

**CHAPTER ONE: INTRO - EVALUATION OF EVIDENCE**

1. Regarding the four-level hierarchy for classifying the strength of causal inferences from available evidence, Level 1 states that evidence is:
 

A sufficient	B suggestive but not sufficient	C inadequate	D not sufficient at all
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2. Mode of ——— refers to the process by which an agent causes disease.
 

A transference	B mobility	C action	D movement
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3. Of the 9 area in Austin Bradford Hill's criteria, number 7 is:
 

A Plausibility	B Consistency	C Biological gradient	D Coherence
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**CHAPTER TWO: THE CHANGING CIGARETTE**

4. Before ———, only 0.6 percent of cigarettes were filtered.
 

A 1930	B 1950	C 1970	D 1980
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5. Cigarette smoke contains more than ——— chemicals, including at least 69 known carcinogens.
 

A 7,000	B 700	C 500	D 300
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6. In a survey of 1,499 current and former cigarette smokers 18+ years of age, ——— thought Eclipse was safer than regular cigarettes.
 

A 75 percent	B 37 percent	C 46 percent	D 91 percent
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**CHAPTER THREE: CHEMISTRY AND TOXICOLOGY...**

7. The differences in the ratio of chemical components of sidestream smoke can be altered by:
 

A The tobacco blend	B the tobacco preparation	C the porosity of the paper	D all of the above
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8. Temperatures reach ——— during a puff and fall to about ——— between puffs.
 

A 200°C, 90°C	B 400°C, 200°C	C 900°C, 400°C	D 600°C, 200°C
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9. The concentration of smoke and the time after it leaves the cigarette can cause changes in particle size that may alter the relative amounts of certain chemicals in the gas and particle phases.
 

A True	B False
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10. In water or in the droplets of particulate matter in tobacco smoke, the distribution of nicotine among its three forms depends on:
 

A the porosity of the paper	B the pH of the solution	C the tobacco blend	D none of the above
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11. According to numerous tobacco industry documents, increasing levels of ——— in tobacco smoke was known to increase smoke "strength."
 

A unprotonated nicotine	B protonated nicotine	C nitrosamines	D ammonia
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12. TSNAs are primarily found in the ——— phase(s).
 

A gas	B particulate	C both A and B	D neither A nor B
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13. ——— tobaccos are lowest in both nitrates and TSNAs.
 

A Oriental	B Bright	C Blended	D Burley
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14. There are between ——— volatile gases and other compounds in the gas phase.
 

A 200 and 300	B 300 and 400	C 400 and 500	D 500 and 600
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15. Although fresh smoke contains little NO<sub>2</sub>, the aging of the smoke converts the reactive NO to NO<sub>2</sub>, which has an estimated half-life of:
 

A 15 minutes	B 12 minutes	C 8 minutes	D 10 minutes
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16. Lead measurements range from ——— generated per cigarette in the particulate phase.  
 A 15 to 28 ng                      B 9 to 43 ng                      C 18 to 83 ng                      D 22 to 51 ng
17. For mainstream smoke, the levels of aromatic amines were reported to be ——— generated per cigarette.  
 A 100 to 400 ng                      B 200 to 1330 ng                      C 500 to 800 ng                      D 1000 to 1600 ng
18. The usual levels of HCAs in tobacco smoke were reported to be ——— generated per cigarette.  
 A 22.3 to 176.7 ng                      B 15 to 300 ng                      C 204.2 to 300.5 ng                      D 0.3 to 260.0 ng
19. In addition to lamina, cigarette filler often contains puffed or expanded tobacco, tobacco stems, humectants, and various flavor additives.  
 A True                      B False
20. The presence of O<sub>2</sub> in the pyrolysis atmosphere ——— the yield of acrolein and other volatile organic compounds.  
 A slightly decreased                      B greatly decreased                      C increased                      D did nothing to
21. According to Ishizu and colleagues, the timed average particle size for major chemical components in tobacco smoke was:  
 A 0.3 to 0.5 μm                      B 0.1 to 0.5 μm                      C 0.06 to 0.7 μm                      D 0.03 to 0.5 μm
22. Cigarette smoking is a risk factor for bladder cancer. The increased mutagenicity of smokers' urine was first shown in:  
 A 1967                      B 1957                      C 1987                      D 1977
23. In human studies, smoking was shown to increase the frequency of HPRT mutants in peripheral blood lymphocytes by approximately:  
 A 30%                      B 18%                      C 50%                      D 3%
24. Study findings indicate that cytotoxicity may play a role in several tobacco-related chronic diseases, including emphysema.  
 A True                      B False
25. The ——— cell line has been extensively used to study human lung damage by single chemicals and complex chemical mixtures.  
 A H1299                      B H249                      C A549                      D A427
26. In one study, researchers observed nonneoplastic tumors throughout the ——— of animals exposed to smoke.  
 A liver                      B respiratory tract                      C skeletal system                      D brain
27. Researchers demonstrated fetotoxicity from cigarette smoke exposure by reporting ——— in rats and mice exposed during gestation.  
 A increased nausea                      B reduced fetal weight                      C increased mortality                      D none of the above
28. It has been shown that direct nicotine administration to humans or animals ——— body weight and caloric intake.  
 A slightly increases                      B sharply increases                      C decreases                      D has no effect on
- CHAPTER FOUR: NICOTINE ADDICTION**
29. The pharmacologic and behavioral processes that determine tobacco addiction are ——— those found in heroin and cocaine.  
 A similar to                      B identical to                      C dissimilar to                      D nothing like
30. Researchers have used the ——— Test for Nicotine Dependence (FTND) to determine the degree of dependence in smokers.  
 A Fairview                      B Fenabi                      C Ferrovie                      D Fagerström
31. Tobacco-delivered nicotine is ——— addictive than are pure nicotine forms.  
 A substantially less                      B substantially more                      C somewhat less                      D somewhat more
32. Tobacco products contain more than ——— chemicals, some of which could contribute to dependence.  
 A 4000                      B 400                      C 40                      D 4

