Question 1

Which of the following statements best describe efficacy?

- It is an estimate of the benefit of treatment under ideal conditions
- It is an estimate of the reduction of disease in treated groups

Question 2

A study is conducted for a pharmaceutical agent that has shown promise for reducing heart disease among women. In order to more fully test the agent, an additional study is done restricting the participants to be r&omized to those who have a history of hypertension. Which of the following advantages cannot be claimed by the researchers?

- The generalizability of the study is increased

Question 3

What is the main advantage of the r&omization of the 168 study participants to one of the two drug treatment groups?

- Reduces the potential for selection bias in allocation of treatment group

Question 4

After entry into the study, patients were first classified into three groups, those who had a previous AMI, those with a first AMI who were at high risk for other cardiovascular diseases such as congestive heart failure, & those with a first AMI who were at low risk for other cardiovascular diseases. Which term best describes the study design?

- R&omized clinical trial with stratified r&omization

Question 5

After assignment to treatment group, 77% of those in the placebo group were men, while 80% of those in the drug X group were men. Which statement is most likely to be true?

- R&omization was successful since the investigators did not alter the selection of participants in either group in order to ensure equal percentages of men

Question 6

A preliminary analysis was conducted after 6 months & found that 87% of participants in the placebo group & 85% of those in the drug X group had taken more than 90% of their prescribed dosages. Which statement best describes this finding?

-     The characteristics of patients who failed to comply with the treatment dosages should be assessed as they may differ from those who complied

Question 7

Which of the following statements best describes the reason for conducting the study as a double-blind trial?

-     Double blinding ensures that potential biases regarding selection, follow-up, & analysis can be reduced

Question 8

A multicenter double-blind r&omized study was carried out to compare the effect of drug X with that of a placebo in patients surviving acute myocardial infarction (AMI). Treatment with the drug started 7 days after infarction in 1,884 patients, 52% of all persons who were evaluated for entry into the study. 945 participants were r&omized to treatment with drug X while 939 were assigned to the placebo group. Patients were then followed for 12 months for reinfarction. There were 152 deaths in the placebo group & 98 in the group receiving drug X.

The researchers conclude that treatment with drug X reduces mortality in patients who have had an AMI. The researchers are:

-     Correct because the rate of death is decreased in the drug X group

Question 9

The following data come from a study of approaches to smoking cessation. Smokers who want to quit were r&omized to one of four groups: control group C who received no intervention assistance, quitting guide group Q who received brochures about how to quit smoking, quitting guide & support group QS who received quitting brochures as well as social support brochures listing benefits of smoking cessation, & telephone support group T who received the brochures & a monthly phone call from a counselor. Participants received mailed surveys at 8, 16, & 24 months after r&omization. The results after 2 years are in the table below. Which group had the least success in terms of quitting smoking?

-     Group QS

Question 10

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group QS who received quitting brochures as well as social support brochures listing benefits of smoking cessation, & telephone support group T who received the brochures & a monthly phone call from a counselor. Participants received mailed surveys at 8, 16, & 24 months after r&omization. The results after 2 years are in the table below. What is the main purpose of r&omization in this study?

- **To avoid assigning more persons who have tried & failed to quit in the past to the control group**

Question 11

Test A has a sensitivity of 95% & a specificity of 90%. Test B has a sensitivity of 80% & a specificity of 98%. In a community of 10,000 people with 5% prevalence of the disease, Test A has always been given before Test B. What is the best reason for changing the order of the tests?

- The total number of false positives found by both tests is decreased if Test B is given first

Question 12

This table represents the results of coronary magnetic resonance (CMR) angiography compared to x-ray angiography (the gold st&ard in diagnosis of coronary artery disease) in a high-risk population of patients scheduled to undergo x-ray angiography for suspected coronary artery disease.

After reviewing the results of the test comparison, an epidemiologist decides that the specificity of the test is too low. Using the same CMR images, he raises the cutoff value for a positive test to increase the specificity. What is the likely effect on the sensitivity?

Sensitivity will decrease

Question 13

In comparing the mammography readings of two technicians who evaluated the same set of 600 mammograms for presence of breast cancer from a generally representative sample of women from the population,

- Overall percent agreement calculated for both readers may conceal significant disagreements regarding positive tests

Question 14

A researcher is interested in the etiology of cervical cancer among women between 18 & 35 years of age. Her hypothesis concerns the influence of sexually transmitted diseases such as human papilloma virus (HPV) & subsequent development of cancer. What is the best study approach to address this hypothesis?

- **Case-control study of women 18 to 35 years of age identified with cervical cancer in the hospital (cases) compared to women admitted for other diseases (controls)**

Question 15

Suppose that one third of all cervical cancer cases were smokers as were one third of all controls & smoking status is independent of HPV infection. Is smoking a potential confounder in this study?

- **No, the chance of being a smoker among women with cervical cancer is the same as that of being a smoker among women without cervical cancer**

Question 16

A case-control study was conducted to determine if an association exists between workers in uranium mines & loss of fertility due to reduced sperm count. A group of 200 men with low sperm count were identified from clinics located in areas with uranium mines. Each selected case was matched with a r&omly selected male control on the following factors: race, age, area of residence, & smoking status. What is the purpose of matching?

- **Previous studies have shown that there are racial differences in low sperm count**

Question 17

In a country with a population of 16 million people, 175,000 deaths occurred during the year ending December 31, 2005. These included 45,000 deaths from tuberculosis (TB) in 135,000 persons who were sick with TB. Assume that the population remained constant throughout the year. Not all 135,000 cases of TB were contracted during 2005. Which of the following statements is true?

- None of the above

Question 18

Which of the following statements pertains to relative survival?

- Is generally closer to observed survival rates in younger age groups

Question 19

An important assumption in this type of analysis is that:

- No change has occurred in the effectiveness of treatment during the 3-year period

Question 20

Before reporting the results of this survival analysis, the investigators compared baseline characteristics of the 38 people who withdrew from the study before its end to those who had complete follow-up. This was done for which of the following reasons:

- To check whether those remaining in the study represent the total study population

Question 21

Which of the following is a key assumption involved in the use of life-table analysis?

- The risk of disease does not change within each interval over the period of observation

Question 22

When incidence density sampling is used in a case-control study, which of the following is an important consideration?

- A subject selected as a control may later be selected as a case

Question 23

Which of the following is a measure of disease prognosis?

- Median survival time

Question 24

A recent prospective study on baldness & coronary heart disease (CHD) concluded that there was no association between the two, despite earlier cross-sectional studies which showed that baldness was associated with CHD when the two were determined at the same time in men. Which Bradford-Hill criterion is being tested by the newer study?

- Temporality

Question 25

A study examined the relation between use of estrogen replacement therapy (ERT) & ovarian cancer mortality using a prospective design. Of 24,231 eligible women, none had a prior history of cancer, hysterectomy, or ovarian surgery at enrollment in 1982. During 12 years of follow-up, 44 deaths from ovarian cancer occurred. In the published results, the authors note that 12,543 were excluded from the original cohort due to missing information for prior history variables. Which of the following is of greatest concern when interpreting the study results?

- Selection bias

Question 26

In 2003, Sudden Acute Respiratory Syndrome (SARS) appeared in several countries, mainly in Asia. The disease was determined to have been caused by a virus that could be spread from person –to person from the index case occurring in mainl&