bagi mod? (1 markah)
- b. Apakah nilai bagi purata aritmetik? (1 markah)
- c. Apakah nilai bagi median? (1 markah)
- d. Berdasarkan nilai purata aritmetik, median dan mod, apakah kemungkinan bentuk taburan? (2 markah)

Question 1 (5 marks)

A company's human resource department was interested in the average number of years that a person works before retiring. The sample size of 11 workers show the following:

26 21 18 19 16 21 24 22 24 21 12

- a. *What is the mode?* (1 mark)
- b. *What is the arithmetic mean?* (1 mark)
- c. *What is the median?* (1 mark)
- d. *Based on the values of the arithmetic mean, median, and mode, what is the most likely shape of the distribution?* (2 marks)

Soalan 2 (8 markah)

Elaun tahunan lima timbalan presiden DRB Hicom adalah: RM41,000, RM38,000, RM32,000, RM33,000 dan RM50,000. Elaun tahunan bagi lima timbalan presiden IJM Corporation adalah sama dengan DRB Hicom, didapati mempunyai purata RM38,900 dan sisihan piawai RM6,612. Syarikat manakah yang mempunyai pekali variasi paling besar.

(8 markah)

Question 2 (8 marks)

The annual allowance of the five vice presidents of DRB Hicom are: RM41,000, RM38,000, RM32,000, RM33,000 and RM50,000. The annual allowance of the five vice presidents of IJM Corporation similar to DRB Hicom, were also found to have a mean of RM38,900 and a standard deviation of RM6,612. Which company has the greater coefficient of variation?

(8 marks)

Soalan 3 (5 markah)

Dalam program pelatih pengurusan, 80 peratus pelatih adalah perempuan dan 20 peratus lelaki. Sembilan puluh peratus perempuan adalah lulusan kolej sementara 78 peratus lelaki lulusan kolej. Seorang pelatih pengurusan dipilih secara rawak. Apakah kebarangkalian pelatih yang terpilih adalah perempuan yang BUKAN lulusan kolej.

(5 markah)

Question 3 (5 marks)

In a management trainee program, 80 percent of the trainees are female and 20 percent male. Ninety percent of the females attended college while 78 percent of the males attended college. A management trainee is selected at random. What is the probability that the person selected is a female who did NOT attend college?

(5 marks)

Soalan 4 (4 markah)

One-Pharmaceutical Sdn Bhd adalah pengilang ubatan sakit kepala telah membangunkan formula baru ubat yang lebih berkesan. Bagi menilai keberkesanan ubat baru, sampel 200 pengguna diminta mencuba dan selepas sebulan, 180 pengguna menyatakan ubat baru lebih berkesan menghilangkan sakit kepala. Pada masa yang sama, sampel 300 pengguna diberi ubat biasa tetapi dinyatakan sebagai formula baru. Daripada kumpulan ini, 261 pengguna

menyatakan terdapat peningkatan. Pada aras keertian 0.05, bolehkah disimpulkan bahawa ubat baru lebih berkesan?

(4 markah)

Question 4 (4 marks)

The manufacturer of headache remedy, the One-Pharmaceutical Sdn. Bhd recently developed a new formulation of the drug that is claimed to be more effective. To evaluate the new drug, a sample of 200 current users is asked to try it. After one month trial, 180 indicated the new drug was more effective in relieving a headache. At the same time a sample of 300 current One-Pharmaceutical users is given the current drug but told it is the new formulation. From this group, 261 said it was an improvement. At the 0.05 significance level can we conclude that the new drug is more effective?

(4 marks)

Soalan 5 (4 markah)

Satu mentol yang baru secara puratanya mempunyai hayat penggunaan 750 jam dengan sisihan piawai 50 jam. Jika hayat penggunaan mentol bertaburan normal, apakah kebarangkalian mentol baru tersebut bertahan di antara 600 jam dan 900 jam?

(4 markah)

Question 5 (4 marks)

A new light bulb has an average service life of 750 hours, with a standard deviation of 50 hours. If the service life of these light bulbs approximates a normal distribution, about what is the probability the new light bulb will last between 600 hours and 900 hours?

