SET A Question Paper

IIHMR Batch 2021- 23

Module: Epidemiology

Date: 21st March 2022

Name: _____

Roll Number: _____

Mobile Number: _____

The question paper has 5 sections, all the questions are mandatory

Only for office use

Section	Pattern of Questions	Marks Obtained	Maximum Marks	Time allotted (mins)
A	MCQs		20	20
B	True/ False		10	10
C	Identify the Study Designs		20	20
D	Numerical Calculations		10	20
E	Interpretations		10	20
Total			70	90

- 30 minutes additional time for official purposes and revision

Note:

- All the questions are mandatory
- Cheating from your brain only is allowed
- Don't look 360 degrees as your friend has a different question paper
- Time: 2 hours
- Roll Number has to be written in every page of the booklet
- God takes more exams in life than any teacher in your career so please face the exam with good spirit
- The answers to the questions mentioned below are far easier than the questions which you would be asked daily from people around you, so be relaxed and enjoy answering
- Answer to the point. This is not the exam for script writing
- There is no negative marking

Invigilator Signature: _____

Invigilator Signature: _____

SECTION A (20 MARKS)

Time for Section A: 20 minutes

MULTIPLE CHOICE QUESTION

ONLY ONE OPTION IS CORRECT

YOU HAVE TO MARK IN THE QUESTION PAPER USING BOLD MARKINGS

EACH QUESTION IS + 1

1. **Which of the following factors do not determine prevalence?**

   a) the severity of illness

   b) the origin of illness

   c) the number of new cases

   d)Age of the diseased person

2. **Which of the following depicts incorrect fact about study of Prevalence?**

   a) Number of existing cases of disease at a given point of time

   b) Useful in the study of the burden of chronic diseases

   c) Estimates the probability of the population being ill for total time of presence of disease

   d) Conclusions help in implication for health services

3. **Identify the correct relation**

   a) prevalence = incidence / duration

   b) prevalence = incidence × duration

   c) incidence = prevalence × duration.

   d)incidence =prevalence / duration

4. **Identify the incorrect fact about incidence**

   a) Denominator considered is Population at risk

   b) Expresses the risk of becoming ill

   c) Numerator considered is Number of existing cases of disease at a given point of time

   d) Focuses Whether the event is a new case Time of onset of the disease

5. **Epidemiology aims to learn about**

   a) the causes of diseases and how to cure and control them

   b) the frequency and geographic distribution of diseases

   c) the causal relationships between diseases

   d) all the above

6. **Prevalence is a**

   a) Ratio

   b) Proportion

   c) Percentage

   d) Mode of disease

7. **Diabetes has a**

   a) high incidence and high prevalence

   b) high incidence and low prevalence

   c) low incidence and high prevalence

   d) low incidence and low prevalence

8. **Of the following, prevalence is least useful in assessing**

   a) healthcare and the planning of health services

b) need for preventive action

c) evidence of causality

d) studying the burden of chronic diseases

9. **Incidence refers to the rate at which___ events occur in a population**.
   a) New
   b) Old
   c) New+ Old
   d) None of the above
10. **Prevalence increases by:**
   a) Decrease in incidence
   b) Increase in incidence
   c) Have no relation with incidence rate
   d) None of the above
11. **The study which is used to measure incidence is:**
   a) Cross sectional study
   b) Ecological study
   c) Cohort study
   d) Case control study
12. **Formula for the calculation of case fatality is:**
   a) Number of deaths from diagnosed cases in a given period
      Total no. of deaths in a year
   b) Number of deaths from diagnosed cases in a given period X 100
      Number of diagnosed cases of the disease in the same period
   c) Number of deaths from all diseases X 1000
      Number of diagnosed cases of the disease in the same period
   d) None of the above

13. **Prevalence is dependent upon:**

   a) Incidence
   b) Average duration of the disease
   c) Both a and b
   d) Case fatality

14. **What does ICD in ICD11 coding stands for?**

   a) Internal calling description
   b) International classification of disease
   c) Indian case demonstration
   d) Internet classification of disorders

