



# UGANDA BUSINESS AND TECHNICAL EXAMINATIONS BOARD

## Business and Humanities Certificate Examinations

### NOV-DEC SERIES

### PROGRAMME

NCAF, NCBA

### PAPER NAME

ELEMENTS OF BUSINESS STATISTICS

### PAPER CODE

NCBS115

YEAR I SEMESTER I

**2½ HOURS**

**WEDNESDAY, 11<sup>TH</sup> DECEMBER, 2019**

### INSTRUCTIONS TO CANDIDATES

1. This paper consists of **two** sections **A** and **B**.
2. Section **A** is compulsory and carries **20** marks.
3. Section **B** consists of **six** questions. Answer only **four** questions from this section.
4. All questions carry equal marks.
5. Answers to all each question should begin on a fresh page.
6. **Do not** write on this question paper.
7. All answers and rough work should be done in the official answer booklet provided.
8. Non-programmable electronic calculators, mathematical tables, and graph papers may be used for this examination.
9. Read other instructions on the answer booklet.

## SECTION A - (20 MARKS)

Answer all questions in this section

### Question One

- (a) Distinguish between a population and a sample. (02 marks)
- (b) State any **two** examples of quantitative variables. (02 marks)
- (c) Outline **two** merits of data tabulation. (02 marks)
- (d) List that  $P(A') = 0.47$ , find  $P(A)$ . (02 marks)
- (e) Differentiate between a bar chart and a pie chart. (04 marks)
- (f) List **two** advantages of using interviews in data collection. (02 marks)
- (g) Given  $A = \{3,5\}$ , list down all the subsets of  $A$ . (02 marks)
- (h) Outline **two** features of a good measure of central location. (02 marks)
- (i) List **two** advantages of non-random sampling methods. (02 marks)

## SECTION B - (80 MARKS)

Answer only four questions from this section.

### Question Two

- (a) State **two** measures of dispersion. (02 marks)
- (b) Explain the meaning of the term skewness. (02 marks)
- (c) Dr. Merlin is the human resource manager at AZPIN co. Ltd. He compiled the data given below showing the minutes by which 30 trainees were late in their 2 months of internship.

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 5  | 10 | 2  | 10 | 3  | 4  |
| 14 | 5  | 14 | 22 | 9  | 21 |
| 4  | 6  | 13 | 41 | 15 | 8  |
| 13 | 8  | 8  | 26 | 34 | 5  |
| 14 | 4  | 12 | 23 | 5  | 19 |

- (i) Construct a frequency distribution table with classes of uniform sizes starting at 0 - 9, 10 - 19 etc (05 marks)
- (ii) Using the information given, find the;
  - Median. (03 marks)
  - Coefficient of variation. (08 marks)

### Question Three

- (a) The data given in table 1 shows the expenses (in million UGX) incurred by TZK Ltd in the month of October, 2018 in four departments;

Table 1

| Department | Amount |
|------------|--------|
| P          | 10     |
| Q          | 30     |
| R          | 70     |
| S          | 90     |

Represent the above data on a pie chart.

(10 marks)

- (b) Explain five merits of using the questionnaire method in the data collection.

(10 marks)

### Question Four

The data given in the table 2 shows the wages (UGX '000) earned by employees of Fanya Kazi Ltd for the month of March 2018.

Table 2

| Wages     | Frequency (f) |
|-----------|---------------|
| 450 - 460 | 9             |
| 460 - 470 | 8             |
| 470 - 480 | 6             |
| 480 - 490 | 5             |
| 490 - 500 | 13            |
| 500 - 510 | 7             |
| 510 - 520 | 10            |

- (a) Find the number of employs who;

(i) Were paid.

(02 marks)

(ii) Earned less than UGX 500,000.

(03 marks)

(iii) Earned at least UGX 480,000.

(03 marks)

- (b) Determine the ;

(i) Modal wage.

(04 marks)

(ii) Median wage

(04 marks)

- (c) Calculate the mean wage and the range

(04 marks)

### Question Five

- (a) Given that  $x$  and  $y$  are independent events such that  $P(x) = 0.25$  and  $P(y) = 0.3$ , find;
- (i)  $P(xny)$  (02 marks)
  - (ii)  $P(xuy)$  (04 marks)
- (b) A company has a large number of typists. A survey shows that 30 can use word processor (W), 25 are audi- typists (A) and 28 are short hand writers (S). Of the typists who are short hand writers, 3 are audi- typists and can use word processor, 5 are audi- typists and cannot use a word processor, 9 can use a word processor but are not audi- typists, 6 of the audi-typists can use a word processor but not short hand writers.
- (i) Represent the information on the venn diagram. (07 marks)
  - (ii) Determine the number of typists who were involved in the survey? (03 marks)
  - (iii) Find the probability that a typist picked at random has only one skill. (04 marks)

### Question Six

- (a) Explain giving **six** reasons why sampling is used in carrying out statistical inquiries. (12 marks)
- (b) Explain **four** reasons that justify the need for a complete survey on the target population. (08 marks)

### Question Seven

- (a) Explain **four** qualifiers of a good measure of variation. (08 marks)
- (b) Find the standard deviation of; 14.7, 6.8, -10.5, 0, and 12.3. (06 marks)
- (c) Explain **three** demerits of arithmetic mean. (06 marks)

**END**