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GABA CAMPUS – ELDORET
MAIN EXAMINATION
SEPTEMBER – DECEMBER 2021 TRIMESTER
FACULTY OF ARTS AND SOCIAL SCIENCES
MASTER OF ARTS IN COUNSELING PSYCHOLOGY
MCP 501: SOCIAL STATISTICS

Date: December 2021 **Duration:** 3 Hours

Instructions: Answer Question **ONE** and any other **THREE** Questions

QUESTION ONE

- a) Using relevant examples, describe the following terms as used in statistics.
- i) Measurement **(1 mark)**
 - ii) A parametric test **(1 mark)**
- b) The following data shows students' marks in an exam. Use it to answer the questions that follow.

Marks	Frequency
11-15	3
16-20	5
21-30	9
31-35	6
36-40	2

Determine:

- i) The mean mark **(4 marks)**
- ii) The median score **(3 marks)**
- iii) The variance **(4 marks)**
- iv) The standard deviation **(2 marks)**
- v) Draw a histogram to represent the above statistical information **(2 ½ marks)**

QUESTION TWO

A researcher intended to compare the effectiveness of two instructional methods, A and B. He obtained a sample of results of two groups of students who were taught using the two instructional methods. The data below shows the results.

Instructional Method	N	\bar{x}	s.d
A	10	40.2	4.8
B	12	38.6	3.7

Test a hypothesis at $\alpha = 0.05$ to examine the difference in mean scores associated to the two teaching methods. **(17 ½ marks)**

QUESTION THREE

A teacher wanted to establish the degree of relationship between performance in Mathematics (X) and their performance in Physics (Y) in his class. The following results were obtained by five students in a test.

Mathematics scores (x)	Physics scores (y)
8	9
9	8
7	10
5	4
6	7

By computing Spearman's rank correlation coefficient, examine the degree of relationship between mathematics and physics scores and hence interpret your result. **(17 ½ marks)**

QUESTION FOUR

A teacher suggests that Mock results have a linear relationship with KCSE results. The following results show the scores obtained by five students in the two exams.

Mock score (x)	KCSE score (y)
60	79
47	67
52	62
57	46
40	48

a) Support the above suggestion by obtaining a linear regression equation relating mock scores and KCSE scores in the form $Y = a + bx$, where a and b are constants **(14 ½ marks)**

b) What is the likely score of KCSE for a student who scores 53 in the mock? **(3 marks)**

QUESTION FIVE

Critically examine the steps followed during hypothesis testing process

(17 ½ marks)

t- Distribution: Critical Values of t

Significance level

Degrees of freedom	Two-tailed test:	10%	5%	2%	1%	0.2%	0.1%
	One-tailed test:	5%	2.5%	1%	0.5%	0.1%	0.05%
1		6.314	12.706	31.821	63.657	318.309	636.619
2		2.920	4.303	6.965	9.925	22.327	31.599
3		2.353	3.182	4.541	5.841	10.215	12.924
4		2.132	2.776	3.747	4.604	7.173	8.610
5		2.015	2.571	3.365	4.032	5.893	6.869
6		1.943	2.447	3.143	3.707	5.208	5.959
7		1.894	2.365	2.998	3.499	4.785	5.408
8		1.860	2.306	2.896	3.355	4.501	5.041
9		1.833	2.262	2.821	3.250	4.297	4.781
10		1.812	2.228	2.764	3.169	4.144	4.587
11		1.796	2.201	2.718	3.106	4.025	4.437
12		1.782	2.179	2.681	3.055	3.930	4.318
13		1.771	2.160	2.650	3.012	3.852	4.221
14		1.761	2.145	2.624	2.977	3.787	4.140
15		1.753	2.131	2.602	2.947	3.733	4.073
16		1.746	2.120	2.583	2.921	3.686	4.015
17		1.740	2.110	2.567	2.898	3.646	3.965
18		1.734	2.101	2.552	2.878	3.610	3.922
19		1.729	2.093	2.539	2.861	3.579	3.883
20		1.725	2.086	2.528	2.845	3.552	3.850
21		1.721	2.080	2.518	2.831	3.527	3.819
22		1.717	2.074	2.508	2.819	3.505	3.792
23		1.714	2.069	2.500	2.807	3.485	3.768
24		1.711	2.064	2.492	2.797	3.467	3.745
25		1.708	2.060	2.485	2.787	3.450	3.725
26		1.706	2.056	2.479	2.779	3.435	3.707
27		1.703	2.052	2.473	2.771	3.421	3.690
28		1.701	2.048	2.467	2.763	3.408	3.674
29		1.699	2.045	2.462	2.756	3.396	3.659
30		1.697	2.042	2.457	2.750	3.385	3.646
32		1.694	2.037	2.449	2.738	3.365	3.622
34		1.691	2.032	2.441	2.728	3.348	3.601
36		1.688	2.028	2.434	2.719	3.333	3.582
38		1.686	2.024	2.429	2.712	3.319	3.566
40		1.684	2.021	2.423	2.704	3.307	3.551
42		1.682	2.018	2.418	2.698	3.296	3.538
44		1.680	2.015	2.414	2.692	3.286	3.526
46		1.679	2.013	2.410	2.687	3.277	3.515
48		1.677	2.011	2.407	2.682	3.269	3.505
50		1.676	2.009	2.403	2.678	3.261	3.496
60		1.671	2.000	2.390	2.660	3.232	3.460
70		1.667	1.994	2.381	2.648	3.211	3.435
80		1.664	1.990	2.374	2.639	3.195	3.416
90		1.662	1.987	2.368	2.632	3.183	3.402
100		1.660	1.984	2.364	2.626	3.174	3.390
120		1.658	1.980	2.358	2.617	3.160	3.373
150		1.655	1.976	2.351	2.609	3.145	3.357
200		1.653	1.972	2.345	2.601	3.131	3.340
300		1.650	1.968	2.339	2.592	3.118	3.323
400		1.649	1.966	2.336	2.588	3.111	3.315

END