



School of Communication, Languages and Performing Arts

Department of Communication

JANUARY 2015 Semester

COM 302P(X): Statistics for Communication Research

Final Exam

Instructions

1. This paper has **FOUR** questions.
2. Answer Question **ONE** and any other **TWO** questions
3. The exam is **TWO** hours long.
4. This is not an open book exam. Any form of cheating will lead to immediate dismissal from the exam room. The candidate will earn a failing grade.
5. Please show all your working clearly.

EXAM BEGINS ON SECOND PAGE.

QUESTION 1(COMPULSORY) {40 MARKS}

(a) Differentiate between the following terms as they are used in statistics

- (i) Sampling frame and Sampling error
- (ii) Quantitative variable and qualitative variable
- (iii) Census and sample . (6 marks).

(b) Given the following set of 42 scores:

30, 36, 33, 30, 42, 27, 22, 41, 30, 42, 31, 21, 54, 36, 32, 40, 28, 19, 48, 26, 48,
15, 37, 16, 17, 54, 43, 51, 44, 32, 43, 51, 44, 32, 42, 51, 21, 25, 36, 22, 17, 20

- (i) Prepare a frequency distribution table (7marks)
- (ii) From the frequency distribution table, calculate the measures of central tendency (mean, mode, and median) (9marks)
- (iii) Determine the coefficient of range of the distribution. (3marks)

(c) . The following are ages 20 of pupils in lower primary school.

| | | | | | | |
|--------------|---|---|---|---|---|---|
| Age | 4 | 5 | 6 | 7 | 8 | 9 |
| No of pupils | 1 | 3 | 7 | 4 | 4 | 1 |

- Calculate (i) the standard deviation of the distribution (6marks)
- (ii) The co-efficient of variation of the data (4marks)

(d) Statistics is a science which studies statistical methods. List the stages involved in such an investigation in the order in which they occur. (5marks)

QUESTION 2. {20 MARKS}

(a)(i) Explain the main characteristics of the normal distribution curve (5marks)

(ii) A luxury passenger ship has 500 passengers on board whose ages are normally distributed with a mean of 60 and a standard deviation of 12. How many passengers in the ship are aged:

(i) Between 45 and 78 years? ($45 \leq x \leq 75$) (4marks)

(ii) Less than 48 years? ($x < 48$) (3 marks)

(iii) More than 75 years? ($x > 75$) (3marks)

(b) When data does not follow the normal distribution is said to be skewed. Illustrate using diagrams and explain the various types of skewedness. (5marks)

QUESTION 3 {20 marks}

(a) Distinguish between positive correlation and negative correlation (4 marks)

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(b) Two Judges in a contest were asked to rate candidates, A, B, C, D, E F G and H in order of medical professional preference. They awarded them the marks shown in the following data

| Candidate | A | B | C | D | E | F | G | H |
|--------------|----|----|----|----|----|----|----|----|
| First judge | 50 | 29 | 83 | 61 | 49 | 66 | 83 | 77 |
| Second judge | 74 | 58 | 92 | 53 | 63 | 58 | 62 | 66 |

(i) Determine if there is any relationship between the ratings by the two judges and interpret it. (6marks)

(ii) At 95% significant level, determine if the correlation coefficient obtained is significant. ($t_{0.05} = 2.26$) (5marks)

(c) Explain the five steps in hypothesis testing. (5marks)

QUESTION 4 {20 MARKS}

a(i) Distinguish between Linear regression and Multiple regression (4marks)

(ii) The following data shows how many weeks' six people worked at a vehicle inspection unit and how many cars each one inspected between 1200 and 1400 hours on a given day.

| | | | | | | |
|----------------------|----|----|----|----|----|----|
| No of weeks employed | 2 | 7 | 9 | 1 | 5 | 12 |
| No of cars inspected | 13 | 21 | 23 | 14 | 15 | 21 |

(1) Regress the number of cars inspected on the number of weeks of employment and obtain a regression equation (10 marks)

(2) Use the equation obtained to estimate how many cars, someone who has been working at the inspection for 8 weeks, can be expected to inspect in the given two hour period. (2 marks)

(b) Explain any two functions of statistics in communication. (4marks)