

Total No. of Pages 6+1 page of t-table

Roll No.....

II SEMESTER

MBA (General)

END SEMESTER EXAMINATION

May/June-2019

PAPER CODE MGT-23 &

TITLE OF PAPER Business Research Methods

Time: 3:00 Hours

Max. Marks: 60

Note: Assume suitable missing data, if any.
Read the Instructions Carefully with each question
Statistical table for t test are provided with the paper

Q1. Short Answer Questions

(Attempt any 5 parts from (a) – (f), 3 Marks each) (15)

- a. Explain the role of business research in business decision making. Give an example of pure research explaining its use in business decision making.
- b. Discuss two applications of factor analysis in business research.
- c. Compare the cross-sectional and longitudinal research designs providing an example of each.
- d. Identify and explain three sources of errors in survey research.
- e. Describe random and stratified sampling methods in probability sampling.
- f. Explain type 1 and type 2 error in hypothesis testing.

Q2. Long Answer Questions
(Attempt any 3 parts from (a) – (d), 5 Marks each)

(15)

- a.
 - i. What is questionnaire?
 - ii. Discuss the difference between structured and unstructured questionnaires.
 - iii. Discuss the two main points that you will take into account while drafting a questionnaire?
- b. What do you mean by primary data? Explain three methods of collecting primary data?
- c.
 - i. Differentiate between comparative and non-comparative scaling.
 - ii. Explain the comparative scaling method - paired comparison scaling.
 - iii. Explain the non-comparative scaling method - itemized rating scaling.
- d. Describe the sampling design process. Discuss two factors that calls for the use of large samples.

Q3. A sample of 20 undergraduate students answered the following questions

- What is your gender?
- What is your age?
- What is your height?
- What is your major area of study?
- Are you planning to attend a graduate school?
- What is your current CGPA?
- What starting salary you are expecting if you seek campus placement?
- How satisfied you are with the facilities available in the campus (rate on a scale of 1 to 5)?

Based on the survey answer the following questions

- i. Classify the variables Gender, Height, CGPA and Satisfaction on the scale of measurement. (2)
- ii. Is the data cross-sectional or time series? (1)
- iii. Make a frequency distribution of majors selected by the students and show it graphically using a bar chart. (3)
- iv. Make a frequency distribution of current CGPA and show it graphically in a histogram. (3)
- v. Compute the mean and variance of age. (2)
- vi. Draw a scatter plot between current CGPA (X) and expected salary (Y). Interpret the relationship. (2)
- vii. Make a cross tabulation of Majors and Grad School variables. (2)

Student	Gender	Age	Height	Major	Grad School	CGPA	Exp. Salary (1000 INR)	Satisfaction
1	Male	18	69	Marketing	Yes	3.19	40	2
2	Male	21	67	IT	No	3.11	50	2
3	Male	20	68	Economics	No	3.02	50	4
4	Male	18	79	Economics	Yes	4.00	50	5
5	Male	19	67	IT	Yes	2.75	40	1
6	Male	20	70	Accounting	Yes	3.24	60	5
7	Male	20	68	Economics	Yes	2.93	50	4
8	Male	21	71	IT	Yes	3.26	40	1
9	female	20	62	Marketing	No	3.21	45	4
10	Male	19	70	Accounting	Yes	3.23	50	3
11	Male	25	67	Accounting	No	3.77	60	4
12	female	19	65	Accounting	No	3.71	40	5
13	female	20	65	Accounting	No	3.20	45	3
14	female	21	65	Marketing	Yes	2.94	40	4
15	female	18	66	Marketing	Yes	3.22	40	3
16	Male	20	69	IT	No	3.34	60	5
17	female	18	64	Economics	No	3.09	40	1
18	Male	20	67	IT	No	3.72	50	4
19	Male	23	70	Economics	No	2.50	50	2
20	female	20	62	Marketing	No	2.21	55	3

Q4. Attempt any 2 parts from (a) to (c)

(7.5)

a. Shown below is the excel output of the regression analysis conducted on the following data of prices for books and the number of pages that each book contains.

Data		
Book	Pages (x)	Price (y)
A	500	7
B	700	7.5
C	750	9
D	590	6.5
E	540	7.5
F	650	7
G	480	4.5

Summary Output	
Regression Statistics	
Multiple R	0.75027
R Square	0.56291
Adjusted R Square	0.47549
Standard Error	0.98061
Observations	7

ANOVA					
	Df	SS	MS	F	Significance F
Regression	1	6.192	6.192	6.439	0.0520
Residual	5	4.808	0.962		
Total	6	11			

	Coefficients	Standard Error	t Stat	p-value
Intercept	1.0415	2.3772	0.4381	0.6796
X	0.0099	0.0039	2.5375	0.05204

- i. Form the simple linear regression equation to determine the price of the book based on the number of pages.
 - ii. Based on the regression model predict the price of the book if number of pages equals 600.
 - iii. What is the coefficient of determination? Explain its meaning.
 - iv. Comment on the significance of the regression model and the significance of the regression coefficient (X). Use $\alpha = 0.10$.
- (7.5)
- b. Models of 3 cars (A, B, and C) were compared for gasoline consumption. For each model of car, 15 cars were randomly selected and subjected to standard driving procedures. The average miles/gallon obtained for each model of car and sample standard deviations are shown below.

