1. The statement has been made that: "The segment of the U.S. population most at risk of sickness and death is no longer the mother and her young child, but the middle-aged and older-aged male." (Check the one best answer).

   This is because:

   a. Middle-aged and older-aged males form the one segment in the population in which death rates have risen over the past 50 years.

   b. Improvements in diagnosis have been most marked in those diseases attacking middle and older-aged men.

   c. This is the segment of the population in which the general decline in death rates over the last 50 years has been least marked.

   d. There has been a marked increase in the proportion of elderly males in the population.

2. In a study of the relationship between alcoholism and tuberculosis, it was found that alcoholism was present more frequently in tuberculosis patients than in the non-tuberculosis "controls." Despite this finding, it was impossible for the investigators to state from their data whether alcoholism led to tuberculosis or whether tuberculosis led to alcoholism.

The most basic reason for this limitation is: (Check the <u>one best</u> answer).

a. It was a cohort study.

b. It was a case-history study.

c. The difference in the amount of alcoholism between the patients and the controls must have been very small.

d. The investigators had not analyzed their data adequately.

In a community of 30,000 people the mortality from disease "X" for the year 1960 was as follows:

		No. of Deaths from Disease "X"	No. of Poeple Not Dying from Disease "X"	Total
MALES	Young	20	1980	2,000
	Old	10	9990	10,000
FEMALES	Young	40	7960	8,000
	Old	30	9970	10,000
TOTAL		100	29,900	30,000

3. From the data presented in the above table which of the following statements is correct? (In all examples the arithmetic is correct).

The mortality rate of Disease "X" in males in this community is:

a. 30/100   =   30,000.0 per 100,000 population

b. 30/30,000   =   100.0 per 100,000   population

c. 30/1980 ÷ 9990   =   250.6 per 100,000   population

d. 30/12,000   =   250.0 per 100,000   population

4. <u>From the same data presented</u> in the above table which of these statements concerning mortality rates is correct? (In each case the arithmetic is correct).

a. The mortality rate in young males is 20/100 (200 per 1,000) and is thus <u>lower</u> than in young females which is 40/100 (400 per 1,000).

b. The mortality rate in young males is 20/2,000 (10 per 1,000) and is thus <u>higher</u> than in young females which is 40/8,000 (5 per 1,000).

c. The mortality rate in young males is 20/30,000 (0.66 per 1,000) and is thus <u>lower</u> than in young females which is 40/30,000 (1.33 per 1,000).

d. None of the above, as the incorrect figure has been used in the denominator in each case.

5. <u>From the same data presented</u> in the above table which of these statements is correct? The greater <u>number</u> of deaths from disease "X" in young females than in young males means that in this community:

   a. Young females are more likely to die from this disease than are young males.

   b. Young males have better medical care for this disease than do young females.

   c. Both "a" and "b" could be correct.

   d. Neither "a" nor "b" is correct.

The following questions refer to trends in mortality rates in the U.S. for a number of disease: (For each question check the one best answer).

6. Since 1900 tuberculosis:

   a. Had declined for males but not for females.

   b. Has declined for both males and females.

   c. Has not changed for either males or females.

   d. Has not changed for males but declined for females.

7. Since 1940 hypertensive heart disease:

   a. Has increased for males but not for females.

   b. Has decreased for both males and females.

   c. Has increased for both males and females.

   d. Has not changed for males but increased for females.

8. Since 1950 arteriosclerotic heart disease:

   a. Has increased for males but declined for females.

   b. Has not changed for either males or females.

   c. Has increased for both males and females.

   d. Has not changed for males but increased for females.

9. Since 1930 cancer of the lung:

   a. Has increased more for males than females.

   b. Has increased equally for males and females.

   c. Has increased for males but decreased for females.

   d. Has not changed for either males or females.

The following question refers to the <u>prevalence</u> of coronary heart disease in the U.S. today.

10. Check the one right answer.

   a. Male rates exceed female rates at all ages and the male to female ratio is approximately the same at all ages.

   b. Male rates only exceed female rates over the age of 50 years. Under 50 years the male-female rates are equal.

   c. Male rates only exceed female rates under the age of 50 years. Over 50 years male-female rates are equal.

   d. Male rates exceed female rates at all ages and the male to female ratio is greater under 50 years of age than it is over 50.

