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1791/M

M-36/2051

RESEARCH METHODOLOGY AND STATISTICS

Paper–I

Semester–IV

Time allowed : 3 Hours] [Maximum Marks : 54

Note : The candidates are required to attempt two questions of from Section A and Section B carrying 8 marks each and the entire Section C consisting of 11 questions carrying 2 marks each.

SECTION-A

1. Discuss in brief the methods generally used in the collection of primary data.

2. Represent the following information using a pie diagram :

	Item of Expenditure	Percentage
1.	Food	60
2.	Clothing	15
3.	Housing	14
4.	Medical	06
5.	Other items	05

3. (a) The mean weight of a student in a group of 6 students is 55 kg. The individual weights of five of them are 65, 70, 42, 50, 60. What os the weight of the sixth student?

   (b) Compute the standard deviation of the following data :

Variables X :	2	4	6	8	10
Frequency f :	10	8	8	10	4.

4. (a) Rank correlation of marks of 10 students was found to 0.2. It was later discovered that difference in rank in two items was wrongly taken as 9 instead of 7. Find the

correct value of co-efficient of rank correlation.

(b) A bag contains 20 tickets numbered 1 to 20. One ticket is drawn at random. Find the probability that number is multiple of 3 or 5.

SECTION-B

5. In an experiment, a variety of wheat was sown on 3 different dates. Following table shows the yield per plot (in Kgs.)

Date of sowing	Yield
D_1	12, 13, 14, 14, 13, 11
D_2	13, 12, 11, 10, 16, 17, 13
D_3	11, 10, 18, 13, 15, 15, 14, 13

Perform ANOVA to test whether difference between sowing is significant or not. Given tabulated $F_{.05, 2, 18} = 3.55$.

6. (a) Describe the procedure to test the significance of single mean if small sample is drawn from normal population with means and variance ^{2} (unknown).

(b) Following is distribution of 100 farm households according to farm size and education head of family.

	Education	
Farm size	Illiterate	Literate
Large	10	30
Small	40	20

is there any association between size of farm and literacy of households. Test at 5% level of significance.

Given $^2_{.05, 1} = 3.841$.

7. (a) Define F-distribution and discuss its important properties.

(b) Given the following information :

	Experimental Conditions	
	Type-I	Type-II
No. of observations	11	9
Sample s.d	25	80

Test at 5% level of significance

$H_0 = {}_1 = {}_2$ against $H_1 : {}_1 < {}_2$

Given Tabulated $F_{.05, 10, 8}$.

8. Write short notes on any two of the following :

(a) Report writing

(b) Thesis Writing

(c) Bibliography.

SECTION-C

5. (i) What do you mean by stratified sampling method of forming a sample ?

(ii) Explain the procedure of drawing frequency polygon and frequency curve.

(iii) Distinguish between classification and tabulation.

(iv) What is histogram? How is it formed when :

(a) Class intervals are equal

(b) Class intervals unequal.

(v) Write the relationship between mean, median and mode.

(vi) Write the limits of the co-relation co-efficient.

(vii) What is the relationship between co-relation co-efficien and regression co-efficient?

(viii) Describe the basic principles of experimentation.

(ix) Give the situation in which completely randomized design is used.

(x) What is meant by a Randomised block design?

(xi) What do you understand by large sample test?