[LD 1013] **OCTOBER 2013** **Sub. Code: 2862**

M.Sc NON-MEDICAL DEGREE EXAMINATION

FIRST YEAR

BRANCH II - BIOSTATISTICS

PAPER II – EPIDEMIOLOGY AND DEGISN OF EXPERIMENTS

Q.P. Code : 282862

Time : 3 hours **Maximum : 100 marks**

I. Elaborate on : **(2X20=40)**

1. Explain the diagnosis tests in detail.
2. Write the statistical analysis of Balanced Incomplete Block Design.

II. Write notes on : **(10X6=60)**

1. Explain the principles of Experimental Design.
2. Explain the Statistical analysis of CRD.
3. Explain total and partial confounding in a 2^3 factorial Experiment.
4. Discuss the various types of control.
5. What is an incubation period?
6. Write down the various measures of morbidity.
7. How will you screen for a disease.
8. What is meta analysis?
9. What is chromosomes?
10. What is Mutations?

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[LF 1014] **OCTOBER 2014** **Sub. Code: 2862**

M.Sc NON-MEDICAL DEGREE EXAMINATION
FIRST YEAR
(New Regulation)
BRANCH II - BIOSTATISTICS
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code : 282862

Time : Three hours **Maximum : 100 marks**

I. Elaborate on : **(2 x 20 = 40)**

1. Explain in detail various study design.

2. Explain the analysis of Split Plot Design in detail.

II. Write notes on : **(10 x 6 = 60)**

1. Define Agent, host, Mode of transmission, Incubation, Incubation period and spectrum disease.
2. What are the various measures of morbidity and mortality
3. Explain reliability and validity with example
4. Explain ROC curve
5. What are the basic concept of human genetics?
6. How is path analysis applied to Quantitative traits?
7. Explain the principles of experimental design
8. What do you mean by single and double blind trial?
9. Write a detailed notes on cross over design with example
10. Write down the analysis of LSD

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[LH 0415] **OCTOBER 2015** **Sub. Code: 2862**

M.Sc., NON – MEDICAL DEGREE COURSES
BRANCH II - BIOSTATISTICS
FIRST YEAR
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code: 282862

Time: Three hours **Maximum: 100 marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain in detail various study design.
2. Explain the analysis of Balanced Incomplete Block Design.

II. Write notes on: **(10 x 6 = 60)**

1. Define Agent, host, mode of transmission, Incubation period.
2. Explain the types of pedigree diagram.
3. Explain Hardy Weinberg Equilibrium.
4. Explain various types of control with examples.
5. What are the basic concepts of human genetics?
6. How is the path analysis applied to Quantitative traits?
7. Explain the analysis of LSD?
8. Explain Balanced Lattice Design with example.
9. Explain Cross over design.
10. Explain Analysis of covariance.

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[LJ 1016] OCTOBER 2016 **Sub. Code: 2862**

M.Sc. BIOSTATISTICS EXAMS
FIRST YEAR
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code: 282862

Time: Three hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Write the statistical analysis of balanced incomplete block design.

2. What is Meta analysis? Explain the various procedures in detail on how to carry out Meta analysis.

II. Write notes on: **(10 x 6 = 60)**

1. Explain the principles of experimental design.
2. Explain the statistical analysis of CRD.
3. Explain in detail about chromosomes.
4. What is an incubation period?
5. Write down the various measures of morbidity.
6. Discuss the various types of control.
7. Explain total and partial confounding in a 2^3 factorial experiment.
8. Define classification of cause of death.
9. Brief about split plot design and its advantages.
10. What is Mutations?

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[LL 1017] OCTOBER 2017 **Sub. Code: 2862**

M.Sc. BIOSTATISTICS EXAMS
FIRST YEAR
(New Regulation)
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code : 282862

Time : Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. How does the choice of an imperfect gold standard bias the results from a diagnostic study? Discuss in what direction would it affect the sensitivity and specificity?
2. A medical education researcher wants to design an experiment to explore the effectiveness of three teaching interventions to improve learning among medical students. The three interventions are group based learning, problem based learning and case based learning. The researcher wants the design to allow testing of individual as well as combined effects of teaching interventions. Discuss how many groups can be incorporated in the study and explain the choice of a suitable statistical design and steps in testing the effects of teaching interventions in detail.

II. Write notes on: **(10 x 6 = 60)**

1. Using a relevant example explain the components of an epidemiological triad and describe how its component interact in causing disease.
2. A study on early treatment of breast cancer compared patients who had a biopsy early in their clinical course to patients biopsied later in their course. The study measured time to recurrence of breast cancer and found that those biopsied earlier had a longer time to recurrence. Name and explain the bias likely to account for this finding.
3. In clinical trials, continuous outcomes such as body mass index are measured both before and after treatment. While randomization allows for comparison between groups, imbalances might occur due to chance, particularly with small sample sizes. Write a detailed statistical analysis plan on how such data will be analyzed.
4. What is Linkage Disequilibrium Coefficient? And how is it used to map a gene?
5. Explain the role of path analysis in quantitative genetic epidemiology with an example?
6. Discuss the common models of genetic inheritance and how such models can be incorporated in statistical analysis.
7. Discuss experimental designs that utilize blocking as a principle to reduce residual error.
8. Explain how randomization process for the Completely Randomized Design (CRD) is different from the Randomized Block Design (RBD)?
9. Explain Likelihood ratio of diagnostic test.
10. Explain the role of primary demographic factors affecting population genetics.

