No. of Printed Pages : 9 **RJM-102**

Ph. D. IN JOURNALISM AND MASS COMMUNICATION (PHDJMC)

Term-End Examination

December, 2023

RJM-102 : DATA ANALYSIS AND STATISTICAL APPLICATIONS

Time : 3 Hours *Maximum Marks : 100*

Note **:** (*i*) *Section A is compulsory.*

(*ii*) *Answer any* ***four*** *questions from Section B and any* ***two*** *questions from Section C.*

(*iii*) *Simple calculator is allowed.*

Section—A

Note *: Answer all the following questions.* *10×2=20*

1. Likert Scale

2. Mode

3. Inferential Statistics

4. Confidence Level

P. T. O.

5. Null Hypothesis
6. Ratio Data
7. Frequency Distribution
8. Degree of Freedom
9. Continuous Variable
10. Analysis of Variance (ANOVA)

Section—B

Note *: Answer any* ***four*** *questions.* *4×10=40*

11. A film producer is bringing out a new film. In order to map the advertising campaign, s/he wants to determine whether the film will appeal to a particular age group or whether it will appeal equally to all groups. The producer takes a random sample from persons attending the preview of the new film and gets the following data :

Age Groups					
	Below 20	**20-39**	**40-59**	**60 and above**	**Total**
Liked	146	78	48	28	300
Disliked	54	22	42	22	140
Neutral	20	10	10	20	60
Total	220	110	100	70	500

With the help of a suitable non-parametric statistical tool, find the significance of the difference between the appeal of the film age groups. Using the attached table values, what inference will you draw from this result ?

12. The following data gives the distribution of ages of 500 media persons. Calculate their mean and standard deviation :

Age (in Years)	**No. of Media Persons**
20–25	170
25–30	110
30–35	80
35–40	45
40–45	40
45–50	30
50–55	25

13. Calculate the rank correlation between the size of a family and the readership of a newspaper from the following table :

	Size of Family	**Readership**
F1	17	36
F2	13	46
F3	15	35
F4	16	24
F5	06	12
F6	11	18
F7	14	27
F8	9	22
F9	7	2
F10	12	8

14. Fifty students of Master of Mass Communication secured the following marks in the paper of editing. Find their mean, median, and mode :

32, 30, 45, 75, 35, 33, 51, 61, 44, 33, 45, 48, 56, 71, 70, 73, 80, 34, 46, 44, 48, 33, 31, 46, 61, 63, 64, 68, 69, 76, 77, 79, 71, 75, 55, 56, 34, 36, 38, 40, 32, 49, 51, 58, 55, 31, 62, 66, 45, 62.

15. "In a study focusing on the digital literacy skills of individuals in urban and rural areas, the researchers wanted to examine the distribution of digital literacy levels (High, Moderate, Low) among the following two geographical categories. The research statement is "Do digital literacy level differ significantly between urban and rural populations ?" Use the statistical test to prove or disprove your hypothesis. Use the attached table for the interpretation of your findings.

Geographical Area	High	Moderate	Low
Urban	100	150	50
Rural	40	80	120

Section—C

Note *: Answer any* ***two*** *questions.* *2×20=40*

16. To find out the effect of three different media techniques on the training of media students on a particular journalistic skill was experimented. Three groups, each consisting of

seven media students, assigned randomly were trained through these three different media techniques. The scores obtained on a performance were recorded as below :

Group I	**Group II**	**Group III**
3	4	5
5	5	5
3	3	5
1	4	1
7	9	7
3	5	3
6	5	7

Test the difference between the groups with the help of a parametric statistical tool and interpret your data using the table.

17. Find out the correlation coefficient between the AI based game's score and preparation time to

understand the game. Use the attached table interpret your hypothesis results.

AI based Game's Score	Denoted as X in the below table
Preparation time to understand AI	Denoted as Y in the below table

X	Y
50	16
94	80
88	60
71	56
75	47
71	43
68	40
73	67
57	16
59	21
65	54
67	40
60	39
60	38
45	8
61	34

18. Find the difference between groups. One is a control group and another one is a treatment group. The context is to measure the level of knowledge acquired through newspaper readings. Use the attached table while interpreting your hypothesis.

C Group	**T Group**
63	59
95	68
81	45
75	52
90	76
64	78
45	50
59	75
72	64
35	86

Critical values of the Chi-square distribution with *d* degrees of freedom

	Probability of exceeding the critical value						
d	0.05	0.01	0.001	*d*	0.05	0.01	0.001
1	3.841	6.635	10.828	11	19.675	24.725	31.264
2	5.991	9.210	13.816	12	21.026	26.217	32.910
3	7.815	11.345	16.266	13	22.362	27.688	34.528
4	9.488	13.277	18.467	14	23.685	29.141	36.123
5	11.070	15.086	20.515	15	24.996	30.578	37.697
6	12.592	16.812	22.458	16	26.296	32.000	39.252
7	14.067	18.475	24.322	17	27.587	33.409	40.790
8	15.507	20.090	26.125	18	28.869	34.805	42.312
9	16.919	21.666	27.877	19	30.144	36.191	43.820
10	18.307	23.209	29.588	20	31.410	37.566	45.315

