No. of Printed Pages : 11 **RJM–102**

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

Term-End Examination

June, 2026

RJM-102 : DATA ANALYSIS AND STATISTICAL APPLICATIONS

Time : 3 Hours *Maximum Marks : 100*

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

Section—A

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

1. Standard Deviation
2. Median

3. Descriptive Statistics
4. Sampling Error
5. Alternative Hypothesis
6. Nominal Data
7. Normal Distribution
8. Correlation Coefficient
9. Discrete Variable
10. Chi-Square Test

Section—B

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

11. A television network wants to study viewer preferences for different genres (News, Drama, Comedy, Reality Shows) across various income groups. A random sample of 400 viewers was surveyed, and the following data were obtained. Using a suitable non-parametric statistical test, determine whether viewer preference for genre is significantly associated with income group.

Use the attached table values to draw your inference.

Income Group	News	Drama	Comedy	Reality Shows	Total
Low	40	30	20	10	100
Middle	50	60	50	40	200
High	30	20	30	20	100
Total	120	110	100	70	400

12. The following data gives the distribution of experience (in years) of 400 journalists working in print and digital media. Calculate their mean and standard deviation:

Experience (Yrs)	No. of Journalists
0—5	120
5—10	100
10—15	80
15—20	55
20—25	30
25—30	15

13. Calculate the rank correlation between newspaper circulation figures (in thousands) and the number of advertisements (per issue) from the following table:

	Circulation ('000s)	**Advertisements**
N1	45	38
N2	32	28
N3	55	50
N4	28	22
N5	18	15
N6	40	35
N7	36	30
N8	22	18
N9	14	8
N10	25	20

14. Forty students of the Bachelor of Journalism secured the following marks in the Media Research paper. Find their mean, median, and mode :

    45, 52, 38, 67, 55, 48, 72, 63, 41, 58, 75, 49, 56, 80, 35, 44, 68, 51, 57, 65, 42, 70, 47, 53, 61, 37, 66, 43, 59, 71, 40, 54, 64, 46, 78, 36, 50, 60, 39, 74.

15. A study was conducted to examine whether the level of social media usage (High, Moderate, Low) differs significantly between male and female media students. The research statement is "Is there a significant association between gender and social media usage among media students?" Use the appropriate statistical test to prove or disprove your hypothesis. Use the attached table for interpretation.

Gender	High	Moderate	Low	Total
Male	120	80	40	240
Female	80	110	60	250
Total	200	190	100	490

Section—C

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

16. A study was designed to examine the effect of three different media training methods (Lecture, Workshop, and Simulation) on the writing skill scores of journalism students. Three groups of eight students each were randomly assigned to each training method. The scores recorded on a performance test are as follows. Test the difference between the groups using a suitable parametric statistical tool and interpret your findings using the attached table.

Group I (Lecture)	Group II (Workshop)	Group III (Simulation)
6	5	8
8	7	9
5	6	7
7	8	8
9	7	10
6	5	9
8	6	8
7	8	7

17. Find the correlation coefficient between the number of social media followers (in thousands) of journalists and their average engagement rate (%). Use the attached table to interpret your hypothesis results.

Variables	
X (Followers '000s)	**Y (Engagement %)**
25	8
48	15
72	22
36	12
60	18
85	28
42	14
55	17
68	20
30	10
50	16
90	30
78	25
65	21
40	13
58	19

18. Find the difference between two groups. The context is to measure the reading comprehension scores of media students who read print newspapers (Group-I) vs. those who consume digital news (Group-II). Use the attached table while interpreting your hypothesis.

Group	
Group–I	**Group–II**
72	65
85	72
68	58
91	80
78	70
65	68
88	75
75	62
82	77
69	71

Statistical Reference Tables

Table 1: Critical Values of the Chi-Square Distribution

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

Table 2 : Critical Values of *t* (One-Tailed Tests) - Significance Level (α)

df	.20	.15	.10	.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
12	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930
15	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733
20	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552
25	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450
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
60	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232
100	0.845	1.042.	1.290	1.660	1.984	2.364	2.626	3.174
Inf	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090

Table 3: F-Distribution Critical Values ($\alpha = 0.05$)

df2\df1	2	3	4	5	6	7	8	10	12
1	199.5	215.7	224.6	230.2	234.0	236.8	238.9	241.9	243.9
2	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.40	19.41
3	9.552	9.277	9.117	9.013	8.941	8.887	8.845	8.786	8.745
4	6.944	6.591	6.388	6.256	6.163	6.094	6.041	5.964	5.912
5	5.786	5.409	5.192	5.050	4.950	4.876	4.818	4.735	4.678
6	5.143	4.757	4.534	4.387	4.284	4.207	4.147	4.060	4.000
7	4.737	4.347	4.120	3.972	3.866	3.787	3.726	3.637	3.575
8	4.459	4.066	3.838	3.687	3.581	3.500	3.438	3.347	3.284
9	4.256	3.863	3.633	3.482	3.374	3.293	3.230	3.137	3.073
10	4.103	3.708	3.478	3.326	3.217	3.135	3.072	2.978	2.913
12	3.885	3.490	3.259	3.106	2.996	2.913	2.849	2.753	2.687
15	3.682	3.287	3.056	2.901	2.790	2.707	2.641	2.544	2.475
20	3.493	3.098	2.866	2.711	2.599	2.514	2.447	2.348	2.278
30	3.316	2.922	2.690	2.534	2.421	2.334	2.266	2.165	2.092
40	3.232	2.839	2.606	2.449	2.336	2.249	2.180	2.077	2.003
60	3.150	2.758	2.525	2.368	2.254	2.167	2.097	1.993	1.917
120	3.072	2.680	2.447	2.290	2.175	2.087	2.016	1.910	1.834
Inf	2.996	2.605	2.372	2.214	2.099	2.010	1.938	1.831	1.752

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