



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF EDUCATION

UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF EDUCATION
(PLANNING AND ECONOMICS OF EDUCATION)

1ST YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS (INSTITUTIONAL BASED)

COURSE CODE: ECT 843

COURSE TITLE: QUANTITATIVE METHODS IN EDUCATIONAL PLANNING

EXAM VENUE: STREAM: M. ED. (PLANNING & ECON OF EDUC)

DATE: EXAM SESSION:

TIME: 3 HOURS

INSTRUCTIONS

1. Answer any THREE questions.
2. Candidates are advised not to write on the question paper.
3. Candidates must hand in their answer booklets to the invigilator while in the examination room.

QUESTION ONE

a) The following information relates to enrolment of students and corresponding number of repeaters in secondary education between 2010 and 2013 in a county.

| | FORM | | | | |
|-------------|-------------|--------|--------|-------|-------|
| YEAR | 1 | 2 | 3 | 4 | G |
| 2010 | 100400** | 92400 | 90500 | 87400 | 60002 |
| | 6000* | 6200 | 5800 | 5500 | |
| 2011 | 104690 | 101500 | 87490 | 89600 | 59100 |
| | 6200 | 5900 | 5620 | 6200 | |
| 2012 | 116400 | 102460 | 99600 | 90100 | 69100 |
| | 6370 | 6200 | 5900 | 7500 | |
| 2013 | 127900 | 109900 | 100600 | 96900 | 70205 |
| | 6400 | 6140 | 6000 | 6900 | |

Legend:

** - Is enrolment

* - Is number of repeaters

G – Is number of graduates

Using the table, compute:

- i) Actual Grade survival Rate in form 3 and 4 in 2012 (2mks)
- ii) Grade Repeater Rate in each of the forms in 2013 (4mks)
- iii) Grade drop-out rate between forms 2 and 3 in 2012 (3mks).

- iv) Grade wastage rate in form 3 and 4 in 2011(3mks)
- v) Weighted Average Survival Rate between forms 1 and 2 in the county for the period 2010 and 2013 (4mks).
- vi) Weighted Average Graduation Rate for the county during the period 2010 and 2013 (4 mks)
- b) The following demographic data relates to students of a given county during the year 2015.

| Age Group | Population |
|------------------|-------------------|
| 0-4 | 161,300 |
| 5-9 | 139,515 |
| 10-14 | 71,225 |
| 15-19 | 47,300 |
| 20-24 | 38,820 |

Using the Sprague Multiplier Table, calculate the population in ages 5, 6,8,10 and 12 (8 mks).

- c) An economy has got the following indices:
 P.E= 1,302,400
 P.P= 2,990,400
 AIP=3.5%
 AIE=4.5%
 Find the number of years it can take for full enrollment to be achieved by this economy (2 mks).

QUESTION TWO

- a) The marks of 1000 candidates in an examination were normally distributed with a mean mark of 45% and standard deviation of 10%.
- i) Given that the pass mark in the test was 60%, estimate the number of candidates who passed the examination (10mks)
- ii) Calculate the probability that a student picked at random from the group scored between 35% and 65% (5mks)

QUESTION THREE

The K.C.S.E Mathematics examination mean score for a given county assessment test in 2013 was 51% with a standard deviation of 14. A county director of education believes that students who were in public boarding primary schools scored better in the test. The director obtains a simple random sample of 40 high school students who were in public boarding primary schools and finds that their mean score is 54%, conduct a P-value approach of hypothesis testing to determine if the director's beliefs are supported by data at 5% level of significance. (15mks).

QUESTION FOUR

- a) When does one do correlation and regression analysis for planning purposes? (1mks)
- b) What is the meaning of R and R^2 in regression analysis (2mks)
- c) State a typical multiple regression equation that you may employ for planning purposes (2mk)
- d) The following data was prepared by an educational planner:

| | | | | | | | | | | |
|---------------------------------------|----|----|----|----|----|----|----|----|----|----|
| No. of tuition administered (X_1) | 50 | 30 | 60 | 75 | 40 | 90 | 15 | 19 | 64 | 80 |
| Positive performance index (Y) | 55 | 20 | 59 | 78 | 55 | 70 | 20 | 15 | 60 | 84 |

- i) Apart from Karl Pearson's r , name any other two methods an education planner can employ to analyze your data (2 mks)
- ii) Determine the correlation between X_1 and Y using Karl Pearson's r . (8 mks).

QUESTION FIVE

An educational planner was interested in studying television channel viewing in some locality and age set of viewers. The results were as shown in the table below:

| TV Channel Viewed | | | | |
|-------------------|-----|-----|-----|-------|
| Age set | KBC | KTN | NTV | Total |
| Young | 120 | 112 | 129 | 361 |
| Old | 67 | 210 | 99 | 376 |
| Total | 187 | 322 | 228 | 737 |

Using Chi-square (χ^2) and $\alpha=0.05$, test whether there is a statistical relationship between TV viewed and Age set of viewers. (15MKS)