



OFFICE OF THE DEPUTY CHANCELLOR
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2024/2025 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCES (MLS, MPS) AND BACHELOR OF ARTS (CPR)

COURSE CODE: IRD/HRD 101

COURSE TITLE: QUANTITATIVE SKILLS 1

DATE: 16/01/2025 TIME: 11:00 – 2:00 PM

INSTRUCTION TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

HRD/IRD 101: QUANTITATIVE SKILLS 1

STREAM: BSC, BA

DURATION: 3 Hours

INSTRUCTIONS TO CANDIDATES

- i. Answer Question **ONE** and any other **TWO** questions .
- ii. Do not write on the question paper.

QUESTION ONE (COMPULSORY)

- a) Define the term Quantitative Techniques as used in management [1 Mark]
- b) Briefly describe the different types of quantitative techniques [6 Marks]
- c) Outline any three limitations of quantitative techniques [3 marks]
- d) The following scores represent the final examination grade for an elementary class in quantitative techniques

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 23 | 60 | 79 | 32 | 57 | 74 | 52 | 70 | 82 | 36 |
| 80 | 77 | 81 | 95 | 41 | 65 | 92 | 85 | 55 | 76 |
| 52 | 10 | 64 | 75 | 78 | 25 | 80 | 98 | 81 | 67 |
| 41 | 71 | 83 | 54 | 64 | 72 | 88 | 62 | 74 | 43 |
| 60 | 78 | 89 | 76 | 84 | 48 | 84 | 90 | 15 | 79 |
| 34 | 67 | 17 | 82 | 69 | 74 | 63 | 80 | 85 | 61 |

- i) Set up a frequency distribution table [4 marks]
- ii) Construct a frequency histogram and determine the modal value [4 marks]
- e) Distinguish between parametric and non-parametric tests [1 mark]
- f) Outline any two non-parametric tests. [2 marks]
- g) Two project managers were asked to rank a group of workers in order of their potential for eventually becoming top level managers. The ranking was as follows;

| Employee | A | B | C | D | E | F | G | H | I | J |
|------------|----|---|---|---|---|---|---|---|---|----|
| Manager I | 10 | 2 | 1 | 4 | 3 | 6 | 5 | 8 | 7 | 9 |
| Manager II | 9 | 4 | 2 | 3 | 1 | 5 | 6 | 8 | 7 | 10 |

Required:

Compute the Spearman's rank coefficient R and comment on the value [9 marks]

QUESTION TWO

The management of a community-based organization is investigating the length of time the suppliers take for them to be paid, with the normal terms being a net of 30 days. It checked the payment record of 100 suppliers who were chosen at random as shown in the table

| Payment in days | Number of Suppliers |
|-------------------------|---------------------|
| 5 to less than 9 days | 4 |
| 10 to less than 14 days | 10 |
| 15 to less than 19 days | 17 |
| 20 to less than 24 days | 20 |
| 25 to less than 29 days | 22 |
| 30 to less than 34 days | 16 |
| 35 to less than 39 days | 8 |
| 40 to less than 44 days | 3 |

Required;

- i) Calculate the arithmetic mean [3 marks]
- ii) Find the geometric mean [3 marks]
- iii) Calculate the Harmonic mean [3 marks]
- iv) Calculate the median payment value [4 marks]
- v) Calculate the standard deviation [4 marks]
- vi) Calculate the mode payment value [3 marks]

QUESTION THREE

Smoother Limited has been concerned by the absenteeism of its employees. A study produced the data below

| Number of days absent | 0-2 | 3-5 | 6-8 | 9-11 | 12-14 | 15-17 |
|-----------------------|-----|-----|-----|------|-------|-------|
| Number of employees | 3 | 8 | 20 | 12 | 6 | 1 |

- a) Using a Provisional Mean of 7, find;
 - i) Arithmetic mean [3 marks]
 - ii) The standard deviation [3 marks]
 - iii) Find the Pearson's coefficient of skewness [5 marks]
 - iv) Find the Bowley's coefficient of skewness [3 marks]
- b) Briefly describe the following [6 marks]
 - i) Leptokurtic
 - ii) Mesokurtic
 - iii) Platykurtic

QUESTION FOUR

Given below are the yield (in Kg.) per acre for 5 trial plots of 4 varieties of treatment

| PLOT NAME | 1 | 2 | 3 | 4 |
|-----------|----|----|----|----|
| A | 42 | 48 | 68 | 80 |
| B | 50 | 66 | 52 | 94 |
| C | 62 | 68 | 76 | 78 |
| D | 34 | 78 | 64 | 82 |
| E | 52 | 70 | 70 | 66 |

- State the null hypothesis [2 mark]
- Test whether the mean yield per acre is the same for the 4 varieties of treatment [11 marks]
- State whether to accept or reject the null hypothesis and give your reason [2 marks]
- Explain how the ANOVA test is used in statistical analysis [3 marks]
- Give any two characteristics of ANOVA test [2 marks]

QUESTION FIVE

- Explain the use of X^2 test [2 marks]
- In a random sample test in a health facility, the percentage of positive cases for malaria and AIDS were recorded as follows;

| Diseases | I | II | III | IV | V |
|----------|----|----|-----|----|----|
| Malaria | 30 | 50 | 40 | 15 | 25 |
| AIDS | 10 | 25 | 12 | 18 | 15 |

- State the null hypothesis [2 marks]
 - Compute the expected frequencies for each disease type [3 marks]
 - Conduct the X^2 test [3 marks]
- c) The data in the table below relates to the weekly maintenance to the age (in months) of ten similar machines in a non-governmental manufacturing project.

| Machines | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A | 5 | 10 | 15 | 20 | 30 | 30 | 30 | 50 | 50 | 60 |
| B | 190 | 240 | 250 | 300 | 310 | 335 | 300 | 300 | 350 | 395 |

- Find the regression equations for [10 marks]
 - Y on X
 - X on Y