PARUL UNIVERSITY
FACULTY OF PHARMACY
Pharm. D., October 2018 Examination

Year: 4   Date: 22/10/2018
Subject Code: 08207404   Time: 10:00 am to 1:00 pm
Subject Name: Biostatistics & Research Methodology   Total Marks: 70

Instructions
1. Figures to the right indicate maximum marks.
2. Make suitable assumptions wherever necessary.

Q.1 Essay Type Questions. (any 2 out of 3) (15 Marks Each)

1. a) Samples of peanut butter produced by three different manufacturers were tested for their autotoxin content (p.p.h) and the following results were recorded. **(10)**

BRAND A	0.4	4.3	0.5	1.1	2.7	5.4
BRAND B	1.7	0.8	2.6	3.5	5.0	1.3
BRAND C	1.5	1.2	3.2	0.5	4.7	2.2

Carry out the analysis of variance to test the hypothesis that there are no significant differences among the three brands. [F at 5% level with d.f (2,15) is, $F_T = 3.68$]

b) Describe the use of books and journals in literature survey. **(05)**

2. a) Define Literature survey. Explain sources of Review of Literature **(10)**

b) Calculate the Karl Pearson's coefficient of correlation between the age and playing habits from the following data. **(05)**

Age	20	21	22	23	24	25
No. Of students	500	400	300	240	200	160
Regular players	400	300	180	96	60	24

3. a) What is Feasibility study? State the types of feasibility study. **(05)**

b) What is Information gathering? Explain the methods for Information gathering. **(05)**

c) What is signed & Unsigned Binary Numbers? How many methods are used to represent signed numbers? **(05)**

Q.2 Short Essay Type Questions. (any 4 out of 5) (5 Marks Each) **(20)**

1. Define Research. Mention Objectives and types of Research.

2. Calculate the mode and the median of the following data.

Class	0-10	10-20	20-30	30-40	40-50
Frequency	10	14	19	17	13

3. Find the standard deviation of the following distribution:

Age	20-25	25-30	30-35	35-40	40-45	45-50
No. Of persons	170	110	80	45	40	35

4. The competitors in a beauty contest are ranked by three judges in the following order:

1st judge	1	5	4	8	9	6	10	7	3	2
2nd judge	4	8	7	6	5	9	10	3	2	1
3rd judge	6	7	8	1	5	10	9	2	3	4

Use rank correlation coefficient to discuss which pair of judges has the nearest approach to beauty.

5. The following data gives the data regarding leading sources of technology transfer (in %).

countries	UK	Denmark	Canada	Japan	US	Spain	Germany	Others
percentage	4	10	5	10	14	6	17	34

Represent the data by a suitable pie diagram.

Q.3 Short Answers (2 Marks Each) (20)

1. The mean weight of a patient in a group of six patients is 119. The individual weights of five of them are 115, 109, 129, 117 and 114. What is the weight of the sixth patient?

2. Mention qualities of Good Research Design.

3. Explain any 2 advantages of non-parametric tests.

4. Explain "lottery method" with example for simple random sampling.

5. Represent the following data by Histogram

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	8	12	22	35	40

6. Find 01110011+11100100

7. Multiply $(11)_2$ by $(11)_2$

8. Explain any 2 advantages of parametric tests.

9. What is research problem?

10. Divide 11001 by 101.