33. Oral use of smokeless tobacco products results in high venous concentrations of nicotine ——— to those for use of cigarettes.
- A equal                                      B slightly less                                      C much less                                      D greater
34. Cigarette smoking results in rapidly rising arterial concentrations of nicotine that reach the brain in about ——— seconds.
- A 1-4                                      B 5-9                                      C 10 - 19                                      D 20-29
35. ——— is a reduced responsiveness to a drug as a function of earlier exposure to that drug.
- A Dependence                                      B Tolerance                                      C Addiction                                      D Acclimation
36. In behavioral psychology, a stimulus is considered ——— if it increases a response or behavior resulting in obtaining that stimulus.
- A destructive                                      B weakening                                      C unique                                      D reinforcing
37. ——— refers to processes by which smoking or nicotine reduces aversive states, such as pain, craving, difficulty concentrating, etc.
- A Positive reinforcement                                      B Negative reinforcement                                      C Stable reinforcement                                      D Cyclical reinforcement
38. ——— from nicotine may play a more significant role in the initiation of smoking,
- A Positive reinforcement                                      B Negative reinforcement                                      C Stable reinforcement                                      D Cyclical reinforcement
39. The predominant role of nAChRs in the brain is the modulation of neurotransmitter release.
- A True                                      B False
40. The following system has been shown to be critically involved in the effects of drugs of abuse:
- A peripheral nervous system                                      B central nervous system                                      C nigrostriatal system                                      D mesocorticolimbic brain system
41. In humans, acute and short-term nicotine administration leads to the release of:
- A serotonin                                      B  $\alpha$ -endorphins                                      C  $\beta$ -endorphins                                      D  $\gamma$ -endorphins
42. Smoking cessation leads to an aversive withdrawal syndrome lasting ——— after cessation.
- A around 3 days                                      B one to four weeks                                      C eight to ten weeks                                      D fifteen to thirty days
43. The ——— homomeric nAChRs may be involved in the reinforcing effects of nicotine and perhaps only in some somatic aspects but not in the affective aspects of nicotine withdrawal.
- A  $\alpha 7$                                       B  $\alpha 7$                                       C  $\beta 2$                                       D  $\beta 4$
44. One example of an area of the brain activated by nicotine or smoking is the:
- A prefrontal cortex                                      B ventral putamen                                      C anterior cingulate cortex                                      D all of the above
45. Most estimates suggest that incidence of major depressive disorder among smokers is approximately ——— that among nonsmokers.
- A 2 to 3 times                                      B 5 times                                      C 7 times                                      D equal to
46. More than ——— percent of patients with schizophrenia smoke compared with 20-30 percent of the general population.
- A 50-60                                      B 70                                      C 80-90                                      D 25-35
47. One study (Heath et al. 1995) reports heritability coefficients for smoking initiation of ——— in women and 0.51 in men among a sample of Swedish adults.
- A .53                                      B .50                                      C .42                                      D .44
48. One research study (Xian et al. 2003, 2005) indicated a heritability of ——— for failed smoking cessation.
- A 0.54                                      B 0.34                                      C 0.62                                      C 0.43
49. A small study of smokers with schizophrenia indicated that the ——— gene may be associated with smoking status.
- A CHRNA5                                      B CHRN2                                      C CYP2A6                                      D CHRNA7





