GARISSA UNIVERSITY COLLEGE

(A Constituent College of Moi University)

UNIVERSITY EXAMINATION 2016/2017 ACADEMIC YEAR ONE SECOND SEMESTER EXAMINATION

SUPPLEMENTARY/SPECIAL EXAMINATION

SCHOOL OF EDUCATION, ARTS AND SOCIAL SCIENCES

FOR THE DEGREE OF BACHELOR OF EDUCATION (ARTS)

COURSE CODE: PSY 110/ IRD 101

COURSE TITLE: QUANTITATIVE TECHNIQUES /SKILLS

EXAMINATION DURATION: 3 HOURS

DATE: 27/09/17 **TIME: 09.00-12.00 PM**

INSTRUCTION TO CANDIDATES

- **The examination has SIX (6) questions**
- **Question ONE (1) is COMPULSORY**
- **Choose any other THREE (3) questions from the remaining FIVE (5) questions**
- **Use sketch diagrams to illustrate your answer whenever necessary**
- **Do not carry mobile phones or any other written materials in examination room**
- **Do not write on this paper**

This paper consists of FOUR (4) printed pages ***please turn over***

QUESTION ONE (COMPULSORY)

(a) Evaluate $(2\frac{4}{5} \times 1\frac{3}{7} - 4 \div \frac{2}{3} + \frac{3}{5} of\ 15)$ **[3 marks]**

(b) Solve for p in ; $3^{4p+1} \div 27^{p+1} = \frac{1}{81}$ **[5 marks]**

(c) Find the value of given that $log_{\sqrt{3}}9 =$ x- $log_{\sqrt{3}}27$ **[3 marks]**

(d) A $= \begin{bmatrix} 1 & 3 & 0 \\ -1 & 2 & 1 \\ 0 & 0 & 2 \end{bmatrix}$ B $= \begin{bmatrix} 2 & 5 & 4 \\ 1 & 2 & 3 \\ -1 & 1 & 2 \end{bmatrix}$,Find AB **[2 marks]**

(e) Compute median and mean of the following set of scores.

12.0, 10.7, 10.9, 10.6, 10.0, 12.9, 13.3, 14.2 **[5 marks]**

(f) The sum of two numbers is 15. If sum of their reciprocals is$\frac{3}{10}$, find the two numbers using completing squares. **[5 marks]**

(g) Solve 3x +2y + 4z = 7, 2x + y + z = 4 , x + 3y + 5z = 2 **[5 marks]**

QUESTION TWO

The table below shows the distribution of marks scored in a test by form four students in Garissa High in Mathematics Examinations

Marks	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
No. of pupils	1	5	10	10	19	20	20	8	4	3

Calculate;

i. Arithmetic mean of the class **[3 marks]**

ii. The standard deviation of the class **[3 marks]**

iii. Median mark **[3 marks]**

iv. Quartile deviation **[3 marks]**

v. Geometric mean **[3 marks]**

QUESTION THREE

A teacher recorded the following data which refers to the marks gained by 13 children in an aptitude test and a statistic examination.

Calculate, to 3 decimal places, the product –moment correlation coefficient between the test landmark and the examination mark. Calculate the coefficient of determination and comment on your result.

Child	A	B	C	D	E	F	G	H	I	J	K	L	M
Aptitude test (x)	54	52	42	31	43	23	32	49	37	13	13	36	39
Statistic exam (y)	84	68	71	37	79	58	33	60	47	60	44	64	49

QUESTION FOUR

The following are the scores of students in a class in mathematics and C.R.E.

Student	C	D	E	F	G	H	I	J	K	L	M	N	O
Maths	49	52	42	31	43	23	32	49	37	13	13	36	46
CRE	58	68	58	37	79	58	33	60	47	60	44	64	49

Calculate the Spearman's rank correlation coefficient between mathematics and C.R.E. Give three limitations of Spearman's rank correlation coefficient.
(**Hint** .Use correction factor method for repeated ranks)

QUESTION FIVE

The following is a set of examination marks ordered for convenience.

6	12	11	13	11	48	51	50	51	50	40
21	24	21	25	23	54	57	54	58	55	41

27	28	27	28	28	63	66	64	67	66	40
43	45	43	46	44	31	32	32	33	32	41
39	39	39	39	39	36	37	37	37	37	41

Construct a grouped frequency distribution table using a class width of 10 with 0 as the lower limit of the first class. **[3 Marks]**

(a) Use your frequency distribution table in (a) above to find

i. Standard deviation **[5 Marks]**

ii. How many students scored between 26% and 46% **[7 marks]**

QUESTION SIX

(a) The following table shows the time in minutes a group of schoolchildren spent reading during a particular day. Represent these data by a histogram **[6 marks]**

Times (to nearest minute)	Number of children
10 – 19	8
20 – 24	15
25 – 29	25
30 – 39	18
40 – 49	12
50 – 64	7
65 – 89	5

(b) The following are CAT marks and end of Semester marks of Educational student at Garissa University in PSY110. Obtain the equation of regression line of the two sets of marks and calculate the CAT mark for a student who scored in End of Semester **[8 marks]**

Cat marks	18	26	28	34	36	42	48	52	54	60
End of semester marks	54	64	54	62	68	70	76	66	76	74