RMIT FINAL EXAMINATION

FACULTY OF BUSINESS
Department of Marketing Logistics & Property

PR670 Economic Studies for Real Estate

DATE: Thursday 25th November, 1999
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TIME: 6.00 - 8.00 PM

TIME ALLOWED: TWO (2) HOURS

This exam counts for 70% of the total marks in second semester

INSTRUCTIONS

1. Carry out these instructions and those printed on the front cover of the Examination Book.

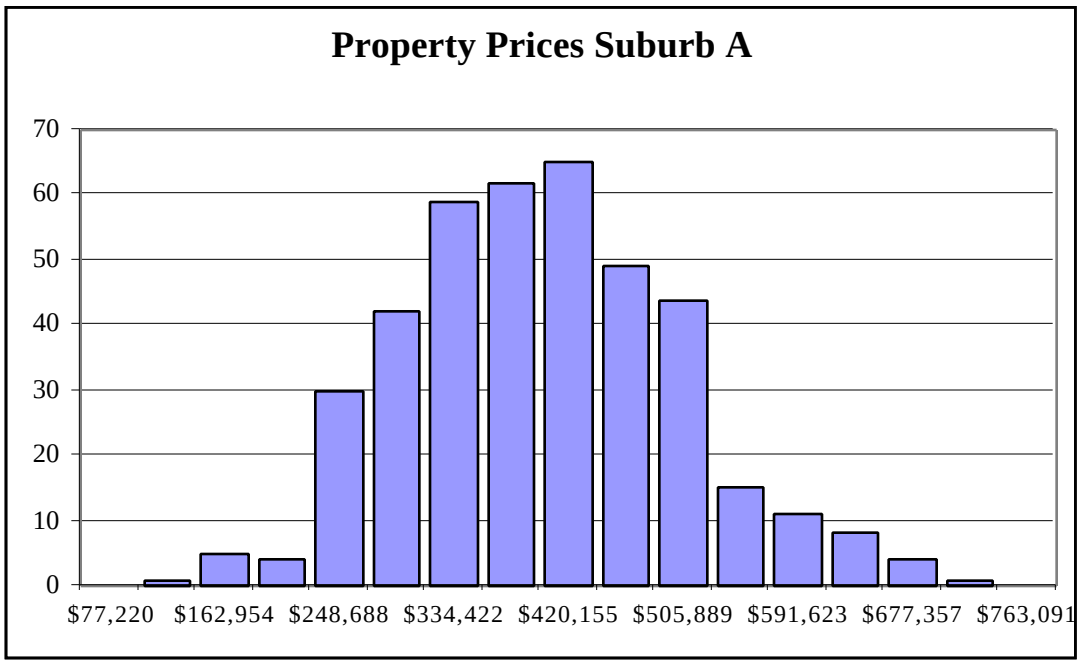
2. Attempt **all** questions.

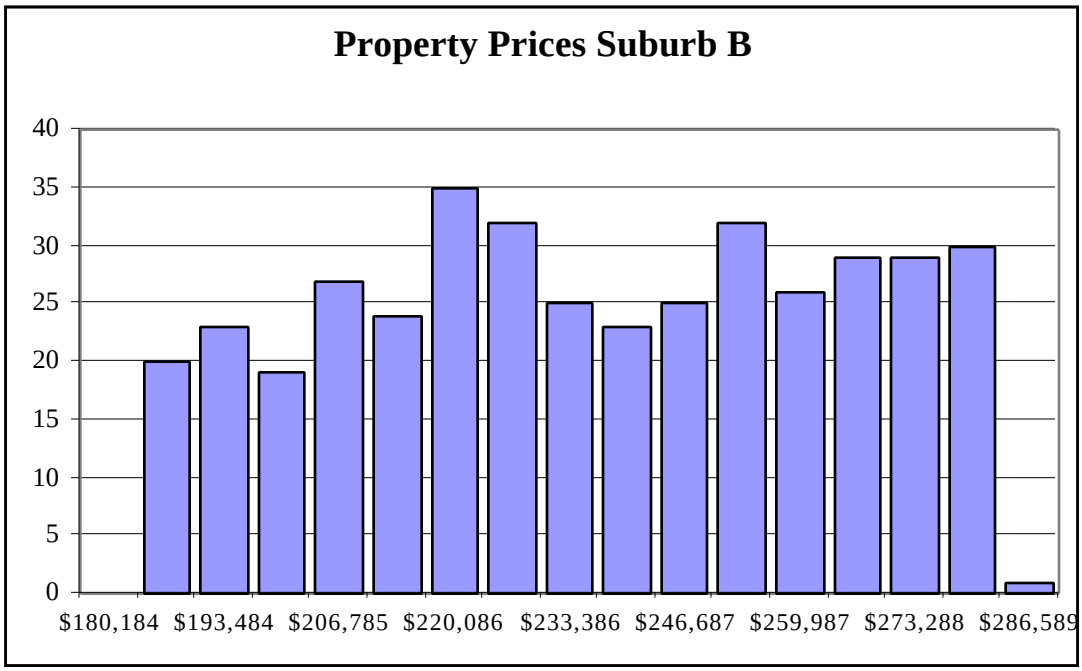
3. Calculators are allowed.