(4 marks)

Soalan 6 (4 markah)

Pemilik ladang Ganu Best Egg hendak menganggarkan purata bilangan telur yang dihasilkan bagi setiap ayam. Sampel 20 ekor ayam menunjukkan telur yang dihasilkan secara puratanya ialah 20 biji setiap bulan dengan sisihan piawai 2 biji telur sebulan. Bina 95% selang keyakinan bagi purata populasi?

(4 markah)

Question 6 (4 marks)

The owner of Ganu's Best Egg Farm want to estimate the mean number of eggs laid per chicken. A sample of 20 chickens shows they laid an average of 20 eggs per month with standard deviation of 2 eggs per month. Develop 95% confidence interval for the population mean?

(4 marks)

Soalan 7 (5 markah)

Uji pada aras 0.01 bagi pernyataan 55% keluarga yang merancang untuk membeli kediaman percutian di Florida akan memilih kondominium. Hipotesis nol ialah $\pi = 0.55$ dan hipotesis alternatif $\pi \neq 0.55$. Sampel rawak 400 keluarga yang merancang untuk membeli kediaman percutian mendapati 228 keluarga akan memilih kondominium. Apakah keputusan yang perlu dibuat berhubung hipotesis nol?

(5 markah)

Question 7 (5 marks)

Test at the 0.01 level the statement that 55% of those families who plan to purchase a vacation residence in Florida want a condominium. The null hypothesis is $\pi = 0.55$ and the alternate is $\pi \neq 0.55$. A random sample of 400 families who planned to buy a vacation residence revealed that 228 families want a condominium. What decision should be made regarding the null hypothesis?

(5 marks)

Soalan 8 (6 markah)

Perancang kewangan hendak membandingkan pulangan ke atas bon dan saham. RM50,000 telah dilaburkan dalam setiap sampel 35 bon dan 40 saham. Purata peningkatan bagi tempoh dua tahun untuk bon ialah RM900 dengan sisihan piawai RM35. Bagi saham, purata peningkatan ialah RM875 dengan sisihan piawai RM45. Pada aras keertian 0.05, adakah wujud perbezaan dalam purata pulangan bagi kedua-dua aset tersebut?

- Apakah hipotesis nol dan hipotesis alternatif?
(2 markah)
- Apakah nilai ujian statistik yang dikira?
(2 markah)
- Apakah keputusan yang dibuat tentang hipotesis nol dengan menggunakan $\alpha = 0.05$?
(2 markah)

Question 8 (6 marks)

A financial planner wants to compare the return of bonds and stocks. RM50,000 is invested in each of a sample of 35 bonds and 40 stocks. The mean increase for a two-year period for the bonds is RM900 with a standard deviation of RM35. For the stocks the mean increase is RM875 with a standard deviation of RM45. At the 0.05 significance level, is there a difference in the mean return of the two assets?

- What is the hypothesis null and alternate hypothesis? (2 marks)
- What is the computed value of the test statistic? (2 marks)
- What decision is made about the null hypothesis using $\alpha = 0.05$? (2 marks)

Soalan 9 (9 markah)

Dua orang profesor perakaunan memutuskan untuk membandingkan variasi dalam prosedur pemarkahan. Bagi melaksanakannya, mereka memberi markah pada setiap 10 skrip jawapan yang sama dan hasilnya adalah seperti berikut:

	Purata markah	Sisihan piawai
Profesor 1	79.3	22.4
Profesor 2	82.1	12.0

- Apakah hipotesis nol dan hipotesis alternatif? (2 markah)
- Apakah nilai ujian-F statistik yang dikira? (3 markah)
- Apakah nilai kritikal hujung atas F_U dan nilai kritikal hujung bawah F_L ? (gunakan $\alpha = 0.05$) (2 markah)
- Pada aras keertian 5%, apakah keputusannya? (2 markah)

Question 9 (9 marks)

Two accounting professors decided to compare the variation of their grading procedures. To accomplish this they each graded the same 10 answer scripts with the following results:

	<u>Mean marks</u>	<u>Standard deviation</u>
Professor 1	79.3	22.4
Professor 2	82.1	12.0

