

**M. Sc. (APPLIED STATISTICS
(MSAST)**

Term-End Examination

December, 2025

**MST-019 : EPIDEMIOLOGY AND CLINICAL
TRIALS**

Time : 2 Hours

Maximum Marks : 25

Note : *Question No. 1 is compulsory. Attempt any **two** questions from the remaining question nos. 2 to 4. Non-programmable scientific calculator is allowed. Symbols have their usual meanings.*

1. (a) Instructing the patients of the first heart attack about, how to modify their diets and take their medications to prevent second heart attack is an example of :

- (A) Primary prevention.
- (B) Secondary prevention.
- (C) Tertiary prevention.

Give reason in support of your answer.

- (b) A study begins with identifying two samples, one with disease and one without disease. Then we measure their exposure of interest. This is a typical scenario of a :

- (A) Case Control Study.
- (B) Cohort Study.
- (C) Cross Sectional Study.

- (c) In Phase II of a clinical trials, we identify what ?

- (d) A clinical trial must involve :

- (A) randomisation
- (B) control group
- (C) blinding

- (D) None of the above 1+1+2+1

2. For a cross sectional study, explain the followings : 4+3+3
- (i) Design of cross sectional study.
 - (ii) Analysis of data of cross sectional study.
 - (iii) Advantages and disadvantages of cross sectional study design.
3. (a) Explain prevalence and incidence in detail with example. 4
- (b) To establish statistical ethics in a clinical trial, what are the things that you should take care of ? 6
4. Suppose of decline of at least 10 mg/dL, in triglyceride level (TGL) after a therapy is considered clinically important. It is proposed that a group of non-vegetarian obese and non-obese subjects will be kept on vegetarian diet to see if their triglyceride level declines by the clinically important magnitude. The SD of their TGL is estimated to be 15.7 and 12.5 mg/dL,

respectively. The research wishes to detect a 10 mg/dL difference with probability 0.80. What sample size should be chosen if the level of significance is 0.10 ?

If the minimum difference to be detected is 5 mg/dL, what is the new sample size for power = 0.80 ?

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