(*UNIVERSITY OF CHOICE*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS 2023/2024 ACADEMIC YEAR

FIRST YEAR FIRST SEMESTER EXAMINATIONS

FOR THE DEGREE OF MASTER OF EDUCATION

COURSE CODE: EDF 804

COURSE TITLE: COMPUTER APPLICATION IN RESEARCH

DATE: Wednesday 20th December 2023 **TIME:** 2:00 – 5:00PM

INSTRUCTIONS TO CANDIDATES

Answer 4 questions
Question ONE (1) is compulsory
Answer three other (3) questions

TIME: 3 HOURS

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

1a) Distinguish between the following: (6mks)

i) Primary data and secondary data
ii) Population and sample
iii) Descriptive and inferential statistics

b) Explain the difference between Parametric and Nonparametric test. (9mks)

2. In the year 2010 Kenya census, the ages of individuals in Kitale town were found to be the following

Less than 18	18 – 35	Greater than 35
20%	30%	50%

In 2010, the ages of n = 500 individuals were sampled. Below are the results

Less than 18	18 – 35	Greater than 35
121	288	91

Using alpha = 0.05 would you conclude that the population distribution of the ages has changed in the last ten years

3. If 100 scores on a test are normally distributed with mean of 500 and a standard deviation of 100:

(a) What percentage of scores would be lower than 650?
(b) How many scores would lie below 650? (15mks)

4. A sample was given on number of correct answers and students' attitude to taking a test

Student no	**Correct answers**	**Attitude**
1	17	94
2	13	73
3	12	59
4	15	80
5	16	93
6	14	85
7 8	16 16	66 79
9	18	77
10	19	91

(i) Identify the dependent variable *and* the independent variable. (3mks)
(ii) Determine the regression equation. Interpret the regression coefficients of the sample. (12mks)

5. A research study was conducted to examine the differences between older and younger adults on perceived life satisfaction. A pilot study was conducted to examine this hypothesis. Ten older

adults (over the age of 70) and ten younger adults (between 20 and 30) were give a life satisfaction test (known to have high reliability and validity). Scores on the measure range from 0 to 60 with high scores indicative of high life satisfaction; low scores indicative of low life satisfaction. The data are presented below. Compute the appropriate t-test.

Older Adults	**Younger Adults**
45	34
38	22
52	15
48	27
25	37
39	41
51	24
46	19
55	26
46	36
Mean =	Mean =
S =	S =
S^2 =	S^2 =

a) What is your t_{crit}?
b) Is there a significant difference between the two groups?
c) Interpret your answer.

THE CRITICAL TABLES

Table of the chi square distribution { Appendix J, p. 915

Level of Significance ®

df	0.200	0.100	0.075	0.050	0.025	0.010	0.005	0.001	0.0005
1	1.642	2.706	3.170	3.841	5.024	6.635	7.879	10.828	12.116
2	3.219	4.605	5.181	5.991	7.378	9.210	10.597	13.816	15.202
3	4.642	6.251	6.905	7.815	9.348	11.345	12.838	16.266	17.731
4	5.989	7.779	8.496	9.488	11.143	13.277	14.860	18.467	19.998
5	7.289	9.236	10.008	11.070	12.833	15.086	16.750	20.516	22.106
6	8.558	10.645	11.466	12.592	14.449	16.812	18.548	22.458	24.104
7	9.803	12.017	12.883	14.067	16.013	18.475	20.278	24.322	26.019
8	11.030	13.362	14.270	15.507	17.535	20.090	21.955	26.125	27.869
9	12.242	14.684	15.631	16.919	19.023	21.666	23.589	27.878	29.667
10	13.442	15.987	16.971	18.307	20.483	23.209	25.188	29.589	31.421
11	14.631	17.275	18.294	19.675	21.920	24.725	26.757	31.265	33.138
12	15.812	18.549	19.602	21.026	23.337	26.217	28.300	32.910	34.822
13	16.985	19.812	20.897	22.362	24.736	27.688	29.820	34.529	36.479
14	18.151	21.064	22.180	23.685	26.119	29.141	31.319	36.124	38.111
15	19.311	22.307	23.452	24.996	27.488	30.578	32.801	37.698	39.720
16	20.465	23.542	24.716	26.296	28.845	32.000	34.267	39.253	41.309

T-Distribution Critical Value Table

α (1 tail)	0.05	0.025	0.01	0.005	0.0025	0.001	0.0005
α (2 tail)	0.1	0.05	0.02	0.01	0.005	0.002	0.001
df							
1	6.3138	12.7065	31.8193	63.6551	127.3447	318.4930	636.0450
2	2.9200	4.3026	6.9646	9.9247	14.0887	22.3276	31.5989
3	2.3534	3.1824	4.5407	5.8408	7.4534	10.2145	12.9242
4	2.1319	2.7764	3.7470	4.6041	5.5976	7.1732	8.6103
5	2.0150	2.5706	3.3650	4.0322	4.7734	5.8934	6.8688
6	1.9432	2.4469	3.1426	3.7074	4.3168	5.2076	5.9589
7	1.8946	2.3646	2.9980	3.4995	4.0294	4.7852	5.4079
8	1.8595	2.3060	2.8965	3.3554	3.8325	4.5008	5.0414
9	1.8331	2.2621	2.8214	3.2498	3.6896	4.2969	4.7809
10	1.8124	2.2282	2.7638	3.1693	3.5814	4.1437	4.5869
11	1.7959	2.2010	2.7181	3.1058	3.4966	4.0247	4.4369

