

Clinical Epidemiology
Term Examination

Time - 3 Hours

Maximum Marks - 70

The question paper has 2 printed pages.

Q 1. Define and differentiate following (maximum 100 word on each). (5x3 marks)

(Please attempt all questions – 3 marks each).

- a) Attributable risk and relative risk
- b) Accuracy and reliability
- c) Incidence rate and cumulative incidence
- d) Screening and diagnostic test
- e) Virulence and pathogenicity

Q 2. In a study with the objective to determine the effect of yoga training on the mental health among patients following diagnosis of diabetes mellitus. Researchers randomly allocated 500 study participants into 2 groups. The first patient group (260) received yoga training in addition to usual care. The second patient group (240) received only usual care. Data were collected at set intervals following the intervention to assess the patients' mental health. Researchers found that 130 and 60 persons improved their mental health after start treatment and care in the yoga group and usual care group, respectively. Answer following questions:

(15 marks)

- a) Identify the appropriate study design. (2 mark)
- b) Prepare and label the 2x2 table for the effect of the yoga training on the patient's mental health to measure the effect. (5 marks)
- c) Is it appropriate to use randomization in this study? What is the purpose of randomization in the Randomized Controlled Trials? (4 marks)
- d) Discuss the type of analysis in this study, justify why it is preferred? (4 marks)

Q 3. Answer any four questions (maximum 150 words). (5x4 marks)

- a) Differentiate hypothesis and research question using appropriate example.
- b) Explain and differentiate type 1 and type 2.
- c) Differentiate median survival and five-year survival time with appropriate example.
- d) Differentiate phase 3 and phase 4 clinical trials.
- e) How to deal with treatment compliance in clinical trials.

Q 4. Write down short notes on any four following (maximum 100 words): (4x3 marks)

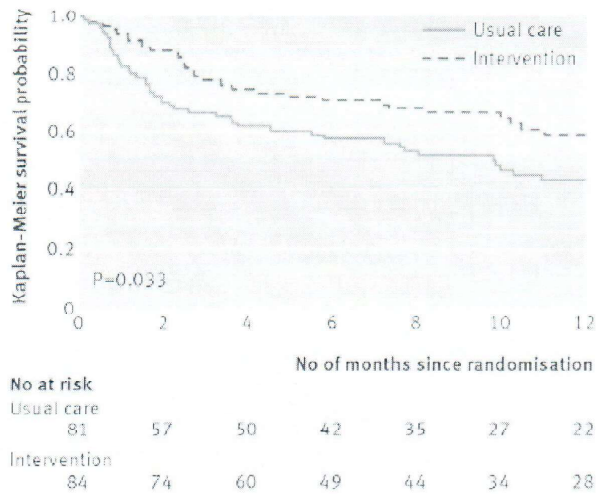
- a) Phase 5 clinical trials
- b) Stratified randomization with example
- c) Lead time bias
- d) Effect of sequential testing on net sensitivity
- e) Validity of diagnostic test
- f) Advantages of Clinical Trials

Q 5. A test is used to screen people for hepatitis B. The sensitivity of the test is 95% and the specificity of the test is 90%. Assume that the total number of persons being tested for hepatitis B is 50,000. Assume that the true prevalence of hepatitis B in the population is 100 per 50,000.

- Calculate the number of true positives and positive predictive value (3 marks).
- Calculate the number of false positives (1 marks).

Q 6. Please see the given diagram carefully. Answer following questions for both groups (usual care group and intervention group):

- Calculate 5 years survival and 60% survival for both groups (2 marks).
- For how much time duration, 50% patients were survived in both groups separately. What would be the name of this indicator (2 marks)?



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