15. **Crude mortality rate=**

   a) No. of deaths during a specific period X 10^n
      Total population
   b) No. of deaths during a specific period X 10^n
      No. of persons at risk of dying during the same period
   c) No. of deaths during a specific period X 10^n
      No. of persons at risk of dying during a year
   d) No. of deaths during a specific period X 10^n
      No. of live births during the same period

16. **Which of these studies is also useful to generate hypothesis?**

   a) Cross sectional studies
   b) Ecological studies
   c) Case- control studies
   d) Cohort studies

17. **Which amongst the following is also known as prevalence studies?**

   a) Cross sectional studies
   b) Ecological studies
   c) Case- control studies
   d) Cohort studies

18. **For conducting a valid survey, which amongst the following are required**

   a) Questionnaires
   b) Appropriate sample of sufficient size
   c) Both A & B
   d) None of the above

19. **In which amongst the following "study proceeds backwards from effect to cause"**

   a) Cross sectional studies
   b) Ecological studies
   c) Case- control studies
   d) Cohort studies

20. **"Framingham- study" (1948) was a type of:**

   a) Cross- sectional study
   b) Ecological study
   c) Cohort study
   d) None of the above

SECTION B (10 MARKS)

Time for Section B: 10 minutes

TRUE/ FALSE

YOU HAVE TO MARK IN THE QUESTION PAPER USING BOLD MARKINGS

EACH QUESTION IS + 1

1. **Ecological studies are the study which needs least amount of time for conduct of the study:**
   a) True
   b) False
2. **Cohort- studies begin with a group of people who are free of disease**
   a) True
   b) False
3. **Sampling error" & "Measurement error" are the only sources of random error**
   a) True
   b) False
4. **A research study is conducted to estimate the seroprevalence of COVID-19 in Ahmedabad city during April-June 2020. This is an example of analytical research question.**
   a) True
   b) False
5. **Randomized controlled trials are retrospective in nature**
   a) True
   b) False
6. **Randomization is a process, where the participants have an equal chance of being assigned to any one of the study groups**
   a) True
   b) False

7. **In a randomized controlled trial, the investigator is unaware of the sequence of allocation of the participants to one of the study arms before and until the assignment is complete. This process is known as allocation concealment.**

a) True

b) False

8. **Descriptive cross-sectional study does not have a comparison group.**

a) True

b) False

9. **Literature review is a well thought out and organised search for all literature published on a particular topic in a library or online database.**

a) True

b) False

10. **Unit of study is a population in case of ecological study**

a) True

b) False

SECTION C (20 MARKS)

Time for Section B: 20 minutes

Identify Study Designs

YOU HAVE TO WRITE IN THE QUESTION PAPER USING BOLD LETTERS

EACH QUESTION IS + 2

1. Using medical records from a tertiary care cancer hospital, a researcher collected data on occupational exposure and lung carcinoma on patients admitted between 2000 and 2010. He classified the patients who had history of working in coal mines as exposed and others as unexposed. He then compared the frequency of lung carcinoma among the exposed and the unexposed.
   Study Design: _____

2. A pediatrician recruited 120 children with Crohn's disease and their matched sibling controls. The researcher collected history of exclusive breastfeeding (EBF) from the mothers. Presence/ absence of EBF was compared between the diseased and the non-diseased children.
   Study Design: _____

3. A multicentric study was conducted to determine the association between diabetes and cataract. The investigators recruited 1000 diabetics and 2500 nondiabetics. The participants were examined to exclude presence of cataract at the time of recruitment. They were followed once yearly for 10 years to document the development of cataract. The study found that the incidence of cataract among diabetics was more when compared with the non-diabetics.
   Study Design: _____

4. If a researcher wishes to estimate the incidence of Myocardial infarction cases among a group of women using oral contraceptive pills followed up for 10 years, the researcher has to carry out:
   Study Design: _____

5. To determine the association between air pollution and male infertility, data on air quality index and prevalence of male infertility was collected for 183 countries for the year 2019.
   Study Design: _____

6. In a medical journal, 18 cases of Creutzfeldt Jakob disease were reported from a tertiary care hospital in Sikkim. The authors of the paper gave a description of the socio-demographic, clinical, and laboratory features of the 18 patients. What best describes this study design?
   Study Design: _____

