



**Institute of Management
JK Lakshmipat University
Jaipur
END TERM EXAMINATION 2016**

MBA FT Sem-II
MM: 50 Marks

Course: Research Methods
Time: 3 Hours
Subject code: MBA 203

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

Section A

Q1A. "The researcher is not equipped to arrive at a focus and precise research question, till he carries out a thorough inventory check of the problem area".

Examine the above statement and justify with examples why you agree / disagree with it. (5 M)

Q1B. The diet drink manufacturer in a study finds that young woman are more health conscious and are looking at low calorie options. Thus, any communication or advertisement for the product has to emphasize the health aspects. The purchase probability is also influenced by their education level and the nature of their profession. Other factors such as available brands, celebrity endorsements and dietician's recommendations also have an impact on them. Based on this description

- a. Identify your research problem and hypothesis. (2 M)
- b. Identify and classify the variables under study. (1 M)
- c. Generate a theoretical framework for the study. (2 M)

Q2. Ankit a consultant for Radha International discovered that employees were uninterested to introduce ERP. There could be multiple reasons for their disinterest. Thus, it was essential that the team be studied to identify what were the group's reactions to working conditions at Radha International. Also, it was important to identify what was perceived as the major problem area. Ankit was also of the opinion that there might be a difference between the old and new employees. Thus this angle also was to be given due recognition when conducting a survey. Ankit's colleague Rohit suggested that this seems to be a logical approach to the problem, but don't you think that before you go to the team members you must atleast identify what could be the reasons for the poor response towards incorporation of ERP systems at Radha Inc. by looking at other organisations or by talking to HR consultant who has some experience of the same". Ankit listed alternatives and said, "I think there is a lot of merit in what you say. So this is what I will do".

- i. What is the research design(s) Ankit is likely to recommend. Why? (4 M)
- ii. Identify the variables, Hypothesis and the unit under study. (2 M)
- iii. How could you possibly improve the accuracy of the results obtained? (4 M)

Q3A. To determine the effectiveness of the advertising campaign for a new DVD player, the management would likely to know what percentage of the households is aware of the new brand. The advertising agency thinks that this figure is as high as 70 percent. The management would like a 95% confidence interval and a margin of error not greater than plus or minus 2%

- i. What sample size should be used for this study (2.5 M)
- ii. Suppose that management wanted a 99% confident with an error of plus or minus 3%. How would the sample size change (2.5 M)

(Note: 95 % area is covered within ± 1.96 standard deviations in a normal distribution. Also, 99 % area is covered within ± 2.58 standard deviations in a normal distribution)

Q3B. An automobile insurance company wants to estimate from a sample about what proportion of its policy holder's intent to buy a new car within the next 6 months. How large a sample is required to be able to assert with a 99% confidence that the sample proportion and true proportion will differ by less than .025. (5 M)

Q4A. In a population of razor blades, 15% are defective. What is the probability of randomly selecting 90 blades and finding 10 or less defective? (2.5 M)

Q4B. In a store, the mean expenditure per customer is Rs. 2000 with SD of Rs. 300. If a random sample of 50 customers is selected what is the probability that the sample average expenditure per customer is more than 2080. (2.5 M)

Q4C. What do you mean by paired sample t-test, mention some of the real life scenarios in which this test can be applied (5 M)

Q5. Describe the following:

- i. Eigen value (2M)
- ii. Communality (2M)
- iii. Factor loading (2M)
- iv. KMO and Bartlett's Test of Sphericity (2M)
- v. Varimax rotation (2M)



Section B

Q6. A. Over the last decade, recycling of household waste has become an extremely important behavior across the nation. However, in Asian countries this fluctuates from one country to another. China is the leader amongst waste management while India, an equally large country, still has a long way to go. Though, there are essentially policy driven or community driven initiatives, there are a number of attitudinal and motivational barriers to recycling, acting at and individual level.

Sunita, a business study graduate with a keen interest in environmental issues, read about this in a specific report in the newspaper. She recognized a potential business opportunity. It seemed obvious to her that there was scope for potentially lucrative business related to some aspects of household recycling. All she had to do was work out some way of alleviating the inconvenience people associated with recycling.

Sunita decided that a door to door recycling service may be a profitable way to get people to recycle. She believes that households will be willing to pay small fees to have their waste collected on weekly basis, from outside their homes. Sunita discussed this idea with a friend, who was very receptive. Reinforcing Sunita's views that there was indeed a good business opportunity. However, before she developed a detailed business plan, she decided it was essential to confirm her thoughts and suspicions regarding the consumer's views about recycling. In particular, she needed to check that her idea, about convenience and recycling, were on the right track. To do this, she decided to conduct some research into attitudes towards household recycling.

