



**BERJAYA BUSINESS SCHOOL**

**FINAL EXAMINATION**

Student ID (in Figures) : 

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Student ID (in Words) : \_\_\_\_\_  
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Subject Code & Name : **BBM1309 BUSINESS STATISTICS**  
Semester & Year : September - December 2016  
Lecturer/Examiner : Ms. Tey Sheik Kyin  
Duration : 3 Hours

**INSTRUCTIONS TO CANDIDATES**

1. **This question paper consists of 2 parts:**  
**PART A (20 marks) : TWO (2) short answer questions. Answers are to be written in the Answer Booklet provided.**  
**PART B (80 marks) : FOUR (4) structure- type questions. Answers are to be written in the Answer Booklet provided.**
2. **Candidates are not allowed to bring any unauthorized materials except writing equipment into the Examination Hall. Electronic dictionaries are strictly prohibited.**
3. **This question paper must be submitted along with all used and/or unused rough papers and/or graph paper (if any). Candidates are NOT allowed to take any examination materials out of the examination hall.**
4. **Only ballpoint pens are allowed to be used in answering the questions, with the exception of multiple-choice questions, where 2B pencils are to be used.**

**WARNING:** The University Examination Board (UEB) of BERJAYA University College of Hospitality regards cheating as a most serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students’ Handbook, up to and including expulsion from BERJAYA University College of Hospitality.

**Total Number of pages = 6 (Including the cover page)**

**PART A : SHORT ANSWER QUESTIONS (20 MARKS)**

**INSTRUCTION** : **TWO (2)** short answer questions. Answer **ALL** questions in the Answer Booklet(s) provided.

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**Question 1**

A consumer advocacy group is interested in gauging perceptions about food safety among professionals in the food industry. Specifically, they wish to determine the percentage of professional food preparers in the United States that believe food safety has improved. They use an alphabetized list of members of the organization *Chef's Collaborative* and use Excel to generate a randomly shuffled list of the members. They then select members to contact from this list until they have succeeded in contacting 150 members.

a. Describe the population of interest. (2 marks)

b. Describe the sample that was collected. (2 marks)

c. Describe a parameter of interest. (2 marks)

d. Describe the statistic of interest. (2 marks)

**[Total: 8 marks]**

**Question 2**

a. For each of the following examples of data, determine whether the data type is quantitative or qualitative. If the data is quantitative, determine the variable is discrete or continuous. If data is qualitative, determine the variable is ordinal or nominal.

i. The number of contacts made by each of a company's salespersons during a week.

ii. The rating (excellent, good, fair or poor) given to a particular television program by each of a sample of viewers.

iii. The weekly closing price of gold throughout a year (6 marks)

- b. The following tables represent complaints received by automaker and complaints received by category for January 2014.

Automaker	Number
American Honda	169
Chrysler LLC	439
Ford Motor Company	440
General Motors	551
Nissan Motors Corporation	467
Toyota Motor Sales	332
Other	516

Use a graphical technique to present the figures

( 6 marks)

**[Total: 12 marks]**

**END OF PART A**

**PART B : STRUCTURE TYPE QUESTIONS (80 MARKS)**

**INSTRUCTION(S) : FOUR (4) structure type questions. Answer ALL questions in the Answer Booklet(s) provided.**

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**Question 1**

A sample of 12 people was asked how much change they had in their pockets and wallets. The responses (in cents) are

52 25 15 0 104 44 60 30 33 81 40 5

- a. Compute the mean, range and standard deviation. (6 marks)
- b. Compute the interquartile range. (4 marks)
- c. Draw the box plot. (3 marks)
- d. Is the data skewed? If so, how? (3 marks)
- e. Do the data contain outlier(s)? If yes, identify the outlier(s). (4 marks)

**[Total: 20 marks]**

**Question 2**

- a. A box of fifteen balls contains nine red balls and six blue balls.
  - i. If two balls are randomly selected from the box, without replacement (the first ball is not returned to the box after it is selected), what is the probability that first balls selected is red? (3 marks)
  - ii. If two balls are randomly selected from the box, without replacement (the first ball is not returned to the box after it is selected), what is the probability that both balls selected are blue? (3 marks)

- ii. If you were sampling with replacement (the first ball is returned to the box after it is selected), what is the probability that both gloves selected will be red?  
(2 marks)
- b. A set of final examination grades in an statistics course is normally distributed, with a mean of 78 and a standard deviation of 9.
- i. What is the probability that a student scored below 93 on this exam?  
(4 marks)
- ii. What is the probability that a student scored between 69 and 103?  
(4 marks)
- iii. What is the probability that the mean scored is between 80 and 90 from the random sample of 8 students?  
( 4 marks)
- [Total: 20 marks]**

### Question 3

The operation manager at a compact fluorescent light bulb (CFL) factory needs to estimate the mean life of a large shipment of CFLs. The manufacturer's specifications are that the standard deviation is 1000 hours. A random sample of 64 CFLs indicated a sample mean life of 7500 hours.

- a. Construct a 95% confidence interval estimate for the population mean life of compact fluorescent light bulbs in this shipment.  
(6 marks)
- b. Based on answer in part (a), do you think that the manufacturer has the right to state that the compact fluorescent light bulbs have a mean life of 8000 hours? Explain  
(4 marks)
- c. At the 0.05 level of significance, is there evidence that the mean life is different from 8000 hours? (state the null and alternative hypothesis)  
( 8 marks)
- d. Compare the results of (a) and (c). What conclusions do you reach?  
(2 marks)
- [Total: 20 marks]**

#### Question 4

Circulation is the lifeblood of the publishing business. The larger the sales of a magazine, the more it can charge advertisers. Recently, a circulation gap has appeared between the publishers' report of magazines' newsstand sales and subsequent audits by the Audit Bureau of Circulations. The following data represent the reported and audited newsstand sales (in thousands) in 2001 for the following 10 magazines:

Magazines	Reported (X)	Audited (Y)
YM	621.0	299.6
CosmoGirl	359.7	207.7
Rosie	530.0	325.0
Playboy	492.1	336.3
Esquire	70.5	48.6
TeenPeople	567.0	400.3
More	125.5	91.2
Spin	50.6	39.1
Vogue	353.3	268.6
Elle	263.6	214.3

- a. Determine the sample regression line. (8 marks)
  - b. Predict the mean audited newsstand sales for a magazine that reports newsstand sales of 400,000 (3 marks)
  - b. Compute the coefficient of correlation and what do the statistics tell you about the relationship between reported and audited newsstand sales? (5 marks)
  - c. Determine the coefficient of determination,  $r^2$  and interpret its meaning. (4 marks)
- [Total: 20 marks]**

**END OF QUESTION PAPER**