PENINSULA COLLEGE
GEORGETOWN

FINAL EXAMINATION

Programme Name	:	**CERTIFICATE IN BUSINESS STUDIES**
Course Code & Name	:	**CBS1084 BUSINESS STATISTICS**
Duration	:	**3 HOURS**

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY.**
2. The question paper consists of **FOUR (4)** questions.
3. Answer **ALL** questions in the question paper.
4. Answers to the questions are to be written into the examination booklet and graph paper.
5. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

WARNING:

The Examination Board of Peninsula College Georgetown regards cheating as a very serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in the accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

(*This booklet contains 5 printed pages including this page*)

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ALLOWED TO DO SO

Answer **ALL** questions on the separate sheet provided. **[100 marks]**

1. a) The following data shows the number of durians sold by a fruit-seller over a period of 50 days.

67	27	15	75	58
102	44	92	99	105
83	87	82	114	56
62	100	53	88	77
95	254	29	14	95
64	50	67	159	5
120	64	16	23	14
93	16	10	21	33
36	67	5	46	66
39	55	72	23	3

i) Complete the following table. (12 marks)

Class	Number of durians sold	Midpoint
3 – 45		
46 – 88		
89 – 131		
132 – 174		
175 – 217		
218 – 260		

ii) Construct a frequency polygon in a graph paper using the data in 1(a)(i). (5 marks)

b) The following data shows the number of vehicle that arrive at Penang Bridge toll during 16 intervals of 10-minute duration.

25	55	18	25	32
29	28	28	25	42

Calculate the mean, median and mode. (8 marks)

Total: [25 marks]

2. a) The age distribution for a sample of employees in SP company is shown as below:

Age	number of workers
21 - 25	10
26 - 30	35
31 - 35	16
36 - 40	14
41 - 45	13
46 - 50	10
51 - 55	3

2. a) i) Complete the following table. (14 marks)

Age	number of workers, f	midpoint, x	fx	fx^2
21 - 25	10	23		
26 - 30	35	28		
31 - 35	16	33		
36 - 40	14	38		
41 - 45	13	43		
46 - 50	10	48		
51 - 55	3	53		

ii) Find the sample variance of the above data. (4 marks)

iii) Find the sample standard deviation of the above data. (2 marks)

b) The following data shows marks scored by 10 students in Business Statistics test.
70, 65, 55, 50, 45, 75, 70, 80, 66, 70

Find the interquartile range. (5 marks)
Total: [25 marks]

3. a) Determine whether these events are mutually exclusive or not mutually exclusive. (10 marks)

i) Choosing a red card or choosing a face card from a standard deck of 52 playing cards.

ii) Rolling a 2 on a fair six-sided die and rolling an even number on the same die.

iii) Flipping a coin and rolling a 3 on a fair six-sided die.

iv) Adopting a cat or a dog.

v) Select any course: It is a Pengajian Malaysia course, and it is a Computer Science course.

b) A card is drawn randomly from six cards labelled 1 through 6. Find the probabilities of (8 marks)

i) getting a number 2.

ii) getting a number greater than number 5.

iii) getting an even number.

iv) getting a number smaller than number 3.

3. c) A coin is flipped 3 times.

   i) Draw a tree diagram to represent the above scenario. (3 marks)

   ii) Based on the tree diagram in 3b(i), list the sample space. (4 marks)

   Total: [25 marks]

4. Company ABC supplies prawns to restaurants. The demand for prawns depends on the price per kg. The data are shown in the following table.

Price per kg (RM)	20	22	24	26	28	30	32
Sales (kg)	60	55	48	45	40	33	25

a) State the dependent variable and independent variable. (4 marks)

b) Find the value of xy, x^2, y^2; and Σx, Σy, Σxy, Σx^2 and Σy^2 put these values in the tables below:

Price per kg (RM), x	Sales (kg), y	xy	x^2	y^2
20	60			
22	55			
24	48			
26	45			
28	40			
30	33			
32	25			
$\Sigma x =$	$\Sigma y =$	$\Sigma xy =$	$\Sigma x^2 =$	$\Sigma y^2 =$

(13 marks)

c) Calculate the coefficient of correlation. (4 marks)

d) Interpret the coefficient of correlation in 4(c). (2 marks)

e) Calculate the coefficient of determination. (2 marks)

Total: [25 marks]

– END OF QUESTIONS –

FORMULAE LIST

Mean

$$\overline{X} = \frac{\Sigma X}{n}$$

Variance

$$s^2 = \frac{n(\Sigma f \cdot X_m^2) - (\Sigma f \cdot X_m)^2}{n(n-1)}$$

Standard deviation

$$s = \sqrt{\frac{n(\Sigma f \cdot X_m^2) - (\Sigma f \cdot X_m)^2}{n(n-1)}}$$

Interquartile Range (IQR)

$$\mathbf{IQR} = Q_3 - Q_1$$

Coefficient of correlation

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

Coefficient of determination

$$\text{Coefficient of Determination Formula} = (\text{Correlation Coefficient})^2$$

– END OF FORMULAE LIST –