(*UNIVERSITY OF CHOICE*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS 2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS

MAIN EXAM

FOR THE DEGREE OF MASTERS IN EDUCATIONAL PSYCHOLOGY

COURSE CODE: PSY 814

COURSE TITLE: RESEARCH METHODS II

DATE: 27/04/2022 **TIME: 9:00 AM – 12:00 PM**

INSTRUCTIONS TO CANDIDATES

ANSWER 4 QUESTIONS
QUESTION ONE (1) IS COMPULSORY
ANSWER THREE OTHER (3) QUESTIONS

TIME: 3 HOURS

1a) Distinguish between the following:

i) Null and alternative hypotheses (3mks)
ii) One tailed and two tailed tests (3mks)
iii) Type I and Type II errors. (3mks)

b) Height determinations were made from a sample of 15 individuals who gave a mean of 96, Standard deviation of 35. Can we conclude that the mean is different to 120? (6mks)

2. In a mock examination, the overall mean score was 100 and the standard deviation 20. Assuming that the scores were normally distributed and the classes which did the mock had 200 pupils altogether:

i) How many pupils scored marks between 80 and 120? (5mks)
ii) How many scored between 110 and 120? (5mks)
iii) Which score separates the upper 20% of scores from the lower 80 in the mock examination? (5mks)

3. A sample of students from an introductory psychology class were polled regarding the number of hours they spent studying for the last exam. All students anonymously submitted the number of hours on a 3 by 5 card. There were 24 individuals in the one section of the course polled. The data was used to make inferences regarding the other students taking the course. There data are below:

4.5	**22**	**7**	**14.5**	**9**	**9**	**3.5**	**8**	**11**	**7.5**	**18**	**20**
7.5	**9**	**10.5**	**15**	**19**	**2.5**	**5**	**9**	**8.5**	**14**	**20**	**8**

Compute the following:

i. Mean (2mks)
ii. Standard Deviation (2mks)
iii. Standard Error (5mks)
iv. Construct a 95 percent confidence interval. What does this tell us? (6mks)

3. Below find data on the study hours of 6 female students and 5 male students. Using independent sample t test, test whether the means of two populations are equal. (15mks)

H_0: $\mu_1 - \mu_2 = 0$

H_1: $\mu_1 - \mu_2 \neq 0$

Female	**Male**
26	23
25	30
43	18
34	25
18	28
52	

5) Researchers interested in determining if there is a relationship between death anxiety and religiosity conducted the following study. Subjects completed a death anxiety scale (high score = high anxiety) and also completed a checklist designed to measure an individual's degree of religiosity (belief in a particular religion, regular attendance at religious services, number of times per week they regularly pray, etc.) (high score = greater religiosity . A data sample is provided below:

Death Anxiety	**Religiosity**
38	4
42	3
29	11
31	5
28	9
15	6
24	14
17	9
19	10
11	15
8	19
19	17
3	10
14	14
6	18

a) What is your computed answer? (10mks)
b) What does this statistic mean concerning the relationship between death anxiety and religiosity? (5mks)

THE CRITICAL TABLES

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

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
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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