- i. What is the kind of research design you would advocate here, suggest a proper plan for the same. (4 M)
- ii. Identify your variables and population under study. (2 M)
- iii. Prepare a questionnaire for the study. (4 M)

Q6.B The manufacturers of Amul chocolates were interested in examining the relationship between the sales of the chocolates and the shelf space allocated to that brand of chocolate by various stores. Data was collected from 10 stores and part of the data is given below:

Store number	Sales (Rs. '000)	Shelf Space (Sqr. ft)
1	25	5
2	15	3.2
3	28	5.4
.	.	.
.	.	.
10	27	5.7

The output tables for the analysis of the given data are as follows:

Variables Entered / Removed^b

Model	Variables Entered	Variables Removed	Method
Dimension	Shelf Space (Sqr. Ft) ^a	.	Enter

- a. All requested variables entered.
- b. Dependant variable: Sales (Rs. '000)

Model Summary

Model	R	R square	Adjusted R square	Std. Error of the Estimate
Dimension	.837 ^a	.701	.663	3.586

- a. Predictors : (Constant), Shelf Space (Sqr. Ft)

Anova^b

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	241.098	1	241.098	18.744	.003 ^a
Residual	102.902	8	12.863		
Total	344.000	9			

- a. Predictors : (Constant), Shelf Space (Sqr. Ft)
- b. Dependant variable: Sales (Rs. '000)

Coefficients^a

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
1 (constant)	2.781	4.358	.837	.638	.541
Shelf Space (Sqr. Ft)	3.901	.901		4.329	.003

- a. Dependant variable: Sales (Rs. '000)



Answer the following questions based on the output of regression analysis:

i. Give interpretation of the following from the model summary table (2 M)

a) R b) R^2 c) Adjusted R^2

d) Standard error of estimate

ii. What does ANOVA table tells in regression model? (1 M)

iii. Based on the output write down the regression equation (1 M)

iv. Write the summary of your findings from the output given above (1 M)

Q6. C. Interpret the results of factor analysis done on the following questions to interpret the underlying dimensions related to attitudes towards job anxiety. The interpretations would involve

i. Interpret the rotated solutions (1 M)

ii. Name the factors (1 M)

iii. Calculate Eigen values of each factor (1 M)

iv. Calculate communalities for each variable (1 M)

v. What is the contribution of the identified factors towards total variance (1 M)

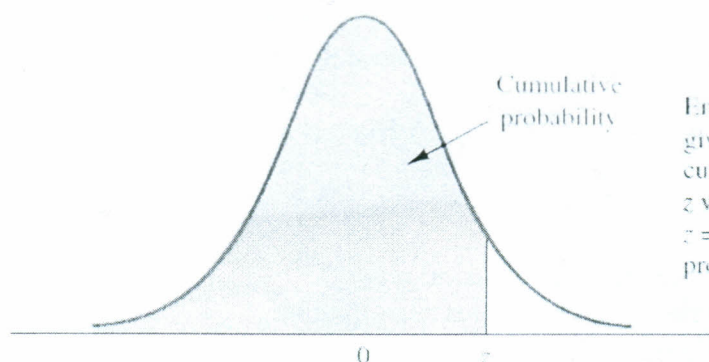
Table 1: KMO and Bartlett's Test

Kaiser Meyer Olkin Measure of Sample Adequacy		.760
Bartlett's Test of Spehericity	Approximate Chi Square	1552.631
	d.f.	15
	Sign.	.000

Table 2: Rotated Component Matrix

Attributes	Component 1	Component 2
I get heart palpitations when my boss calls me	.971	.088
Work life also spills over to personal life	.050.	.974
I do not feel like meeting people after I go home from office	.085	.920
A sitting job leads to digestive problems	.975	.095
I always like to stay back after working hours in the office	-.083	-.971
When I retire I may not be physically fit to enjoy my retired life	.977	.040

TABLE 1 CUMULATIVE PROBABILITIES FOR THE STANDARD NORMAL DISTRIBUTION (Continued)

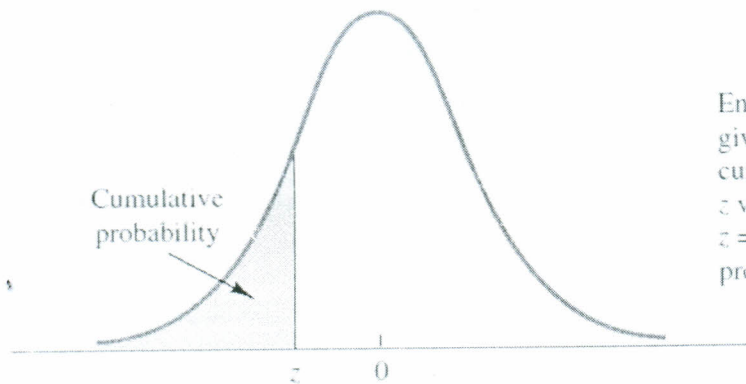


Entries in the table give the area under the curve to the left of the z value. For example, for $z = 1.25$, the cumulative probability is .8944.

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990



TABLE I CUMULATIVE PROBABILITIES FOR THE STANDARD NORMAL DISTRIBUTION



Entries in the table give the area under the curve to the left of the z value. For example, for $z = -0.85$, the cumulative probability is .1977.

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
-.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641