	Car A	Car B	Car C
Average Mile/Gallon	42	49	44
Sample Standard Deviation	4	5	3

- Use the above data and test to see if the mean gasoline consumption for all three models of cars is the same assuming $\alpha = 0.05$ based on critical value approach, assuming tabulated value of $F = 11.7$.
- (7.5)
- c. Two major automobile manufacturers have produced compact cars with the same size engines. We are interested in determining whether or not there is a significant difference in the MPG (miles per gallon) of the two brands of automobiles. A random sample of eight cars from each manufacturer is selected, and eight drivers are

selected to drive each automobile for a specified distance. The following data show the results of the test.

Driver	Manufacturer A	Manufacturer B
1	32	28
2	27	22
3	26	27
4	26	24
5	25	24
6	29	25
7	31	28
8	25	27

- i. Formulate the hypothesis to prove the researcher's claim that there is difference in the MPG (miles per gallon) of the two brands of automobiles.
- ii. Identify and compute the value of appropriate test statistic.
- iii. At 90% confidence using the critical value approach is there conclusive evidence to prove the researcher's claim.

t Table

cum. prob	$t_{.50}$	$t_{.75}$	$t_{.80}$	$t_{.85}$	$t_{.90}$	$t_{.95}$	$t_{.975}$	$t_{.99}$	$t_{.995}$	$t_{.999}$	$t_{.9995}$
one-tail	0.50	0.25	0.20	0.15	0.10	0.05	0.025	0.01	0.005	0.001	0.0005
two-tails	1.00	0.50	0.40	0.30	0.20	0.10	0.05	0.02	0.01	0.002	0.001
df											
1	0.000	1.000	1.376	1.963	3.078	6.314	12.71	31.82	63.66	318.31	636.62
2	0.000	0.816	1.061	1.386	1.886	2.920	4.303	6.965	9.925	22.327	31.599
3	0.000	0.765	0.978	1.250	1.638	2.353	3.182	4.541	5.841	10.215	12.924
4	0.000	0.741	0.941	1.190	1.533	2.132	2.776	3.747	4.604	7.173	8.610
5	0.000	0.727	0.920	1.156	1.476	2.015	2.571	3.365	4.032	5.893	6.869
6	0.000	0.718	0.906	1.134	1.440	1.943	2.447	3.143	3.707	5.208	5.959
7	0.000	0.711	0.896	1.119	1.415	1.895	2.365	2.998	3.499	4.785	5.408
8	0.000	0.706	0.889	1.108	1.397	1.860	2.306	2.896	3.355	4.501	5.041
9	0.000	0.703	0.883	1.100	1.383	1.833	2.262	2.821	3.250	4.297	4.781
10	0.000	0.700	0.879	1.093	1.372	1.812	2.228	2.764	3.169	4.144	4.587
11	0.000	0.697	0.876	1.088	1.363	1.796	2.201	2.718	3.106	4.025	4.437
12	0.000	0.695	0.873	1.083	1.356	1.782	2.179	2.681	3.055	3.930	4.318
13	0.000	0.694	0.870	1.079	1.350	1.771	2.160	2.650	3.012	3.852	4.221
14	0.000	0.692	0.868	1.076	1.345	1.761	2.145	2.624	2.977	3.787	4.140
15	0.000	0.691	0.866	1.074	1.341	1.753	2.131	2.602	2.947	3.733	4.073
16	0.000	0.690	0.865	1.071	1.337	1.746	2.120	2.583	2.921	3.686	4.015
17	0.000	0.689	0.863	1.069	1.333	1.740	2.110	2.567	2.898	3.646	3.965
18	0.000	0.688	0.862	1.067	1.330	1.734	2.101	2.552	2.878	3.610	3.922
19	0.000	0.688	0.861	1.066	1.328	1.729	2.093	2.539	2.861	3.579	3.883
20	0.000	0.687	0.860	1.064	1.325	1.725	2.086	2.528	2.845	3.552	3.850
21	0.000	0.686	0.859	1.063	1.323	1.721	2.080	2.518	2.831	3.527	3.819
22	0.000	0.686	0.858	1.061	1.321	1.717	2.074	2.508	2.819	3.505	3.792
23	0.000	0.685	0.858	1.060	1.319	1.714	2.069	2.500	2.807	3.485	3.768
24	0.000	0.685	0.857	1.059	1.318	1.711	2.064	2.492	2.797	3.467	3.745
25	0.000	0.684	0.856	1.058	1.316	1.708	2.060	2.485	2.787	3.450	3.725
26	0.000	0.684	0.856	1.058	1.315	1.706	2.056	2.479	2.779	3.435	3.707
27	0.000	0.684	0.855	1.057	1.314	1.703	2.052	2.473	2.771	3.421	3.690
28	0.000	0.683	0.855	1.056	1.313	1.701	2.048	2.467	2.763	3.408	3.674
29	0.000	0.683	0.854	1.055	1.311	1.699	2.045	2.462	2.756	3.396	3.659
30	0.000	0.683	0.854	1.055	1.310	1.697	2.042	2.457	2.750	3.385	3.646
40	0.000	0.681	0.851	1.050	1.303	1.684	2.021	2.423	2.704	3.307	3.551
60	0.000	0.679	0.848	1.045	1.296	1.671	2.000	2.390	2.660	3.232	3.460
80	0.000	0.678	0.846	1.043	1.292	1.664	1.990	2.374	2.639	3.195	3.416
100	0.000	0.677	0.845	1.042	1.290	1.660	1.984	2.364	2.626	3.174	3.390
1000	0.000	0.675	0.842	1.037	1.282	1.646	1.962	2.330	2.581	3.098	3.300
Z	0.000	0.674	0.842	1.036	1.282	1.645	1.960	2.326	2.576	3.090	3.291
	0%	50%	60%	70%	80%	90%	95%	98%	99%	99.8%	99.9%
	Confidence Level										