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RJM-102

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

Term-End Examination

December, 2024

**RJM-102 : DATA ANALYSIS AND STATISTICAL
APPLICATIONS**

Time : 3 Hours

Maximum Marks : 100

Note : *Section A is compulsory. Attempt any **four** questions from Section B and any **two** questions from Section C. Simple calculator is allowed.*

Section—A

Note : Answer *all* the following questions. $10 \times 2 = 20$

1. Sampling
2. Median
3. Descriptive Statistics
4. Qualitative Data

5. Alternate Hypothesis
6. Interval Data
7. Semantic Differential Scale
8. Bar chart
9. Sampling error
10. Chi-square test

Section—B

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

11. A film producer is bringing out a new film. In order to map its advertising campaign s/he wants to determine whether the film will appeal most 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	140	80	40	20	280
Disliked	60	50	30	80	220
Total	200	130	70	100	500

With the help of a suitable non-parametric statistical tool, find the significance of the difference between the appeal of the film and the age groups. What inference will you draw from this results ?

12. Find the mean standard deviation of the TV audience under different ages given as follows :

TV audience age under	10	20	30	40	50	60	70	80
No. of Persons	15	30	53	75	100	110	115	125

13. Find the correlation coefficient of the rank of the following articles and feature numbers published in magazines in one year :

Magazines	Articles (in 1 year)	Features (in 1 year)
A	80	82
B	45	86
C	55	50
D	56	48
E	58	60
F	60	62

G	65	64
H	68	65
I	70	70
J	75	74
K	85	90

14. Find mean, median and mode from the following data :

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	8	14	25	18	25	10	5

15. Use the given table data to prove as disprove this statement, “Do the media literacy levels differ significantly among age groups (18–25, 26–40, 41–60 and 60+)” ? Use the attached table for the interpretation of your findings :

Age/Group	Excellent	Good	Fair	Poor	Total
18–25	35	40	15	5	95
26–40	30	45	20	10	105
41–60	20	25	30	15	90
60+	10	15	25	30	80

Section—C

Note : Answer any *two* questions. $2 \times 20 = 40$

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

Group I	Group II	Group III
25	31	24
30	39	30
36	38	28
38	42	25
31	35	28

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 number of successful male broadcasters and female broadcasters of the following data :

Male Broad-casters	46	42	44	40	43	41	45
Female Broad-casters	40	38	36	35	39	37	41

18. “Is there a significant difference in media literacy scores between two groups of individuals : those who have participated in a media literacy programme and those who have not participated, with the aim of addressing digital inequalities ?” Test this research question through the following dataset. Use the attached table to interpret the results :

Media Literacy Scores (Participants of MIL training programme)	85, 92, 78, 88, 95, 87, 91, 89, 83, 86
Media Literacy Scores (Non-Participants of MIL training programme)	70, 75, 82, 68, 77, 72, 79, 81, 74, 71

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
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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	3.499	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 ($\alpha = 0.025$ in the Right Tail)

df ₂	df ₁	Numerator Degrees of Freedom									
		10	12	15	20	24	30	40	60	120	∞
1		968.63	976.71	984.87	993.10	997.25	1001.4	1005.6	1009.8	1014.0	1018.3
2		39.398	39.415	39.431	39.448	39.456	39.465	39.473	39.481	39.490	39.498
3		14.419	14.337	14.253	14.167	14.124	14.081	14.037	13.992	13.947	13.902
4		8.8439	8.7512	8.6565	8.5599	8.5109	8.4613	8.4111	8.3604	8.3092	8.2573
5		6.6192	6.5245	6.4277	6.3286	6.2780	6.2269	6.1750	6.1225	6.0693	6.0153
6		5.4613	5.3662	5.2687	5.1684	5.1172	5.0652	5.0125	4.9589	4.9044	4.8491
7		4.7611	4.6658	4.5678	4.4667	4.4150	4.3624	4.3089	4.2544	4.1989	4.1423
8		4.2951	4.1997	4.1012	3.9995	3.9472	3.8940	3.8398	3.7844	3.7279	3.6702
9		3.9639	3.8682	3.7694	3.6669	3.6142	3.5604	3.5055	3.4493	3.3918	3.3329
10		3.7168	3.6209	3.5217	3.4185	3.3654	3.3110	3.2554	3.1984	3.1399	3.0798
11		3.5257	3.4296	3.3299	3.2261	3.1725	3.1176	3.0613	3.0035	2.9441	2.8828
12		3.3736	3.2773	3.1772	3.0728	3.0187	2.9633	2.9063	2.8478	2.7874	2.7249
13		3.2497	3.1532	3.0527	2.9477	2.8932	2.8372	2.7797	2.7204	2.6590	2.5955
14		3.1469	3.0502	2.9493	2.8437	2.7888	2.7324	2.6742	2.6142	2.5519	2.4872
15		3.0602	2.9633	2.8621	2.7559	2.7006	2.6437	2.5850	2.5242	2.4611	2.3953
16		2.9862	2.8890	2.7875	2.6808	2.6252	2.5678	2.5085	2.4471	2.3831	2.3163
17		2.9222	2.8249	2.7230	2.6158	2.5598	2.5020	2.4422	2.3801	2.3153	2.2474
18		2.8664	2.7689	2.6667	2.5590	2.5027	2.4445	2.3842	2.3214	2.2558	2.1869
19		2.8172	2.7196	2.6171	2.5089	2.4523	2.3937	2.3329	2.2696	2.2032	2.1333
20		2.7737	2.6758	2.5731	2.4645	2.4076	2.3486	2.2873	2.2234	2.1562	2.0853
21		2.7348	2.6368	2.5338	2.4247	2.3675	2.3082	2.2465	2.1819	2.1141	2.0422
22		2.6998	2.6017	2.4984	2.3890	2.3315	2.2718	2.2097	2.1446	2.0760	2.0032
23		2.6682	2.5699	2.4665	2.3567	2.2989	2.2389	2.1763	2.1107	2.0415	1.9677
24		2.6396	2.5411	2.4374	2.3273	2.2693	2.2090	2.1460	2.0799	2.0099	1.9353
25		2.6135	2.5149	2.4110	2.3005	2.2422	2.1816	2.1183	2.0516	1.9811	1.9055
26		2.5896	2.4908	2.3867	2.2759	2.2174	2.1565	2.0928	2.0257	1.9545	1.8781
27		2.5676	2.4688	2.3644	2.2533	2.1946	2.1334	2.0693	2.0018	1.9299	1.8527
28		2.5473	2.4484	2.3438	2.2324	2.1735	2.1121	2.0477	1.9797	1.9072	1.8291
29		2.5286	2.4295	2.3248	2.2131	2.1540	2.0923	2.0276	1.9591	1.8861	1.8072
30		2.5112	2.4120	2.3072	2.1952	2.1359	2.0739	2.0089	1.9400	1.8664	1.7867
40		2.3882	2.2882	2.1819	2.0677	2.0069	1.9429	1.8752	1.8028	1.7242	1.6371
60		2.2702	2.1692	2.0613	1.9445	1.8817	1.8152	1.7440	1.6668	1.5810	1.4821
120		2.1570	2.0548	1.9450	1.8249	1.7597	1.6899	1.6141	1.5299	1.4327	1.3104
∞		2.0483	1.9447	1.8326	1.7085	1.6402	1.5660	1.4835	1.3883	1.2684	1.0000

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