UNIVERSITY OF KELANIYA - SRI LANKA

Faculty of Commerce & Management Studies

Bachelor of Commerce (Special) Degree Examination (External) - 2014

Year II

November – 2017

BCOME 2035 – Business Statistics

No. of Questions: Six (06)   Time: 03 hours

Answer any five (05) questions only.

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(01). (i). What is the main role of descriptive statistics in business?

(03 marks)

(ii). "Raw data provides little information to the decision makers". Explain this statement.

(05 marks)

(iii). What are the different types of graphical methods use to present data.

(04 marks)

(iv). You are given following data in relation to profit (in Rs. Million) of a firm for 10 years.

1.2, 1.5, 1.9, 2.4, 2.4, 2.5, 2.6, 3.6, 3.5, 3.8

Find the following measures and comment on it.

   a). Sample mean
   b). Sample variance
   c). Sample standard deviation
   d). Range
   e). Coefficient of variation

(08 marks)

(Total 20 marks)

(02). (i). What is sample space?

(03 marks)

(ii). If a coin is tossed twice;

a). Write down the sample space for this experiment.

(02 mark)

b). What is the probability that having at least one head.

(03 marks)

(iii). If A and B are sub sets of sample space S. Indicate the additive rule of probability.

(04 marks)

(iv). A bag contains 6 blue balls and 4 red balls. Two balls will be drawn from the bag. Assume that A be the event that the first ball is blue and B be the event that the second ball is blue.

A^1 will be the event that first ball is red and event B^1 will be the event that second ball is red.

Find the following probabilities.

$P(A)$

$P(A^1)$

$P(B/A)$

$P(B/A^1)$

$P(A \cap B)$

$P(A^1 \cap B)$

(08 marks)
(Total 20 marks)

(03).

i). Mention the characteristics should have in a good estimator.

(02 marks)

ii). Why is interval estimation is useful in statistical analysis?

(04 marks)

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iii). Following are the given sample, content of some Aurvedic Syrup (in milliliters) given for cough. The contents (in milliliters) of bottles is normally distributed with a standard deviation of 30 ml.

203, 207, 210, 289, 300, 289, 218, 230, 214, 235, 300, 300, 290, 265, 195, 204,268, 278, 301, 198, 200.

a) Make a point estimate for the mean content of the bottles.

(02 marks)

b) Calculate the standard error of the mean.

(04 marks)

c) Calculate 95% confidence intervals for μ .(Value of Z for 95% is $\alpha = 1.96$)

(08 marks)

(Total 20 marks)

(04). (i). In what situations analysis of regression is useful in businesses? Mention two (02) examples.

(03 marks)

(ii). Following are given hourly data for defective products in a factory.

Percentage of defectives	Units produced per hour
2.2	170
2.0	200
1.2	230
1.5	270
1.7	280
2.0	320
2.0	350

If the manager wants to forcast the percentage of defective items based on the units produced in each hour, answer the followings.

a). Define the independent variable and dependent variable.

(02 marks)

b). Draw a scatter diagram and state the relationship between variables.

(02 marks)

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c). Calculate the followings.

$$\Sigma x \qquad \Sigma x^2 \qquad \Sigma xy$$

$$\Sigma y \qquad \Sigma y^2$$

(07 marks)

d). Determine the coefficient of determination, correlation coefficient and regression equation,

(06 marks)

(Total 20 marks)

(05). (i). Explain the relationship having in between statistical inference and business.

(04 marks)

(ii). Why we use analysis of variance technique to solve practical problems in businesses.

(02 marks)

(iii). What are the things should include in analysis of variance table.

(04 marks)

(iv). Explain the following.

a). Type II error

b). Type I error

c). Convenience sampling

d). Simple Random Sampling

(10 marks)

(Total 20 marks)

(06).
(i). What are the main components of time series analysis?

(04 marks)

(ii). "Forecasting is one of main objective of time series analysis". What is the importance of forecasting to a business firm?

(04 marks)

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(iii). Explain the advantages and disadvantages of moving average method? Use examples for your explanations.

(05 marks)

(iv). Give three examples for different types of time series.

(03 marks)

(v). How do additive model different from multiplicative model. Give examples.

(04 marks)

(Total 20 marks)