



## **MASENO UNIVERSITY**

### **UNIVERSITY EXAMINATIONS 2015/2016**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR  
THE DEGREE OF MASTER OF EDUCATION IN  
PLANNING AND ECONOMICS OF EDUCATION**

### **MAIN CAMPUS**

**EMA 843: QUANTITATIVE ANALYSIS IN EDUCATION  
PLANNING**

Date: 29<sup>th</sup> April, 2016

Time: 9.00 - 12.00 noon

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#### **INSTRUCTIONS:**

- Answer question ONE and any other TWO questions.



(MAIN CAMPUS)

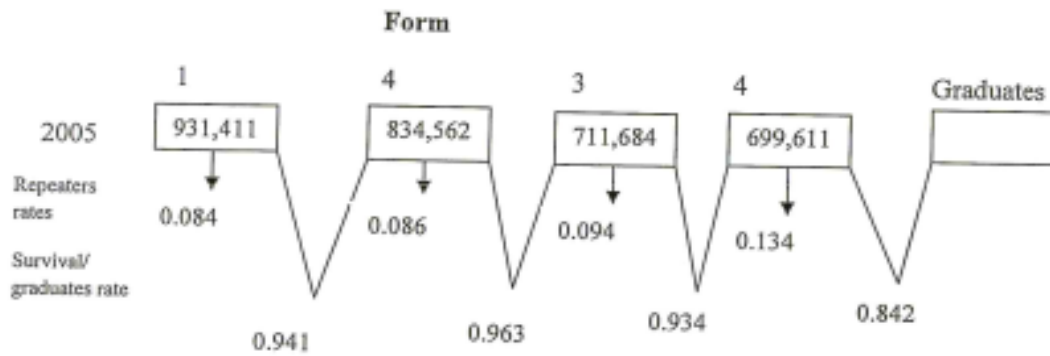
EMA 843: QUANTITATIVE ANALYSIS IN EDUCATION PLANNING

DATE----- TIME-----

INSTRUCTION:

ANSWER THREE QUESTIONS: QUESTION ONE IS COMPULSARY

Q1. The figure below shows enrolment per form in 2005, Weighted average repeaters rates and weighted average graduate rates. Use the data below to project committed enrolment and output to the period 2005 – 2008. (20marks)



(20marks)

Q2. The figure below shows enrollment rate for secondary schools in Emuhaya sub - district 2003-2007. Compute rate stated below

	Forms				Graduates
	1	2	3	4	
2003	791,431 51,611	777,530 49,431	756,301 46,551	714,220 63,416	549,111
2004	799,110 61,310	781,630 43,611	734,110 45,002	701,332 77,131	548,106
2005	805,130 72,613	778,669 88,310	730,111 46,632	719,631 88,311	525,112
2006	814,616 63,442	792,136 55,555	720,002 48,882	711,001 91,332	530,107
2007	843,110 88,162	783,330 62,410	720,106 47,631	706,142 98,116	543,613

If in each box the upper data represent total enrolment and the lower data represents repeaters. Calculate approximately to three decimal places.

- (i) Form to form survival rates in 2004. **(3marks)**
- (ii) Repeaters rates for each form in 2005. **(3marks)**
- (iii) Graduation rates for each of the years 2003 – 2007 **(3marks)**
- (iv) Form dropout rates in 2006 **(4marks)**
- (v) Form retention rates in 2007 **(3marks)**
- (vi) Crude wastage rates for the year 2003 and 2004 **(4marks)**

**Total 20 Marks.**

Q3. Use the following demographic data and Sprague multiples (provided at the end of this question paper to calculate the population in ages 4, 7, 8, 11 and 15.

**(20marks)**

Age group	population
0-4	2,866,132
5-9	2,488,747
10-14	2,002,163
15-19	1,901,368
20-24	1,721,522
25-29	1,541,209

Q4. Calculate, using the equation  $PE \times AIE^n = PP \times AIP^n$  in how many years full enrolment will be achieved with alternate annual increases in enrolment of  $2\frac{1}{2}\%$ ,  $3\%$ ,  $4\frac{1}{3}\%$ ,  $7\frac{3}{4}\%$  and  $9\%$  if present enrolment = 1,362, 348 present population (age group corresponding to that level) = 2,456, 302 and the estimates annual population growth rate =  $3\frac{1}{2}\%$ . Show the results in a table. (20marks)

Q5. Using data from question 2 determine the following

- Form to form weighted average survival and graduation rates (7 marks)
- Weighted average graduation rates (4 marks)
- Average number of years spent per graduate (4 marks)
- State the importance of statistical data to an education planner (5 marks)

**SPRAGUE MULTIPLIERS**

	F-2	F-1	F0	F+1	F+2	F+3
First table						
Fa			+0.3616	-0.2768	+0.1488	-0.0336
Fb			+0.2640	-0.0960	+0.0400	-0.0080
Fc			+0.1840	+0.0400	-0.0320	+0.0080
Fd			+0.1200	+0.1360	-0.0720	+0.0160
Fe			+0.0704	+0.1968	-0.0848	+0.0176
Second table						
Fa		+0.0336	+0.2272	-0.0752	+0.0144	
Fb		+0.0080	+0.2320	-0.0480	+0.0080	
Fc		-0.00800	+0.2160	-0.0080	+0.0000	
Fd		-0.0160	+0.1840	+0.0400	-0.0080	
Fe		-0.0176	+0.1408	+0.0912	-0.0144	
Intermediate table						
Fa	-0.0128	+0.0848	+0.1504	-0.0240	+0.0016	
Fb	-0.0016	+0.0144	+0.2224	-0.0416	+0.0064	
Fc	+0.0064	-0.0336	+0.2544	-0.0336	+0.0064	
Fd	+0.0064	-0.0416	+0.2224	+0.0144	-0.0016	
Fe	+0.0016	-0.0240	+0.1504	+0.0848	-0.0128	