12	1.7823	2.1788	2.6810	3.0545	3.4284	3.9296	4.3178
13	1.7709	2.1604	2.6503	3.0123	3.3725	3.8520	4.2208
14	1.7613	2.1448	2.6245	2.9768	3.3257	3.7874	4.1404
15	1.7530	2.1314	2.6025	2.9467	3.2860	3.7328	4.0728
16	1.7459	2.1199	2.5835	2.9208	3.2520	3.6861	4.0150
17	1.7396	2.1098	2.5669	2.8983	3.2224	3.6458	3.9651
18	1.7341	2.1009	2.5524	2.8784	3.1966	3.6105	3.9216
19	1.7291	2.0930	2.5395	2.8609	3.1737	3.5794	3.8834
20	1.7247	2.0860	2.5280	2.8454	3.1534	3.5518	3.8495

PPMC Critical Values

Pearson Product-Moment Correlation (PPMC) Coefficient Table of Critical Values

df = n – 2	Level of significance for two-tailed test			
n = # of pairs of data	.10	.05	.02	.01
1	.988	.997	.9995	.9999
2	.900	.950	.980	.990
3	.805	.878	.934	.959
4	.729	.811	.882	.917
5	.669	.754	.833	.874
6	.622	.707	.789	.834
7	.582	.666	.750	.798
8	.549	.632	.716	.765
9	.521	.602	.685	.735
10	.497	.576	.658	.708
11	.476	.553	.634	.684
12	.458	.532	.612	.661
13	.441	.514	.592	.641
14	.426	.497	.574	.628
15	.412	.482	.558	.606
16	.400	.468	.542	.590
17	.389	.456	.528	.575
18	.378	.444	.516	.561
19	.369	.433	.503	.549
20	.360	.423	.492	.537
21	.352	.413	.482	.526
22	.344	.404	.472	.515

23	.337	.396	.462	.505
24	.330	.388	.453	.495
25	.323	.381	.445	.487
26	.317	.374	.437	.479
27	.311	.367	.430	.471
28	.306	.361	.423	.463
29	.301	.355	.416	.456

Standard normal curve area table

The areas under the standard normal curve corresponding to distances on the baseline between the mean and each z

(1)		(2)		(3)	
Z	Area B	Z	Area B	z	Area B
.00	.00	.50	.192	1.75	.460
.02	.008	.525	.200	1.80	.464
.04	.016	.60	.226	1.85	.468
.06	.024	.65	.242	1.90	.471
.08	.032	.675	.250	1.96	.475
.10	.040	.75	.273	2.00	.477
.12	.048	.80	.288	2.05	.480
.14	.056	.84	.300	2.10	.482
.16	.064	.90	.316	2.15	.484
.18	.071	.95	.329	2.20	.486
.20	.079	1.00	.341	2.25	.488
.22	.087	1.036	.350	2.30	.489
.24	.095	1.10	.364	2.33	.490
.26	.103	1.15	.375	2.40	.492
.28	.110	1.20	.385	2.45	.493
.30	.118	1.25	.394	2.50	.494
.32	.126	1.28	.400	2.55	.4946
.34	.133	1.35	.412	2.58	.4951
.36	.141	1.40	.419	2.65	.4960
.385	.150	1.45	.427	2.70	.4965
.40	.155	1.50	.433	2.81	.4975
.42	.163	1.55	.439	3.09	.4990
.44	.170	1.60	.445	3.30	.4995
.46	.177	1.645	.450	3.70	.4999
.48	.184	1.70	.455	4.00	.49997

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8	1.8595	2.3060	2.8965	3.3554	3.8325	4.5008	5.0414
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17	1.7396	2.1098	2.5669	2.8983	3.2224	3.6458	3.9651
18	1.7341	2.1009	2.5524	2.8784	3.1966	3.6105	3.9216
19	1.7291	2.0930	2.5395	2.8609	3.1737	3.5794	3.8834
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7	.582	.666	.750	.798
8	.549	.632	.716	.765
9	.521	.602	.685	.735
10	.497	.576	.658	.708
11	.476	.553	.634	.684
12	.458	.532	.612	.661
13	.441	.514	.592	.641
14	.426	.497	.574	.628
15	.412	.482	.558	.606
16	.400	.468	.542	.590
17	.389	.456	.528	.575
18	.378	.444	.516	.561
19	.369	.433	.503	.549
20	.360	.423	.492	.537
21	.352	.413	.482	.526
22	.344	.404	.472	.515

23	.337	.396	.462	.505
24	.330	.388	.453	.495
25	.323	.381	.445	.487
26	.317	.374	.437	.479
27	.311	.367	.430	.471
28	.306	.361	.423	.463
29	.301	.355	.416	.456