4. Stationary supplied — Normal tables
   — t - tables
   — F - tables

Question 1

The following data represents a sample of 400 property prices during the past six months for two Melbourne suburbs (a sample of 400 from each suburb). Descriptive statistics for each suburb are provided below.





Descriptive Statistics - Summary

	Suburb A	Suburb B
Mean	$378,856	$232,591
Median	$374,787	$231,823
Mode	$420,155	$220,086
Standard Deviation	$102,034	$28,441
Sample Variance	$10,410,861,104	$808,870,875
Kurtosis	0.086	-1.153
Skewness	0.261	-0.059
Range	$642,904	$99,655
Minimum	$77,320	$180,284
Maximum	$720,224	$279,938
Sum	$151,542,482	$93,036,387
Count	400	400
Largest(1)	$720,224	$279,938
Smallest(1)	$77,320	$180,284
Confidence Level(95.0%)	$10,030	$2,796
Percentile - 10%	$249,390	$192,887
Percentile - 25%	$306,566	$209,423
Percentile - 50%	$374,787	$231,823
Percentile - 75%	$445,251	$256,559
Quartile - 1	$306,566	$209,423
Quartile - 2	$374,787	$231,823
Quartile - 3	$445,251	$256,559
Quartile - 4	$720,224	$279,938

(i) Discuss the features of the data using only the charts.

(ii) What additional information is available from the Descriptive Statistics Summary that enables you to make better informed decisions.

(iii) Provide a brief description of the types of properties you might expect to find in Suburb A and Suburb B.

(iv) Comment on the overall nature of prices in these suburbs.

(10 + 10 + 5 + 5 = 30 marks)

Question 2

A young residential valuer, who operates on a fee for service basis for a major bank, is trying to set an appropriate fee for her services. She has rented a fully equipped office for $2,650 per month, these are her only fixed operation costs. Variable costs tend to be associated with visiting the property to be valued and preparing valuation reports, which are estimated to be $56 per property.

Her client, the bank, is willing to give her up to 45 properties per month to value if she can do the job.

(i) Approximately how many properties should she value each month to break-even if she charged a fee of $188 per property ?

(ii) Show the break-even number of valuations at this price graphically. Label your axis correctly.

(iii) If she was able to value as many as 45 properties per month, what would be her net revenue each month? Is this a business the valuer should remain in or abandon ?

(10 + 8 + 12 = 30 marks)

Question 3

RENT BREAKDOWN: We are attempting to set rentals in a project consisting of small warehouse and unserviced office units. Rentals for a very similar development, and the respective office and warehouse areas, measured in square feet, are provided below.

Unit Number	Office Area X_1	Warehouse Area X_2	Office & W'house X_1*X_2	Annual Rent Y
1	1815	2310	4125	1200
2	360	2235	2595	5900
3	420	2700	3120	7200
4	350	2050	2400	5700
5	350	1850	2200	5400
6	1097	1103	2200	6750
7	280	1320	1600	3600
8	280	1320	1600	3750
9	280	1160	1440	3400
10	880	560	1440	4560
11	350	1250	1600	3900
12	450	150	600	4120
13	274	4318	4592	5450
14	250	1190	1440	3360
15	302	1426	1728	4200
16	676	1340	2016	5420
17	690	750	1440	4250
18	264	1896	2160	4800
19	274	2606	2880	6450
20	260	1180	1440	3450

Model 1

	Coefficients	Std Error	t Stat	P-value	Observations	20
Intercept	4318.51	777.41	5.56	0.00003	R Square	0.179
X_1	-0.95	0.808	-1.17	0.25647	Adj. R Square	0.082
X_2	0.49	0.342	1.42	0.17409	Std Error of Estimate	1360.73
				F	1.85	

Model 2

	Coefficients	Std Error	t Stat	P-value	Observations	20
Intercept	1190.80	1017.29	1.17	0.25892	R Square	0.564
X_1	5.699	1.872	3.05	0.00772	Adj. R Square	0.482
X_2	2.027	0.484	4.18	0.00070	Std Error of Estimate	1022.55
X_1*X_2	-0.0034	0.0009	-3.76	0.00173	F	6.89

Model 3

	Coefficients	Std Error	t Stat	P-value		
Intercept	-1720.47	958.31	-1.80	0.092775	Observations	20
X_1	12.445	1.8217	6.85	0.000006	R Square	0.829
X_2	2.5204	0.5816	4.33	0.000590	Adj. R Square	0.784
X_1*X_1	-0.0072	0.0009	-7.55	0.000002	Std Error of Estimate	660.49
X_2*X_2	-0.0003	0.0001	-2.68	0.017038	F	18.22

(i) Briefly discuss each of the above models and provide a rational for the functional form of each.

(ii) Select the most appropriate model for the purpose of setting rents. Support your choice.

(20 + 20 = 40 marks)

Total marks available = 100