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DR. V. N. BEDEKAR INSTITUTE OF MANAGEMENT STUDIES

MMS SEM II END SEMESTER EXAMINATION APRIL 2007

RESEARCH METHODOLOGY

Date: 24/3/07

TIME 3 HRS. MARKS 100

N.B. 1) Attempt any FIVE questions
2) Figures to the right indicate full marks.
3) Statistical tables will be provided on request
4) Use of Calculator is allowed.

Q.1 a) What are the criteria or factors to be considered while selecting a research problem? (10)

b) Describe the considerations and steps involved in planning report writing work. (10)

Q.2 Write short notes on (Any FOUR) (5x4=20)

i) Schedules, Questionnaire
ii) Ordinal and Interval Scales
iii) Pilot Study.
iv) Type I and Type II Errors.
v) Reliability of a measure.
vi) Validity of a measure.

Q.3 a) The following table shows the frequency distribution of 60 clerks in a commercial concern according to the age and pay. Calculate the coefficient of correlation between the age and pay.

Age\Pay	150-155	155-160	160-165	165-170	170-175
25-30	3	5	2	--	--
30-35	2	5	4	3	--
35-40	2	3	4	4	2
40-45	--	2	3	4	3
45-50	--	--	2	4	3

(15)

b)Given two regression lines as $3x+2y=6$, and $7x+5y=12$ .Estimate the value of y when $x=6$. (5)

Q.4a) A certain medicine is given to each of the 9 patients results in following increase in blood pressure. Can it be concluded that the medicine will in general be accompanied by an increase in blood pressure?

-1, 6, -4, 5, -3, 4, 3, -1, 7 (10)

b) Intelligence test of two groups of boys and girls gives the following results.

	Mean	S.D.	Number
Girls	84	10	121
Boys	81	12	81

Is the difference in mean scores significant? Use 5% level of significance. (10)

Q.5 a) The following information is obtained concerning an investigation of 50 ordinary shops of small size.

	Shops	
	In Towns	In Villages
Run by Men	17	18
Run by Women	3	12

Can it be inferred that shops run by women are relatively more in villages than in towns? (10)

b) 240 heads and 160 tails were obtained in tossing of a coin 400 times. Does this appear to be an unbiased coin? (10)

Q.6 Perform ANOVA for the following. (20)

A	B	C	D	E
16	10	11	9	9
E	C	A	B	D
10	9	14	12	11
B	D	E	C	A
15	8	8	10	18
D	E	B	A	C
10	11	10	7	12
C	A	D	E	B
10	11	10	7	14

Q.7 a) In his experiments in pea breeding Mendel obtained the following frequency of seeds.
Round and Yellow-315,
Wrinkled and yellow -101,
Round and green-108,
Wrinkled and green-32, Total 556. Theory predicts that the frequencies should be in the proportion 9:3:3:1. Examine the correspondence between the theory and the observation. (10)

b) The following table gives the monthly Sales in thousands rupees of a certain firm in three states by it's four salesmen.

States\	Salesmen			
	A	B	C	D
X	5	4	4	7
Y	7	8	5	4
Z	9	6	6	7

State whether the difference between sales affected by the four salesme and difference between sales affected in three states are significant? (10)

Q.8 a) Given the following data use appropriate equation to estimate X1 when X2=15 and X3=10

	X1	X2	X3
Mean	10	12	15
Variance	9	4	16

Corr.coefficient between X1,X2=0.6,
Corr.coefficient between X1,X3=0.4
Corr.coefficient between X2,X3=0.7 (10)

b) Also obtain regression equations to estimate X2 for given X1 and X3, to estimate X3 for given X1 and X2. (10)

Q.9 a)Calculate Spearman's Rank correlation coefficient For the following data.

X: 46 67 54 78 34 67 54 67 56 89
Y: 34 54 35 65 44 54 67 78 87 90 (10)

b) Given (A)=490,(AB)=294,(αB)=380,(α)=570 Test the type of association between A and B. (10)

Q.10 a)Given the following correlation matrix find the three partial correlation coefficients and three multiple correlation coefficients. (10)

	X1	X2	X3
X1	1	0.8	0.6
X2	0.8	1	0.7
X3	0.6	0.7	1

b) The following information was provided by an investigator.
Out of 1000 students he interviewed 811 liked tea,752 liked coffee,418 liked chocolate,570 liked tea and coffee, 356 liked tea and chocolate,348 liked coffee and chocolate, 297 liked all three. Is there any inconsistency in data?

(10)

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