In a study to determine the relationship of alcohol consumption to gastric ulcer 100 patients with gastric ulcer were matched with 200 patients of the same age, race, sex and marital status who did not have gastric ulcers. Each of the 300 patients was carefully questioned as to their previous drinking patterns, and on the basis of their replies classified as either "non-drinker" or "drinker". The results were as follows:

	Gastric Ulcer Patients	Controls (No Gastric Ulcer)	Total
Drinkers	90	110	200
Non-Drinkers	10	90	100
Total	100	200	300

11. From these data, which of the following statements would most appropriately represent the situation in the universe from which these 300 patients are a sample? (Check the one best answer).

a. Alcohol consumption is associated with gastric ulcer because 90% of the ulcer patients are drinkers and 10% are non-drinkers.

b. Alcohol consumption is associated with gastric ulcer because 90% of the ulcer patients and 55% (110/200) of the controls are drinkers.

c. Alcohol consumption is not associated with gastric ulcer, because 45% (90/200) of the drinkers were ulcer patients whereas 55% (110/200) of the drinkers were not ulcer patients.

d. Alcohol consumption is associated with gastric ulcer as 45% (90/200) of the drinkers and 10% (10/100) of the non-drinkers had ulcers and the relative risk conferred by drinking is 4.5 (45/10).

12. The <u>prevalence</u> of a disease can <u>decrease</u> even if the <u>incidence</u> of that disease <u>increases</u>: (Check <u>as many</u> as are true).

    a. If a successful program to prevent the occurrence of that disease is started.

    b. If people die more quickly after contracting the disease than was true in prior years.

    c. If the duration of the disease has been increasing in recent years.

    d. If the mortality rate from that disease decreases.

13. The following table contains annual death rates due to coronary heart disease in an imaginary state having a population of 4,000,000. (1960)

<u>Table B</u>. Death Rates from Coronary Heart Disease

Year	Per 100,000 Population
1900	87
1920	190
1940	315
1960	400

Which of the following explanations can possibly account for the trend shown in Table B?   (Mark <u>as many</u> as may be true).

a. The size of the population of the state may have changed since 1900.

b. Diagnostic skills may have improved in the last 60 years.

c. There may be a greater proportion of older people in the population today than 60 years ago.

d. The frequency of deaths from this disease may have increased in the last 60 years, unrelated to "a", "b", "c", above.

12. The prevalence of a disease can decrease even if the incidence of that disease increases: (Check as many as are true).

  a. If a successful program to prevent the occurrence of that disease is started.

  b. If people die more quickly after contracting the disease than was true in prior years.

  c. If the duration of the disease has been increasing in recent years.

  d. If the mortality rate from that disease decreases.

13. The following table contains annual death rates due to coronary heart disease in an imaginary state having a population of 4,000,000. (1960)

Table B. Death Rates from Coronary Heart Disease

Year	Per 100,000 Population
1900	87
1920	190
1940	315
1960	400

14. Over the last 60 years the following changes in population composition and life expectancy have been observed in the United States: (Check as many as are true).

   a. The population has become older mainly because of increased life expectancy in those 65 years and older.

   b. The falling infant mortality rate has resulted in an increased life expectancy for children under 1 year of age.

   c. The greatest increase in life expectancy has occurred in infant females.

   d. In middle age (45-64) the proportion of men and women is more nearly equal today than it was in 1900.

As part of a tuberculosis program the size of the tuberculin reaction following
an injection of tuberculin was to be measured in a number of school children.
As the readings were to be done by two observers an initial study was under-
taken to determine the between-observer reliability. 10 children were injected
and the size of the reaction was read independently by each observer. The
observers were asked to submit their readings on each child and a simple
tabulation of the results.

The following were the data submitted:

Observer 1

Child	J	D	F	J	B	A	C	E	G	I
Size of reaction	5	6	-6	7	10	5	5	6	7	8

Tabulation

Size of Reaction	Number of Children
5	3
6	3
7	2
8	1
9	0
10	1

Observer 2

Child	F	A	G	J	H	C	I	D	B	E
Size of reaction	8	5	5	7	9	5	6	6	10	7

Tabulation

Size of Reaction	Number of Children
5	3
6	2
7	2
8	1
9	1
10	1

15. From these data compute an index of inter-observer reliability.

1. If you knew that during the period of one year in a city of
   2 million people there were 1000 cases of a particular disease:

   a. This would be important information as it would indicate
      that the disease was serious.
   b. This would be important information as it would indicate
      that the diseases was not serious.

   c. By itself this would have little meaning without some
      form of comparison

   d. By itself this would have little meaning without knowing
      the prevalence rate of that disease.

16. In a community of 30,000 people a survey was undertaken to determine the prevalence of disease "X". The following data was obtained:

		No. of cases of Disease "X"	No. of People without Disease "X"	Total
MALES	Young	20	1980	2,000
	Old	10	9990	10,000
FEMALES	Young	40	7960	8,000
	Old	30	9970	10,000
TOTAL		100	29,900	30,000

16. From the data presented in the above table which of the following statements is correct: (In all examples the arithmetic is correct).

