

## **Genes, Environment, and Common Diseases**

1. Define and apply the following terms used to analyze relationships between disease and populations: incidence rate, prevalence rate, risk factor, relative risk, proband, polygenic, multifactorial, liability distribution, threshold of liability, recurrence risk, empiric risk, concordant, discordant, and congenital.
2. Describe and apply the terms liability distribution and threshold of liability as they relate to the threshold model of multifactorial disease.
3. Identify the recurrence risks of a disease for the following scenarios: more than one family member is affected, the expression of the disease in the proband is more severe, the proband is of the less commonly affected sex, and the disease is manifest in more remotely related relatives.
4. Compare and contrast the terms nature and nurture as they apply to genes and environment.
5. Describe the use of twin and adoptive studies in the analysis of multifactorial diseases.
6. Identify and describe the familial tendencies and contributing environmental factors in the following diseases: coronary artery disease (CAD), hypercholesterolemia, hypertension, colorectal cancer, diabetes, breast cancer, and obesity.
7. Identify and describe the following complex multifactorial diseases: Alzheimer disease, alcoholism, schizophrenia, bipolar disorder