



**Institute of Management
JK Lakshmipat University, Jaipur
END TERM EXAMINATION 2015**

**MBA (FT) Sem-II
MM: 50 Marks**

**Course: Research Methods
Time: 3 Hours
Subject code: MBA203/MBA023A..**

Instructions: Attempt any three questions from Section A. Section B is compulsory.

Section A

Q1. -----(10 marks).

Multi-item scales for measuring perceptual and attitudinal variables are tested for "goodness of measure" to ensure that these scales accurately measure the target concept. In this context, explain what is meant by "reliability of the instrument", and also, how "validity of the measure" can be established. Discuss the various forms/types of reliability and validity referred to here.

Q2. -----(10 marks).

List the commonly used methods for collecting data in business research. Discuss their relative advantages and disadvantages and opine on the kind of situation when each should or can be used.

Q3. ----- (2+2+2+2=10 marks).

Laboratory and field experiments are useful for establishing or investigating cause and effect relationship between variables of interest. In this context:

- a) What conditions must be met before it can be concluded that an independent variable causes any change in a dependent variable?
- b) What are nuisance variables or confounding factors? Explain the possible ways in which these can be controlled.
- c) What is internal validity? Explain the concept.
- d) What are the various threats internal validity stands exposed to? List and describe.
- e) Explain the concept of "trade-off between internal validity and external validity".

Q4. ----- (10 marks).

Explain the need for "sampling" in business research and discuss the commonly used types of sampling designs or plans, indicating the advantages and limitations of each?

Q5. ----- (5+5=10 marks).

Quantitative analysis of collected data allows us to estimate various parameters of target groups and to test various hypotheses developed about variables of interest from the theoretical framework of our research. In this context:

- a) What are the measures of central tendency and dispersion, and the techniques to show relationships that can be appropriately used for nominal, ordinal, interval and ratio scaled variables, respectively?
- b) What are type I and type II errors in hypotheses testing and what does statistical power of testing mean? How are they inter-related?

Section B

Q6. -----(20 marks).

Do all parts (5+5+5+5 marks):

- a) Past university records indicate that scores of freshmen students on a particular type of quantitative aptitude test follow normal distribution with average 75 and standard deviation 6. The Dean institutes a new training programme for quantitative aptitude for the students. To see if the new method has any impact on quantitative aptitude of students, a random sample of students will be taken after the training and assessed on this test. What is the sample size necessary if the Dean wants to be able to detect any change in score of 3 marks with confidence level of 95%, i.e. at least 19 times out of 20?

b) Suppose that we conduct a survey of millionaires to find out what percent of their income the average millionaires donates to charity. We discover that the mean percent of income being donated by our random sample of 19 millionaires is 15% with a standard deviation of 5 percent. Find a 95% confidence interval for the mean percent of income being donated by millionaires to charity on the average in the general population. Assume that the distribution of all charity percents is approximately normal.

c) The following table gives the number of good and defective parts being produced during each of three shifts in a factory:

Shift	Good	Defective	Total
Morning	900	130	1030
Afternoon	700	170	870
Night	400	200	600
Total	2000	500	2500

Is there any association between the kind of shift and the quality of parts produced?

d) A company selects eight salesmen at random and their sales figures for the previous month are recorded. They then undergo a training course devised by a business consultant, and their sales figures for the following month are compared as shown in the table below. Has the training course caused an improvement in the salesmen's ability?

Salesman No.	1	2	3	4	5	6	7	8
Previous month	75	90	94	95	100	90	70	64
Following month	77	101	93	92	105	88	76	68

Extracts from statistical tables:

Z table:

Z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
1.5	0.43319	0.43448	0.43574	0.43699	0.43822	0.43943	0.44062	0.44179	0.44295	0.44408
1.6	0.4452	0.4463	0.44738	0.44845	0.4495	0.45053	0.45154	0.45254	0.45352	0.45449
1.7	0.45543	0.45637	0.45728	0.45818	0.45907	0.45994	0.4608	0.46164	0.46246	0.46327
1.8	0.46407	0.46485	0.46562	0.46638	0.46712	0.46784	0.46856	0.46926	0.46995	0.47062
1.9	0.47128	0.47193	0.47257	0.4732	0.47381	0.47441	0.475	0.47558	0.47615	0.4767
2	0.47725	0.47778	0.47831	0.47882	0.47932	0.47982	0.4803	0.48077	0.48124	0.48169

Chi Square table:

df	0.995	0.975	0.2	0.1	0.05	0.025	0.02	0.01	0.005	0.002	0.001
1	0.00004	0.00098	1.642	2.706	3.841	5.024	5.412	6.635	7.879	9.55	10.828
2	0.01	0.0506	3.219	4.605	5.991	7.378	7.824	9.21	10.597	12.429	13.816
3	0.0717	0.216	4.642	6.251	7.815	9.348	9.837	11.345	12.838	14.796	16.266
4	0.207	0.484	5.989	7.779	9.488	11.143	11.668	13.277	14.86	16.924	18.467
5	0.412	0.831	7.289	9.236	11.07	12.833	13.388	15.086	16.75	18.907	20.515

T table:

df	one-tailed	two-tailed
5	0.05	0.1
6	0.025	0.05
7	0.01	0.02
8	0.005	0.01
9	0.001	0.002
10	2.015	2.571
11	1.943	2.447
12	1.895	2.365
13	1.86	2.306
14	1.833	2.262
15	1.812	2.228
16	1.796	2.201
17	1.782	2.179
18	1.771	2.160
19	1.761	2.145
20	1.753	2.131
21	1.746	2.120
22	1.74	2.110
23	1.734	2.101
24	1.729	2.093