The prevalence rate of disease "X" in this community in males is: - -

a. 30/100 = 30,000.0 per 100,000

b. 30/30,000 = 100.0 per 100,000

c. 30/1980 ÷ 9990 = 250.6 per 100,000

d. 30/12,000 = 250.0 per 100,000

17. From the same data presented in the above table which of these statements
     concerning prevalence rates is correct?   (In each case the arithmetic is
     correct)

     a. The prevalence rate in young males is 20/100 (200 per 1,000) and is thus
         lower than in young females which is 40/100 (400 per 1,000)

     b. The prevalence rate in young males is 20/2000 (10 per 1,000) and is thus
         higher than in young females which is 40/8000 (5 per 1,000)

     c. The prevalence rate in young males is 20/30,000 (0.66 per 1,000) and is
         thus lower than in young females which is 40/30,000 (1.33 per 1,000)

     d. None of the above, as the incorrect figure has been used in the denominators
         in each case.

18. From the same data presented in the above table which of these statements is correct?

The greater _number_ of cases of disease "X" in young females than in young males means that in this community:

a. Young females are more susceptible to the disease than are young males.

b. Young males are more resistant to the disease than are young females.

c. Both "a" and "b" could be correct.

d. Neither "a" nor "b" is correct.

Which of the following statements can be made about the relationship of age and sex to this disease <u>in the community</u> from which these patients came?

a. Males have higher rates of this disease than do females at all ages.

b. Rates for this disease increase with increasing age in both sexes.

c. No statement about the rates of this disease by age or sex can be made.

d. Two peaks of rates for this disease occur in both sexes, one in infancy, and the second in older ages.

15. <u>157 patients</u> with a certain disease were admitted to a particular hospital. The age and sex distribution was as follows:

Age	Male	Female	Total
0 - 4	10	6	16
5 - 9	5	2	7
10 - 19	4	8	12
20 - 29	5	10	15
30 - 39	16	11	27
40 - 49	29	12	41
50 & over	31	8	39
All Ages	100	57	157

2. The admissions form to be used for a general hospital had the following categories:

Liver diseases	Gastro intestinal diseases
Lung diseases	Heart Diseases
Infectious diseases	Accidents

The components in this classification are:

a. Mutually exclusive and exhaustive

b. Not mutually exclusive but exhaustive

c. Mutually exclusive but not exhaustive

d. Neither mutually exclusive nor exhaustive

3. If you knew that in the U.S. the incidence rates of coronary heart disease were two times higher in middle aged men than they were in women of the same age, you could conclude from these data that:

a. Men are under greater stress than women

b. Coronary heart disease is not related to age alone

c. The female sex hormone exerted a protective influence

d. The male sex hormone exerted a deleterious influence

4. In a city of 100,000 people the only knowledge available for a particular year about a given disease is its incidence and prevalence rate. This knowledge could most appropriately be used in:

a. Determining the type of health services needed

b. Isolating the etiological factors responsible for the disease

c. Predicting the death rate

d. determining the effectiveness of the control program

5. The incidence and prevalence rates of a particular disease in a defined community were as follows:

Year	Incidence per 100,000 Population	Prevalence per 100,000 population
1940	310	500
1944	290	498
1948	270	510
1952	250	495
1956	230	500
1960	190	490

Which of the following statements is correct?

a. Recovery from this disease is becoming more rapid

b. The disease is becoming more short-term with increasing mortality

c. The disease is becoming more long-term (chronic) with decreasing mortality

d. There is an error in data gathering

6. The following are the results of a study of the factors associated with response to a mass X-Ray program:

Table 1. Response to Mass X-Ray by Place of Residence

Residence	Percent Population Responding
Urban	75%
Rural	46%
All Residences	53%

Table 2. Response to Mass X-Ray by Educational Level

Education Level	Percent Population Responding
College Grads.	82%
High School Only	68%
Elementary School Only	43%
All Educational Levels	53%

Table 3. Percentage of Persons in Each Sub-Group
(Residence by Educational Level) Participating
in Mass X-Ray Program

Residence	Educational Level			
	College Grads.	High School Only	Elementary School Only	All Educational Levels
Urban	83%	67%	43%	75%
Rural	81%	69%	43%	46%
All Residences	82%	68%	43%	53%

From these data it would be correct to infer that:

a. The better educated people have a higher response rate **because** more of them are urban residents

b. Urban residents have a higher response rate than do rural **because** more of the urban residents have higher education levels

c. No inferences can be drawn from these tables as none of the percentages add to 100%

d. No inferences can be drawn from these tables as the educational level of urban & rural residents is not shown