INTRODUCTION TO EPIDEMIOLOGY AND CONCEPTS OF INFECTIOUS DISEASE PRACTICE TEST (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. Which statement is true about E. coli O157:H7 in cattle?

A. It is very pathogenic in cattle

B. It is not very pathogenic in cattle

C. It is harmless to cattle

D. It is more pathogenic than other strains

2. Classical Swine Fever is also known as what?

A. Hog cholera

B. Foot-and-mouth disease

C. Swine pox

D. African swine fever

3. Compared with SARS-CoV-1 or MERS, SARS-CoV-2 is much less virulent.

A. True

B. False

C. Not sure

D. Equally virulent

4. Which study design is best suited for studying rare diseases?

A. Case-control study

B. Cohort study

C. Randomized trial

D. Cross-sectional study

5. All elements in the chain of infection are opportunities to ____ the chain and prevent transmission.

A. Break

B. Stop

C. Halt

D. End

6. What term describes any factor that affects the health or disease susceptibility of a population?

A. Disease Determinant

B. Risk Factor

C. Pathogen

D. Agent

7. Which of the following is an example of vector-borne transmission?

A. Direct contact is an example of vector-borne transmission.

B. Mosquito-borne.

C. Fecal-oral.

D. Airborne.

8. Which description best differentiates cohort, case-control, and cross-sectional study designs?

A. Cohort follows exposure groups over time; Case-control compares exposure history between cases and controls; Cross-sectional assesses exposure and outcome at a single point

B. Cohort is a one-time survey; Case-control follows participants; Cross-sectional uses randomization

C. Cohort compares outcomes only; Case-control follows exposure; Cross-sectional does not measure exposure

D. All three are the same

9. What is the attack rate?

A. Rate of new cases per population per year

B. Proportion of people at risk who develop disease during a defined outbreak

C. Proportion of cases that die during the outbreak

D. Total number of cases divided by the total population

10. What is a line list and how is it used in outbreak investigations?

A. A table containing key attributes of each case (e.g., onset, location, exposure) used to describe and analyze cases.

B. A map of outbreak locations.

C. A narrative summary of the outbreak.

D. A list of suspected pathogens.

Answers

1. B
2. A
3. A
4. A
5. A
6. A
7. B
8. A
9. B
10. A

Explanations

1. Which statement is true about E. coli O157:H7 in cattle?

A. It is very pathogenic in cattle

B. It is not very pathogenic in cattle

C. It is harmless to cattle

D. It is more pathogenic than other strains

A pathogen can be carried by a reservoir host with little or no disease, yet cause illness in another species. In cattle, E. coli O157:H7 mainly colonizes the gut and is shed in feces, but cattle typically do not develop significant illness from this strain. That makes it not very pathogenic in cattle—the animals are largely asymptomatic carriers. The public health concern comes from cattle acting as a reservoir, allowing contamination of beef or dairy products that can cause severe disease in humans who consume or handle them. The other statements suggest high pathogenicity in cattle, harmlessness, or greater virulence than other strains, which doesn't fit how this organism behaves in its cattle host.

2. Classical Swine Fever is also known as what?

A. Hog cholera

B. Foot-and-mouth disease

C. Swine pox

D. African swine fever

Alternative disease names matter in epidemiology because different regions may use different terms for the same condition. Classical Swine Fever is also known as hog cholera. This name comes from the historical observation of severe illness in pigs, including diarrhea and dehydration that reminded clinicians of cholera. The other listed diseases are distinct: foot-and-mouth disease affects many cloven-hooved animals and causes vesicles; swine pox is a milder poxvirus infection with skin lesions; African swine fever is a different, highly lethal swine disease caused by another virus. So hog cholera is the correct alias for Classical Swine Fever.

3. Compared with SARS-CoV-1 or MERS, SARS-CoV-2 is much less virulent.

A. True

B. False

C. Not sure

D. Equally virulent

Virulence is about how harmful a pathogen is per infection—the likelihood of severe illness or death in an individual. SARS-CoV-2 generally causes less severe disease per infected person than SARS-CoV-1 or MERS, which had higher death rates and more frequent severe outcomes for those infected. Because of that lower per infection harm, the virus is considered less virulent. It makes up for this to some extent with much higher transmissibility, leading to a large total burden, but the intrinsic severity of disease in a typical infection is lower compared with the other two viruses. So the statement is true: on average, SARS-CoV-2 is less virulent, even though its spread can still cause substantial morbidity and mortality due to the sheer number of infections.

4. Which study design is best suited for studying rare diseases?

A. Case-control study

B. Cohort study

C. Randomized trial

D. Cross-sectional study

Studying rare diseases requires an efficient design that yields enough cases with limited resources. A case-control study does this by starting with people who already have the disease (cases) and comparing them to similar people without the disease (controls), looking back to see who was exposed to potential risk factors. Because you enroll based on outcome, you don't need to screen enormous populations to find a handful of cases, which makes it much more feasible when the outcome is rare. This design also allows estimating the association between exposures and disease via the odds ratio, which is a good approximation of the relative risk when the disease is uncommon. In contrast, a cohort study would require following a large group for a long time to accumulate enough cases; a randomized trial is designed to test interventions and isn't typically used to explore etiologic associations for rare diseases; and a cross-sectional study provides a snapshot and often yields too few cases for rare outcomes and cannot establish temporality well.

