



Institute of Health Management Research

MBA Hospital and Health Management

Batch-27th (2022-2024) Health Management

Second Year, Term 4 End Term Examination, September 2023

HEM-702 Applied Epidemiology

Time - 3 Hour

Maximum Marks: 50 (Minimum Marks: 20)

Instructions to students:

- This question paper contains 3 printed pages.
- Don't write anything on the Question Paper except writing your Enrolment No.

Part A

(Maximum Marks: 5)

1- 4 MCQs (0.5 marks each)

- | Question No. | Question |
|---------------------|---|
| 1. | Confidence Intervals will help us to indicate
(a) Statistical Significance
(b) Direction of the effect studied
(c) Both
(d) None |
| 2. | Cases and controls should be matched on
(a) Variables related to exposure
(b) Variables unrelated to exposure
(c) Both
(d) None |
| 3. | All are priorities while deciding on including a disease under surveillance EXCEPT
(a) A disease of high epidemic potential
(b) A disease without an effective public health intervention
(c) A disease with high mortality
(d) A disease with high geographic spread |
| 4 | In a small study, 50 women with ovarian cancer and 50 women with no apparent disease were contacted and asked whether they had ever used oral contraceptive pills. Each woman with cancer was matched for age, weight and parity to a woman without disease. What study design is this?
(a) Prospective Cohort
(b) Retrospective Cohort
(c) Case Control
(d) Cross Sectional
(e) Randomized Controlled Trial |

5 - 7 Assertion Reasoning (1 mark each)

Each of the following 3 (**Three**) questions (5,6,7) consist of two statements; one labeled as the 'Assertion (A)' and the other as 'Reason (R)'. You have to examine these two statements carefully and select the answers to these items using the codes given below. Write the selected code in the blank space below each question.

Codes:

- (a) Both A and R are individually true and R is the correct explanation of A.
- (b) Both A and R are individually true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.
- (e) Both A and R are false

Question No.**Question****5.**

Assertion A : Biological plausibility applies to causal association of a disease caused by living organisms only.

Reason R : Biological plausibility is desirable but not necessary to establish causal association.

Code : _____

(a) , (b), (c), (d).

6.

Assertion A : Taking large and representative samples improves generalizability of the study.

Reason R : Generalizability is a measure of Internal Validity.

Answer : _____

(a) , (b), (c), (d).

7.

Assertion A : Relative risk cannot be calculated in Case control studies.

Reason R : It is not possible to measure the incidence of an exposure in such study.

Answer _____

(a) , (b), (c), (d).

Part B**(Maximum Marks: 3x5=15)****Choice: Attempt any three****Question No.****Question**

- 1. Ecological Studies
- 2. Odds Ratio
- 3. Austin Bradford Hill Criteria for Causation
- 4. Lead time Bias
- 5. Confounding

Part C

Choice: attempt any two

Question No. Question

1.

1. During the course, we used three research papers based on case control, cohort and randomized controlled trial design, testing association between Folic Acid use and NTDs. Following were the results:

Study	Association	Confidence Intervals
Case Control Study	OR = 0.50	0.3 – 0.7
Cohort Study	RR = 0.36	0.15 – 0.83
RCT	RR = 0.28	0.13 – 0.71

Comment on the following:

- Interpret the results of these studies. (2 Marks)
- Which of the study design provides more accurate estimate of risk? And why? Justify.(3 Marks)
- What does the confidence interval indicate? Are they significant? Justify your conclusion. (5 Marks)
- Enumerate the advantages of Randomization. (5 Marks)

2.

Define Screening for Disease. What are the characteristics of screening tests? Enumerate the tests of validity of screening tests and explain Sensitivity and specificity in detail.

3

What are analytical studies? Enumerate various types of analytical studies and describe the design of Cohort Studies in detail. What are the advantages and limitations of cohort studies?