Rajiv Gandhi University of Health Sciences

Ph.D Entrance Examination - MARCH-2019

Time: 90 minutes **Max. Marks: 50 Marks**

Principles of Basic Research Methodology
Paper-I
Q.P. CODE: RM001

Your answers should be specific to the questions asked.

Answer All The Questions **10 X 05 = 50 Marks**

1. Explain the steps involved in research process.
2. Explain quasi experimental design with a suitable illustration.
3. What are the different methods of presentation of data? Explain any one of them in detail.
4. Serum fibronogen degradation product values (µgm/ml) of 12 subjects are as follows:

   7.8 180 10 80 15 10 180 40 10 7.5 10 20

   Which appropriate statistical measure do you suggest to summarize the above data? Justify why? Calculate the suggested statistical to summarize the above data.
5. Distinguish between probability and non-probability sampling methods. Describe any one the probability sampling methods most suited for hospital based studies.
6. List the different scales of measurement. Explain each one of them with suitable illustrations.
7. What are the precautions to be kept in mind while writing the research report
8. Define null and alternative hypotheses.
   A sample of 31 lung cancer patients on a new drug (Group I) are observed to have a mean survival of 27.5 months, in another sample of 31 lung cancer patients with old drug (Group II), the mean survival was observed to be 24.2 months. The sample variances are 37.21 months and 27.04 months respectively. The investigators want to know on the basis of the data whether the new drug prolongs the survival.
   (a) Formulate the null and alternative hypothesis
   (b) Which statistical test do you suggest to test the stated hypothesis? Give justification to your answer
   (c) By applying appropriate statistical test, the following details were obtained
   (i) Observed test-statistic value = 2.292
   (ii) Critical value at 5% level of significance = 1.671
   (iii) Critical value at 1% level of significance = 2.390
   Give your comment based on 5% and 1% levels. Which one do you suggest to adopt? Why? Justify your answer
9. Explain the importance of confidence interval over P-value
10. Explain the cross-over designs used for comparing the effectiveness of two drugs in a clinical trial.

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