

Mathematics: Business Statistics (R-2021)

[Time:3:00 Hrs.]

[Marks: 80]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to the right indicate full marks.
 3. Scientific calculator can be used.

Q.1 a) Explain Ideographs with one example. Also write its advantage and disadvantage. **10**

b) Attempt **any Two** of the following: **10**

i) Draw the more than and less than Ogive Curves for the following data: **5**

Weight in Kg 20-25 25 – 30 30 – 35 35 – 40 40 – 45

No of children 15 10 25 5 10

ii) Exhibit the following data in a suitable form. **5**

Exactly a fifth of the number of students in a university of strength 20,000 are ladies, 33 of every 40 students are maharashtrians, 13 out of every 16 gents are maharashtrians gents, 40% of non-maharashtrian gents and 55% maharashtrian gents have offered Arts subjects, whereas 40% of ladies from maharashtra and equal percentage of non-maharashtrian ladies have offered science subjects.

iii) The following data shows expenditure of two families. Represent the data by a subdivided bar diagram. **5**

Item	Family X	Family Y
Food	3500	4000
Clothing	3000	2500
Eduction	3200	3400
Other	2700	2500

Q.2 a) What are important features of a good average? **10**

b) Attempt **any Two** of the following: **10**

i) Given below is the performance of students of three colleges A, B and C in different courses. The data gives the percentage of students passed and no. of students (in '000). Using weighted average mean find out the best performing college. **5**

Colleges	College A		College B		College C	
B.A.	65%	2	80%	4	70%	3
B.Com.	54%	3	75%	4	50%	2
B.Sc.	72%	1	70%	2	80%	5

- ii) From the following data calculate the geometric mean.

Marks:	0-10	10-20	20-30	30-40	40-50
No. of students:	8	10	22	6	4

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- iii) If the total frequency for the following data is 100 and median is 31.5 find the missing frequencies.

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C.I.	0.5–10.5	10.5–20.5	20.5–30.5	30.5–40.5	40.5–50.5	50.5–60.5	60.5–70.5
Frequency	8	-	25	20	16	-	6

- Q.3 a) Define Dispersion of data and discuss the importance of different measures of Dispersion. Also explain the advantages of Quartile deviation over Range

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- b) Attempt any Two of the following:

10

- i) Calculate quartile deviation for the following data:

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Class interval	100-149	150-199	200-249	250-299	300-349
Frequency	15	18	14	20	17

- ii) The following data are available for two groups of workers in a factory. Which group is more consistent?.

5

	Group I	Group II
Number of workers	60	90
Average daily wages (Rs.)	120	115
Standard deviation (Rs.)	7	8

- iii) Calculate the Mean deviation from mean for the following data giving daily wages of a group of workers in a farm.

5

Wages (Rs.)	0-10	10-20	20-30	30-40	40-50	50-60
Workers	7	10	24	40	10	9

Q.4 a) Define raw and central moments of a frequency distribution. Also describe Sheppard's Correction for Moments. **10**

b) Attempt **any Two** of the following: **10**

i) Find the Bowley's coefficient of Skewness for the following distribution: **5**

X	1	3	5	7	9	11
F	3	8	14	20	18	7

ii) Find the central moments for the following data: **5**

Class interval	0-20	20-40	40-60	60-80
Frequency	4	7	6	3

iii) Find the skewness and kurtosis for the following distribution by the method of moments: **5**

Number of hours worked	1-3	3-5	5-7	7-9
Number of boys	3	5	1	1