INTRODUCTION TO POPULATION GENETICS, **Table D.1**

Critical values of *t* for one-tailed tests

Significance level (α)

Degrees of freedom *(df)*	.2	.15	.1	.05	.025	.01	.005	.001
1	1.376	1.963	3.078	6.314	12.706	31.821	63.657	318.309
2	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327
3	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215
4	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173
5	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893
6	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208
7	0.896	1.119	1.415	1.895	2.365	2.998	3.498	4.785
8	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501
9	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297
10	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144
11	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025
12	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930
13	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852
14	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787
15	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733
16	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686
17	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646
18	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610
19	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579
20	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552
21	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527
22	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505
23	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485
24	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467
25	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450
26	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435
27	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421
28	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408
29	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396
30	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385
40	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307
50	0.849	1.047	1.299	1.676	2.009	2.403	2.678	3.261
60	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232
70	0.847	1.044	1.294	1.667	1.994	2.381	2.648	3.211
80	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195
100	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174
1000	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098
Infinite	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090

F Distribution table [alpha=0.025]

Denominator Degrees of Freedom

df₂ \ df₁	10	12	15	20	24	30	40	60	120	
1	968.6274	976.7079	984.8668	993.1028	997.2492	1001.414	1005.598	1009.8	1014.02	1018.258
2	39.398	39.4146	39.4313	39.4479	39.4562	39.465	39.473	39.481	39.49	39.498
3	14.4189	14.3366	14.2527	14.1674	14.1241	14.081	14.037	13.992	13.947	13.902
4	8.8439	8.7512	8.6565	8.5599	8.5109	8.461	8.411	8.36	8.309	8.257
5	6.6192	6.5245	6.4277	6.3286	6.278	6.227	6.175	6.123	6.069	6.015
6	5.4613	5.3662	5.2687	5.1684	5.1172	5.065	5.012	4.959	4.904	4.849
7	4.7611	4.6658	4.5678	4.4667	4.415	4.362	4.309	4.254	4.199	4.142
8	4.2951	4.1997	4.1012	3.9995	3.9472	3.894	3.84	3.784	3.728	3.67
9	3.9639	3.8682	3.7694	3.6669	3.6142	3.56	3.505	3.449	3.392	3.333
10	3.7168	3.6209	3.5217	3.4185	3.3654	3.311	3.255	3.198	3.14	3.08
11	3.5257	3.4296	3.3299	3.2261	3.1725	3.118	3.061	3.004	2.944	2.883
12	3.3736	3.2773	3.1772	3.0728	3.0187	2.963	2.906	2.848	2.787	2.725
13	3.2497	3.1532	3.0527	2.9477	2.8932	2.837	2.78	2.72	2.659	2.595
14	3.1469	3.0502	2.9493	2.8437	2.7888	2.732	2.674	2.614	2.552	2.487
15	3.0602	2.9633	2.8621	2.7559	2.7006	2.644	2.585	2.524	2.461	2.395
16	2.9862	2.889	2.7875	2.6808	2.6252	2.568	2.509	2.447	2.383	2.316
17	2.9222	2.8249	2.723	2.6158	2.5598	2.502	2.442	2.38	2.315	2.247
18	2.8664	2.7689	2.6667	2.559	2.5027	2.445	2.384	2.321	2.256	2.187
19	2.8172	2.7196	2.6171	2.5089	2.4523	2.394	2.333	2.27	2.203	2.133
20	2.7737	2.6758	2.5731	2.4645	2.4076	2.349	2.287	2.223	2.156	2.085
21	2.7348	2.6368	2.5338	2.4247	2.3675	2.308	2.246	2.182	2.114	2.042
22	2.6998	2.6017	2.4984	2.389	2.3315	2.272	2.21	2.145	2.076	2.003
23	2.6682	2.5699	2.4665	2.3567	2.2989	2.239	2.176	2.111	2.041	1.968
24	2.6396	2.5411	2.4374	2.3273	2.2693	2.209	2.146	2.08	2.01	1.935
25	2.6135	2.5149	2.411	2.3005	2.2422	2.182	2.118	2.052	1.981	1.906
26	2.5896	2.4908	2.3867	2.2759	2.2174	2.157	2.093	2.026	1.954	1.878
27	2.5676	2.4688	2.3644	2.2533	2.1946	2.133	2.069	2.002	1.93	1.853
28	2.5473	2.4484	2.3438	2.2324	2.1735	2.112	2.048	1.98	1.907	1.829
29	2.5286	2.4295	2.3248	2.2131	2.154	2.092	2.028	1.959	1.886	1.807
30	2.5112	2.412	2.3072	2.1952	2.1359	2.074	2.009	1.94	1.866	1.787
40	2.3882	2.2882	2.1819	2.0677	2.0069	1.943	1.875	1.803	1.724	1.637
60	2.2702	2.1692	2.0613	1.9445	1.8817	1.815	1.744	1.667	1.581	1.482
120	2.157	2.0548	1.945	1.8249	1.7597	1.69	1.614	1.53	1.433	1.31
8	2.0483	1.9447	1.8326	1.7085	1.6402	1.566	1.484	1.388	1.268	1