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*Knowledge for Development*

**UNIVERSITY EXAMINATION**

**MAIN EXAMINATION FOR BACHELOR OF COMMERCE**

**COURSE CODE: BCO 204**

**COURSE TITLE: BUSINESS STATISTICS**

**DATE:**

**TIME:**

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**INSTRUCTIONS**

- Answer question one and any other **THREE** questions

### QUESTION ONE

- a) Calculate mean absolute deviation of the following data: 10,20,30,50 and 90 (4 marks)
- b) Calculate the standard deviation of 200men's height  
x 60 63 66 69 72 75 78  
f 4 12 44 64 56 16 4
- c) The following table shows the rate of unemployment in the 1980's

Year	1980	81	82	83	84	85	86	87	88	89
Unemployment	4.9%	5.9%	5.6	4.9	5.6	8.5	7.7	7.0	6.0	5.7

Calculate the average and standard deviation (5 marks)

- d) Suppose on every birth the probability of a boy is 52% and a girl is 48%. Calculate the probability tree for a couple having three children. What proportion of the couples will finally attain the outcome BGB? (4 marks)
- e) In a certain organization, 40% of the employees have university degrees. A person with a degree has 70% chance of a promotion while those without degrees have only 10% chance. Find the probability of
- i) Promotion (2 marks)
  - ii) Degree or promotion (2 marks)
  - iii) No degree and promotion (1 mark)
- f) What are the uses of index numbers? (4 marks)

### QUESTION TWO

(15 marks)

- a) 10% of people in the community are known to have a particular medical problem. A diagnostic test has been developed which correctly identifies those with the problem 95% of the time. For those who do not have problem, the test is only 80% accurate. You have just been tested positive. What is the probability that you have the problem?(4 marks)
- b) The data below shoes the price relatives for a hypothetical diet in dollars:

Item	Price 2009	Quantity	Price 2010	Quantity
Item	2.20	50	3.00	30
Bacon	2.00	20	2.00	40
Bread	0.50	80	.60	80

Calculate the laspeyres and Paasche price index (5 marks)

- c) Discuss various methods of collecting primary data? (6 marks)

### QUESTION THREE

(15 marks)

- a) Using the grouped limits 0.5-3.5, 3.5 -6.5, 6.5 – 9.5, 9.5 – 12.5, 12.5 – 15.5 for the data below: 2,4,5,5,6,7,7,8,8,9,10,11,11,12,15

Draw a histogram and an ogive, hence find the median and the inter-quartile range for the above data. (7.5 marks)

- b) "Statistical enquiries mean some sort of investigation by any agency whatsoever wherein relevant information is collected in numbers rather than words". Briefly explain the stages that are involved in any statistical enquiry. (7.5 Marks)

#### QUESTION FOUR

(15 marks)

- a) A consultant is asked about her opinion as to why an executive's dissatisfied secretary quit her job. Unable to get any direct information about the secretary, she takes the following data from a previous study from a reputable consultancy firm. Among all dissatisfied secretaries, 20% are dissatisfied mainly because they dislike their work, 50% because they feel they are underpaid, and 30% because they dislike their boss. Furthermore, the corresponding probabilities that they quit are 0.60, 0.40 and 0.90. Based on these figures, what are the probabilities that the secretary quit because of the work, because of the pay, or because of the boss? (5 marks)
- b) Briefly discuss the various environments in which decision are made (6 marks)
- c) What do you understand by the term time series? Giving relevant business and economic examples briefly explain the components of a time series. (4 marks)

#### QUESTION FIVE

(15 marks)

- a) Discuss the various sources of secondary information and the reliability of such data. (5 marks)
- b) Distinguish between additive model and multiplicative model in the analysis of time series (2 marks)
- c) What are the advantages of using samples rather than an entire population in research? (3 marks)
- d) It has been theorized that in the ideal balanced workforce in a certain industry, the ratios of Managerial, clerical and Professional employees will be around 1:3:6. A particular firm employs 7 managers, 30 clerical staff and 43 trained professional personnel. Test at the 10% significance level whether this company differs substantially from the ideal. (6 marks)