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Semester III/V (B.Tech./B.Sc.) Academic Year: 2021-22

Jaypee University of Engineering & Technology, Guna

T-1 (Odd Semester 2021)

18B11CI916 - Statistical Methods and Data Analysis /
BS2MA508 – Statistical Techniques

Maximum duration: 1 Hour Maximum Marks: 15

Notes:
1. This question paper has 4 questions.
2. Write relevant answers only.
3. Do not write anything on question paper.

Q1. To better understand how husbands and wives feel about their finances, Money Magazine conducted a national poll of 1010 married adults aged 25 and older with household incomes of Rs 50,000 or more. Consider the following example set of responses to the question, "Who is better at getting deals?" **[04]**

	Who is Better?		
Respondent	**I am**	**My Spouse**	**We are Equal**
Husband	278	127	102
Wife	290	111	102

(a) Develop a joint probability table.

(b) Construct the marginal probabilities for Who is Better (I am, My Spouse, We are Equal) Comment.

(c) Given that the respondent is a husband, what is the probability that he feels he is better at getting deals than his wife?

Q2. Annual sales, in millions of dollars, for 21 textile companies follow: **[04]**

8408	1374	1872	8879	2459	11413
608	14138	6452	1850	2818	1356
10498	7478	4019	41341	739	2127
3653	5794	8305			

(a) Provide a five-number summary.

(b) Compute the lower and upper limits.

(c) Do the data contain any outliers?

(d) Show a box plot.

Q3. A doctor's office staff studied the waiting times for patients who arrive at the office with a request for emergency service. The following data with the waiting times in minutes were **[04]**

608, 739, 1356, 1374, 1850, 1872, 2127, 2459, 2818,
3653, 4019, 5794, 6452, 7478, 8305, 8879,
10498, 11413, 14138, 41341

collected over a one-month period (20 working days).

2	5	10	12	4	4	5	17	11	8
9	8	12	21	6	8	7	13	18	3

Use classes of 0-4, 5-9, and so on in the following:

(a) Show the frequency distribution.

(b) Show the relative frequency distribution.

(c) Show the cumulative frequency distribution.

(d) What proportion of patients need emergency service wait of 9 minutes or less?

Q4. Explain the difference between qualitative and quantitative data. Discuss the various measurement scales with examples. [3]

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