5. All elements in the chain of infection are opportunities to ____ the chain and prevent transmission.

A. Break

B. Stop

C. Halt

D. End

Interrupting transmission hinges on breaking links in the chain of infection. Each element—agent, reservoir, portal of exit, mode of transmission, portal of entry, and susceptible host—presents an opportunity to intervene. By breaking the chain at any one of these points, you prevent the pathogen from moving to a new host and stop onward transmission. This terminology captures the practical public health approach: disruptive actions at a link in the chain—such as vaccination to protect hosts, hand hygiene and disinfection to cut transmission, isolation to remove infectious individuals, or environmental controls to remove the agent from the environment—all aim to disrupt the pathway. Terms like stop, halt, or end are less precise in this context, because they don't emphasize interrupting a specific link in the transmission pathway. The key idea is that breaking the chain at any link interrupts the spread.

6. What term describes any factor that affects the health or disease susceptibility of a population?

A. Disease Determinant

B. Risk Factor

C. Pathogen

D. Agent

In epidemiology, a disease determinant refers to any factor that can influence health or how susceptible a population is to disease. This broad category includes biological factors (like genetics), behavioral factors (such as smoking), environmental conditions (air quality), social and economic influences (income, access to care), and health services. Determinants can either increase or decrease risk, and they can be protective as well as risk-enhancing. By contrast, a risk factor is a specific type of determinant that increases the likelihood of disease, but it doesn't encompass factors that reduce risk or other health influences. Pathogens or agents are the particular organisms or causes of disease, not the wide range of factors that shape health outcomes. So, the term that best describes any factor affecting health or disease susceptibility is a disease determinant.

7. Which of the following is an example of vector-borne transmission?

A. Direct contact is an example of vector-borne transmission.

B. Mosquito-borne.

C. Fecal-oral.

D. Airborne.

Vector-borne transmission occurs when a living organism, the vector, transmits an infectious agent from one host to another. The essential point is that the spread depends on this intermediary organism rather than direct contact or environmental routes. A mosquito as the vector transmits pathogens during feeding, which is why mosquito-borne describes a route where the disease is carried by a vector. Many diseases, like malaria or dengue, rely on mosquitoes to move the pathogen between people. In contrast, direct contact involves physical transfer between hosts without an intermediary vector; fecal-oral involves ingesting pathogens from contaminated food or water; and airborne involves pathogens traveling through air via droplets or aerosols.

8. Which description best differentiates cohort, case-control, and cross-sectional study designs?

A. Cohort follows exposure groups over time; Case-control compares exposure history between cases and controls; Cross-sectional assesses exposure and outcome at a single point

B. Cohort is a one-time survey; Case-control follows participants; Cross-sectional uses randomization

C. Cohort compares outcomes only; Case-control follows exposure; Cross-sectional does not measure exposure

D. All three are the same

The main concept being tested is how these study designs differ in how participants are selected and how data on exposure and disease are collected, which determines what each design can tell us about temporality and association. In a cohort study, you start by grouping people based on whether they were exposed to something, then you follow them over time to see who develops the outcome. This setup lets you estimate incidence and risk and can provide information about temporality because you look at exposure before the outcome occurs. In a case-control study, you begin with people who have the outcome (cases) and compare them to those without the outcome (controls) to look back at their past exposure. This design is efficient for studying rare outcomes and often yields odds ratios to quantify association between exposure and disease. In a cross-sectional study, you collect data on exposure and outcome at the same single point in time. This gives a snapshot of prevalence but makes it harder to determine which came first, so temporality is not established. The description that matches these distinctions—cohort follows exposure groups over time, case-control compares exposure history between cases and controls, and cross-sectional assesses exposure and outcome at a single point—best differentiates the three designs.

9. What is the attack rate?

A. Rate of new cases per population per year

B. Proportion of people at risk who develop disease during a defined outbreak

C. Proportion of cases that die during the outbreak

D. Total number of cases divided by the total population

Attack rate is the proportion of people at risk who develop the disease during a defined outbreak. It is calculated by counting the new cases that occur during the outbreak and dividing by the number of people who were at risk at the start of the outbreak, usually expressed as a percentage. This focuses on the likelihood of becoming ill within the defined group and time frame. For example, if 30 people among 120 susceptible attendees at a gathering become sick during the outbreak, the attack rate is 30/120 = 25%. This differs from incidence rate, which incorporates time and sometimes person-time (it's a rate rather than a simple proportion). It also differs from the proportion of deaths among cases (case fatality) and from total cases divided by the total population, which may include people not at risk or not observed in the outbreak. So the best description is the proportion of people at risk who develop disease during the outbreak.

10. What is a line list and how is it used in outbreak investigations?

A. A table containing key attributes of each case (e.g., onset, location, exposure) used to describe and analyze cases.

B. A map of outbreak locations.

C. A narrative summary of the outbreak.

D. A list of suspected pathogens.

A line list is a structured table where each row represents a reported case and each column records a variable about that case (for example onset date, location, exposure history, age, sex, symptoms, and laboratory results). This format lets investigators describe the outbreak in detail and analyze patterns across cases. By organizing data this way, you can track when cases began, where they are occurring, and which exposures might be linked to illness. It supports creating an epidemic curve, comparing exposure groups, and calculating measures like attack rates to test hypotheses about the likely source or transmission route. As new cases are identified, the line list is updated to keep the analysis current. The other options describe different tools—a map shows geography, a narrative sums up the outbreak, and a list of suspected pathogens is part of differential diagnosis, not the per-case data table used for description and analysis.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://introtoepidemiology.examzify.com

We wish you the very best on your exam journey. You've got this!