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[LN 1018] OCTOBER 2018 **Sub. Code: 2862**

M.Sc. BIOSTATISTICS EXAMS
FIRST YEAR
(New Regulation)
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code : 282862

Time : Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain in detail of various study designs used in Epidemiology.

2. Discuss the various processes to carry out Meta analysis.

II. Write notes on: **(10 x 6 = 60)**

1. Describe the term mortality and morbidity and state any two rates in each and its use.
2. Measure the cause of death.
3. Write a note on sensitivity, specificity and predictive values in terms of diagnostic procedure.
4. Summarize multiple and parallel test.
5. Evaluate models and types of pedigree diagram.
6. Outline the basic concepts of human genetics.
7. Explain hardy Weinberg equilibrium and its application.
8. Write short notes on genetic epidemiology.
9. Describe single and double blind trial.
10. Discuss total and partial confounding in a 2^3 factorial Experiment.

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[LP 1019] OCTOBER 2019 **Sub. Code: 2862**

M.Sc. BIOSTATISTICS EXAMS

FIRST YEAR

PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code : 282862

Time : Three hours **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Classify and explain various study designs used in Epidemiology.

2. A new vaccine has been produced against HIV, What are the phases of evaluation of this vaccine? How will you conduct the second phase of this evaluation?

II. Write notes on: **(10 x 6 = 60)**

1. Factorial Design.
2. Intention to treat analysis.
3. Likelihood ratio of diagnostic test.
4. Masking in Clinical trials.
5. Hardy Weinberg equilibrium and its application.
6. Randomized Block Design (RBD).
7. Bias and Random Error.
8. Validity of the Measure.
9. Population attributable risk.
10. Advantages & disadvantages of matching in case control design.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0321] **MARCH 2021** **Sub. Code: 2862**

(OCTOBER 2020 EXAM SESSION)

M.Sc. BIOSTATISTICS

FIRST YEAR (From 2011-2012 onwards)

PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code : 282862

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Explain in detail of various study designs used in Epidemiology
2. Write in Detail about Meta analysis.

II. Write Short Notes on: **(10x6 = 60)**

1. Population attributable risk
2. Retrospective Study.
3. Validity of the Measure.
4. Describe Agent, Host and environment
5. Advantages & disadvantages of matching in case control design.
6. Summarize multiple and parallel test.
7. Genetic epidemiology
8. Evaluate models and types of pedigree diagram
9. Masking in Clinical trials.
10. Incubation Period and Spectrum of Diseases.

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222] **FEBRUARY 2022** **Sub. Code: 2862**
(OCTOBER 2021 EXAM SESSION)

M.Sc. BIOSTATISTICS
FIRST YEAR (From 2011-2012 onwards)
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS
Q.P. Code : 282862

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Explain the analysis of Split Plot Design in detail.

2. A New vaccine has been produced against COVID -19, what are the phases of evaluation of this vaccine? How will you conduct the third phase of this evaluation?

II. Write Short Notes on: **(10x6 = 60)**

1. Explain reliability and validity with example
2. Factorial Design
3. Explain ROC curve
4. What do you mean by Double blind method?
5. What are the basic concept of human genetics?
6. Write on Analysis of RBD
7. What do you mean by Herd Immunity?
8. Describe Agent, Host and environment
9. Retrospective Study.
10. Note on Cross over design, explain with example?

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THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 1022] **OCTOBER 2022** **Sub. Code: 2862**

M.Sc. BIOSTATISTICS
FIRST YEAR (From 2011-2012 onwards)
PAPER II – EPIDEMIOLOGY AND DESIGN OF EXPERIMENTS

Q.P. Code : 282862

Time: Three hours **Answer ALL Questions** **Maximum: 100 Marks**

I. Elaborate notes on: **(2 x 20 = 40)**

1. Define Epidemiology.
   a) Incubation period, Spectrum of disease
   b) Types of Studies

2. Analysis of Covariance.
   a) Cross-over design, Orthogonal Latin square
   b) Confounding in factorial designs, total and partial confounding

II. Write Short Notes on: **(10x6 = 60)**

1. Likelihood ratio of diagnostic test.
2. Validity of Measure.
3. Human genetics and basic concepts.
4. Note on Cross over design, explain with example.
5. Mode of Transmission.
6. Observational studies.
7. Twin studies Genetic demography.
8. Confounding in factorial designs.
9. Balanced Incomplete Block design (BIBD).
10. Measures of Mortality.

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