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34 (2) RMBI 2-5

2014

**RESEARCH METHODOLOGY AND  
BIostatISTICS**

*Full Marks : 80*

Time : Three hours

*The figures in the margin indicate full marks  
for the questions.*

1. Answer the following questions : *(any two)*  
2×10=20

- (i) What do you mean by 'Sample Design' ?  
What points should be taken into  
consideration by a researcher in developing  
a sample design for the research project ?

**OR**

Make a comparative study of the Mean,  
Median and Mode.

*Contd.*

- (ii) What is binomial distribution? Write characteristics of the distribution.

**OR**

What is tests of significance? Class A was taught in an intensive coaching facility whereas Class B in a normal class teaching. At the end of a session Class A and B averaged 48 and 43 with SD 6 and 7.40 respectively. Test whether intensive coaching has fetched gain in mean score to Class A. Class A constitutes 60 and Class B 80 students.

- (iii) What is Chi-square Test? Ninety-six subjects are asked to express their attitude towards the proposition "should AIDS education be integrated in the curriculum of physiotherapy" by marking F (favourable), I (indifferent) or U (unfavourable). It was observed that 48 marked 'F', 24 'I' and 24 'U'.
- (a) Test whether the observed results diverge significantly from the results to be expected if there are no preferences in the group.

**OR**

From the following data of 4 samples, calculate whether the four samples differ significantly in variance.

**Samples :**

Sample 1 : 9 11 13 9 8

Sample 2 : 13 12 10 15 5

Sample 3 : 19 13 17 7 9

Sample 4 : 14 10 13 17 16

2. Answer the following questions : **(any eight)**  
8×5=40

- (i) How would you make a comparison of mean, median and mode?
- (ii) What is Research? What are the objectives of research?
- (iii) What is ANOVA? What are the basic principles underlying ANOVA?
- (iv) How would you state a research problem?
- (v) Discuss the basic principles of research design.

(vi) Discuss the 'Rating Scale' as an important technique of scaling.

(vii) Draw a Smooth Frequency Polygon out of the given data : (Use Graph Paper)

CLASS-INTERVALS	FREQUENCY
10-14	1
15-19	2
20-24	4
25-29	8
30-34	11
35-39	9
40-44	7
45-49	4
50-54	3
55-59	1
	N = 50

(viii) Why the study of the statistics is important?

(ix) What is Questionnaire? What are the merits of a questionnaire?

(x) Write a note on computer as a tool in research.

(x) Calculate the mean number of living children per woman from the following table.

No. of living children	No. of women
0	42
1	49
2	57
3	40
4	31
5	22
Total	241

3. Answer in short :

10×2=20

(i) What is Research design?

(ii) What is Population?

(iii) What is Action Research?

(iv) What is sampling variation?

(v) What is Kurtosis?

(vi) What is Independent variable?

(vii) When should median be used ?

(viii) What is parameter ?

(ix) What is histogram ?

(x) What is hypothesis ?