7. In a clinical trial conducted by the Orthopedic department of a medical college in Bhubaneshwar, the investigators compared the wound healing time between conventional suturing technique and stapling technique for open fractures. The investigators, patients and data analysts were aware about the treatment assignment. (You have detail with level of blinding in this question)
   Study Design: _____

8. The entire population of a given community is screened and all those judged as being free of Colon cancer are questioned extensively about their diet. These people are then followed-up for several years to see whether their eating habits will predict their risk of developing Colon cancer
   Study Design: _____

9. To determine the associated factors of anti-hypertensive drug compliance, an investigator selected 384 participants with hypertension who were undergoing treatment in a tertiary care hospital. The investigator collected the details on the socio-economic background of the participants and took history regarding the consumption of medicines in the past two weeks. Then the drug compliant group and the non-compliant group were compared to identify factors associated with drug compliance.
   Study Design: _____

10. A study began in 1980 with enrolment of a group of 7000 adults in Pondicherry who were asked about their alcohol consumption, smoking, diet, environmental risk factors etc. All the participants were periodically examined and evaluated for evidence of various types of cancers between 1990-1995.
    Study Design: _____

SECTION D (10 MARKS)

Time for Section B: 20 minutes

Epidemiological Calculations

YOU HAVE TO WRITE IN THE QUESTION PAPER USING BOLD LETTERS

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EACH QUESTION IS + 2 (no negative marking)

(Only the right answer will be awarded the marks, no marks for steps)

1. In a study among 3400 children aged 5-10 years, 16 children were diagnosed with autistic disorder. Calculate the prevalence of autism per 1000 children.
   Answer: _____

2. Among 25000 population in a city, 105 residents were identified with Hepatitis B infection. Calculate the prevalence of Hepatitis B per 1000 population.
   Answer: _____

3. In a food poisoning outbreak, 75 people were affected. Among them, 50 were hospitalized, and two died. Calculate the case-fatality rate.
   Answer: _____

4. A gynecology resident intends to determine the association between intrauterine device (IUD) use and risk of extrauterine pregnancy. The investigator recruited 100 cases of extrauterine pregnancy and 200 participants who had intrauterine pregnancy as controls from the obstetrics ward of a tertiary care hospital over a period of 2 years. Both cases and controls were interviewed about the history of IUD use. Among the cases, 6 participants had history of IUD use and among controls, 4 had history of IUD use. Calculate the odds ratio of extrauterine pregnancies among women with history of IUD use?
   Answer: _____

5. A prospective cohort study was conducted to determine the association between coffee consumption and risk of pancreatitis among 10000 healthy participants. Among the participants 3500 participants consumed coffee, whereas 6500 participants did not. After a follow up of 10 years 85 participants in the coffee consumption group developed pancreatitis, whereas among the noncoffee consumption group 130 in developed pancreatitis. Calculate the relative risk of pancreatitis due to coffee consumption.
   Answer: _____

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SECTION E (10 MARKS)

Time for Section B: 20 minutes

Epidemiological Interpretations

YOU HAVE TO WRITE IN THE QUESTION PAPER USING BOLD LETTERS

EACH QUESTION IS + 2 (no negative marking)

(Only the right answer will be awarded the marks)

1. If the odds of exposure among cases is lower than the odds of exposure among the controls, the odds ratio will be:
   Answer: _____

2. An investigator conducted a case control study with psoriasis patients as cases and other skin disease patients as controls. Those having hypertension were considered as exposed and non-hypertensives as non-exposed. The study found an odds ratio of 1.45 (95% CI of 0.95- 1.75). What is the statistical inference of this study?
   Answer: _____

3. A case control study was conducted to know the effect of smoking on lung cancer among hospitalized patients. The controls were recruited from patients admitted to the respiratory ward for other conditions. What type of bias will be introduced by virtue of recruiting controls from the hospital who are potentially different from the general population?
   Answer: _____

4. A researcher studied the effect of coffee drinking on Myocardial Infarction. The effect of coffee drinking on Myocardial Infarction was distorted because of the presence of a third factor, ie. smoking. This phenomenon is called as:
   Answer: _____

5. Which of the following is the best method of ensuring that the experimental and control arms in an experimental study are similar with regard to known and unknown confounders at the planning stage?
   Answer: _____

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(If you pass this exam thank God and your own concepts)