

QP Code:102601

Reg.No.:.....

Final M Phil Clinical Epidemiology Examinations February 2016

Paper II – Biostatistics and Biocomputing

Time: 3 hrs

Max marks:80

- **Answer all questions**
- **Draw diagrams wherever necessary**

Essays:

(8x10=80)

1. Describe the various levels of measurement of variable and give example of each of the levels.
2. Describe various measures of dispersion. Also, describe merits and demerits of each measure of dispersion.
3. Define Type-I error, Type-II error and power of the test. Also, describe the steps involved in hypothesis testing.
4. Define bias, confounding and effect modification. In a case-control study, what are the ways in which confounding can be addressed.
5. What are the situations where correlation coefficient should not be used. What are the applications of regression methodology. Describe various approaches for developing a parsimonious regression equation.
6. Why sample size is an important issue in a study. What are the implications of small and large sample size than actually required. In a cross sectional study having multi stage cluster sampling, what would be the sample size for an anticipated prevalence of 20%, relative precision of 10%, confidence level of 95% and design effect of 1.5.
7. What would be the post test probability of a disease, if the result of a diagnostic test having 90% sensitivity and 80% specificity is combined with the pre-test probability
8. Prevalence of smoking in a population is 20%. Three persons are randomly selected from that population. What is the probability that exactly two of these three persons have the disease.