- a. What is the null hypothesis and alternate hypothesis? (2 marks)
- b. What is the computed value of the F-test statistic? (3 marks)
- c. What is the upper-tail critical value F_U and lower-tail critical value F_L ?(use $\alpha = 0.05$) (2 marks)
- d. At the 5% level of significance, what is the decision? (2 marks)

Soalan 10 (10 markah)

Analisis regresi yang menghubungkan harga runcit komputer riba terpilih dalam Ringgit Malaysia (RM) dengan kelajuan processor telah dibangunkan. Output SPSS seperti berikut;

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1031.000	658.149		-1.567	.148
	SPEED	1877.273	391.691	.835	4.793	.001

a. Dependent Variable: PRICE

ANOVA^b

Model		Sum of Squares	df	Mean Square	F
1	Regression	4264225	1	4264225.000	22.970
	Residual	1856400	10	185640.000	
	Total	6120625	11		

b. Dependent Variable: PRICE

- a. Adakah ujian-t menunjukkan hubungan signifikan antara harga runcit dan kelajuan prosessor? Gunakan $\alpha = 0.05$. (3 markah)
- b. Apakah nilai pekali penentuan? (3 markah)
- c. Apakah nilai pekali korelasi? (2 markah)
- d. Anggarkan harga runcit apabila kelajuan prosessor 1.8 (2 markah)

Question 10 (10 marks)

Regression analysis relating the retail price selected laptop computers in Ringgit Malaysia (RM) to the their corresponding processor speeds has been developed. The SPSS output follows;

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1031.000	658.149		-1.567	.148
	SPEED	1877.273	391.691	.835	4.793	.001

a. Dependent Variable: PRICE

ANOVA^b

Model		Sum of Squares	df	Mean Square	F
1	Regression	4264225	1	4264225.000	22.970
	Residual	1856400	10	185640.000	
	Total	6120625	11		

b. Dependent Variable: PRICE

- a. *Does the t-test indicate a significant relationship between retail price and processor speeds? Use $\alpha = 0.05$.* (3 marks)
- b. *What is the coefficient of determination?* (3 marks)
- c. *What is the correlation coefficient?* (2 marks)
- d. *Estimate the retail price when processor speeds is 1.8* (2 marks)

BAHAGIAN B (40 MARKAH)
SECTION B (40 MARKS)

Arahan: Jawab **DUA** soalan sahaja.

*Instruction: Answer **TWO** questions only.*

Soalan 1 (20 markah)

Prosedur perakaunan membenarkan perniagaan menilai inventori mereka dengan kaedah LIFO (Last In First Out) atau FIFO (First In First Out). Seorang pengilang menilai inventori barangan akhirnya (dalam RM ribu) bagi lima produk melalui kedua-dua cara.

Produk	FIFO (F)	LIFO (L)
1	225	221
2	119	100
3	100	113
4	212	200
5	248	245

Berdasarkan hasil tersebut, adakah LIFO lebih efektif dalam menyimpan nilai inventori yang rendah? (gunakan 5% aras keertian)

(20 markah)

Question 1 (20 marks)

Accounting procedures allow a business to evaluate their inventory at LIFO (Last In First Out) or FIFO (First In First Out). A manufacturer evaluated its finished goods inventory (in RM thousands) for five products both ways.

Product	FIFO (F)	LIFO (L)
1	225	221
2	119	100
3	100	113
4	212	200
5	248	245

Based on the following results, is LIFO more effective in keeping the value of his inventory lower? (use 5% level of significance)

(20 marks)

Soalan 2 (20 markah)

Salah satu soalan dalam kajian terhadap pelanggan Business Week 2004 ialah "bagi tempoh 12 bulan yang lalu, apabila melakukan perjalanan untuk tujuan perniagaan, apakah jenis tiket yang paling kerap dibeli?". Data yang diperolehi ditunjukkan di dalam jadual kontigensi berikut.

Jenis tiket	Jenis Penerbangan	
	Penerbangan Tempatan	Penerbangan Antarabangsa
Kelas Pertama	29	22
Kelas Perniagaan	95	121
Kelas Ekonomi	518	135

Dengan menggunakan $\alpha = 0.05$, uji ketakbersandaran antara jenis penerbangan dan jenis tiket yang di beli. Apakah kesimpulan anda?

(20 markah)

Question 2 (20 marks)

One of the questions on the Business Week 2004 subscriber study was, "in the past 12 months, when traveling for business, what type of airline ticket did you purchase most often?". The data obtained are shown in the following contingency table.

Type of ticket	Type of Flight	
	Domestic Flights	International Flights
<i>First Class</i>	<i>29</i>	<i>22</i>
<i>Business Class</i>	<i>95</i>	<i>121</i>
<i>Economy Class</i>	<i>518</i>	<i>135</i>

Using $\alpha = 0.05$, test for the independence of type of flight and type of ticket. What is your conclusion?

(20 marks)

Soalan 3 (20 markah)

Data berikut adalah gaji bulanan dan himpunan purata nilai gred (HPNG) bagi pelajar yang memperolehi Sarjanamuda Perakaunan. Jika gaji bulanan adalah pembolehubah bersandar dan fungsi anggaran regresi bagi data tersebut iaitu $\hat{y} = 1790 + 581.081x$

HPNG	Gaji bulanan (RM)
2.6	3300
3.4	3600
3.6	4000
3.2	3500
3.5	3900
2.9	3600

Daripada maklumat di atas;

- Kirakan SST, SSR dan SSE. (10 markah)
- Kirakan pekali penentuan. (2 markah)
- Adakah ujian-t menunjukkan hubungan signifikan diantara himpunan purata nilai gred dan gaji bulanan? Gunakan Use $\alpha = 0.05$. (8 markah)

Question 3 (20 marks)

The following data are the monthly salaries and the cumulative grade point averages (CGPA) for students who had obtained a bachelor's degree in accounting. If monthly salary is dependent variable and estimate regression equation for these data is $\hat{y} = 1790 + 581.081x$

CGPA	Monthly Salary (RM)
2.6	3300
3.4	3600
3.6	4000
3.2	3500
3.5	3900
2.9	3600

From the above information:

- Compute SST, SSR and SSE. (10 marks)
- Compute the coefficient of determination. (2 marks)

c. Does the *t*-test indicate a significant relationship between grade point average and monthly salary? Use $\alpha = 0.05$.

(8 marks)

Soalan 4 (20 markah)

Setiap jurujual di Hipermarket Sabakun dinilai sama ada dibawah purata, purata atau di atas purata berdasarkan kebolehan menjual. Setiap jurujual juga dinilai berdasarkan potensi untuk maju sama ada sederhana, baik dan cemerlang. Sifat-sifat ini telah diklasifikasikan bagi 500 jurujual seperti jadual berikut;

Kebolehan jualan	Potensi kemajuan		
	Sederhana	Baik	Cemerlang
Bawah purata	16	12	22
Purata	45	60	45
Melebihi purata	93	72	135

a. Bina gambar rajah pokok yang menunjukkan semua nilai kebarangkalian, kebarangkalian bersyarat dan kebarangkalian bersama.

(14 markah)

b. Apakah kebarangkalian jurujual yang dipilih secara rawak mempunyai kebolehan jualan melebihi purata dan potensi kemajuan yang cemerlang?

(2 markah)

c. Menggunakan teorem Bayes, apakah kebarangkalian jurujual mempunyai kebolehan jualan bawah purata berdasarkan maklumat potensi kemajuan yang baik?

(4 markah)

Question 4(20 marks)

Each salesperson at Sabakun Hypermarket is rates either below average, average or above average with respect to sales ability. Each salesperson is also rated with respect to his or her potential for advancement either fair, good and excellent. These trait for the 500 salesperson were cross classified into following table;

Sales ability	Potential for Advancement		
	Fair	Good	Excellent
Below average	16	12	22
Average	45	60	45
Above average	93	72	135

- a. *Construct a tree diagram showing all the value of probabilities, conditional probabilities and joint probabilities.*
(14 marks)
- b. *What is the probability a salesperson selected at random will have above average sales ability and excellent potential for advancement?*
(2 marks)
- c. *By using Bayes's Theorem, what is the probability a salesperson have sales ability below average given the good potential for advancement?*
(4 marks)

SOALAN PEPERIKSAAN TAMAT
END OF EXAM QUESTIONS