83. The most frequently inactivated tumor-suppressor gene in lung cancer is:  
 A IU89                                      B TP53                                      C RR34                                      D BN21
84. ——— gene expression is common in lung cancer.  
 A Slight decreased                      B Increased                      C Marked decreased                      D An absence of
85. Four years after surgery, 78 percent of patients with no TP53 mutation and ——— percent with a TP53 mutation were alive.  
 A 38                                      B 43                                      C 90                                      D 52
86. TP53 mutations do not occur at random along the coding sequence.  
 A True                                      B False
87. In the TP53 gene of lung cancers, the five major G→T mutational hot spots at codons 157, 158, ———, 248, and 273 consisted of methylated CpGs.  
 A 177                                      B 198                                      C 245                                      D 247
88. In oral cancers, it is shown that the TP53 mutation has ——— in the prevalence of mutations among heavy smokers versus nonsmokers.  
 A an almost seven fold increase                      B an almost four fold increase                      C a two fold increase                      D an eight fold increase
89. Apoptosis was first described in 1972. The term “apoptosis” is from the Greek word for “———.”  
 A breaking down                      B disintegration                      C falling off                      D destruction
90. The interaction of BAX with the mitochondrial membrane causes the release of cytochrome ——— into the cytosol.  
 A a                                      B b                                      C c                                      D d
91. Activation of the RAS pathway sends a strong anti-apoptotic signal, and the constitutive activation of RAS can ——— normal cells.  
 A dissolve                                      B speed the duplication of                      C do no damage to                      D transform
92. Cigarette smoke ——— COX-2 expression by lung fibroblasts in vitro.  
 A increases                                      B slightly decreases                      C markedly decreases                      D has no effect on
93. COX-2 over-expression in lung cancer is associated with tumor angiogenesis and survival and proliferation of tumor cells.  
 A True                                      B False
94. More than ——— genes are inactivated by gene promoter hypermethylation in lung cancer.  
 A 12                                      B 22                                      C 42                                      D 50
95. A hallmark of the ——— cell is the ability to disrupt the tightly regulated cell-cycle control and enable the cell to bypass checkpoints.  
 A cardiac muscle                      B pulmonary tissue                      C neoplastic                      D hepatic tissue
96. Smoking and exposure to ——— interact synergistically to increase the risk for lung cancer.  
 A asbestos                                      B radiation                                      C mold                                      D all of the above
- CHAPTER SIX: CARDIOVASCULAR DISEASES**
97. In a US CDC 2008 report, smoking accounted for 33 percent of all deaths from CVD in persons older than ——— years of age.  
 A 20                                      B 27                                      C 35                                      D 54
98. The data on secondhand smoke and CHD risk indicate that the dose-response relationship between exposure to smoke and cardiovascular effects is:  
 A unsubstantiated                      B insignificant                      C nonlinear                      D definite
99. The risks of MI and death from CHD are ——— among former smokers than among continuing smokers in many studies.  
 A slightly higher                      B lower                      C much higher                      D about equal







151. Epidemiologic studies have consistently reported a(n) ——— risk of placenta previa among smokers.
- A increased                      B mildly reduced                      C unaffected                      D greatly reduced
152. Preterm delivery complicated ——— percent of pregnancies in the United States in 2003.
- A 8.4                      B 12.3                      C 3.2                      D 1.2
153. PPRM occurs in up to 4.5 percent of deliveries and in approximately ——— percent of preterm births.
- A 15                      B 30                      C 40                      D 50
154. The highest quality studies indicate birth weight decrements of 15 to ——— g from exposure to secondhand smoke.
- A 35                      B 50                      C 100                      D 245
155. Many studies have found a slightly increased risk of approximately ——— for stillbirth or neonatal mortality associated with smoking.
- A 20 - 30 percent                      B 8 to 10 percent                      C 5 percent                      D 44 percent
156. One study found an association between maternal smoking and a ——— increase in the risk of cleft lip with or without cleft palate.
- A 29 percent                      B 34 percent                      C 15 percent                      D 41 percent
157. Butler and Goldstein studied a sample of more than 9,000 whose mothers had smoked during pregnancy. These children were ——— behind children of nonsmoking mothers in reading, mathematics, and general cognitive abilities.
- A two to four months                      B one year                      C six to twelve months                      D three to five months
158. ——— studies show that smokers have lower circulating levels of estriol and estradiol than do nonsmokers.
- A Very few                      B No                      C Several                      D Only Asian-based
159. The ——— is an in vivo target of cigarette smoke and its components.
- A pancreas                      B urinary bladder                      C oviduct                      D distal small bowel
160. The fetus of a smoker develops under conditions of ——— partial pressure of O<sub>2</sub>.
- A slightly increased                      B greatly increased                      C an unaffected                      D reduced
161. Smoking acutely increases the heart rate and blood pressure of smokers, particularly after ——— smoking.
- A a period of abstinence from                      B a long period of                      C completely quitting                      D changing cigarette brands in
162. A study of more than 5,000 participants found that smokers tended to have a lower mean diastolic blood pressure of ——— of mercury.
- A 8 to 10 millimeters                      B 1 to 3 millimeters                      C 5 to 7 milliliters                      D 8 to 9 milliliters
163. A large study, with 67 pregnant smokers, found a significant increase of ——— in maternal heart rate immediately after smoking.
- A 3 percent                      B only 1 percent                      C 6 percent                      D 4 to 5 percent
164. Regarding most studies for maternal blood pressure, increases of less than ——— percent were observed.
- A 12                      B 15                      C 9                      D 5
165. A reactive NST (——— nonstress test) is a sign of fetal well-being.
- A nominal                      B nosocomial                      C neural                      D noninvasive
166. The embryo is most easily disturbed during the organogenesis period, from day 15 to day ——— after conception.
- A 20                      B 35                      C 45                      D 60
167. Epidemiologic studies show that offspring of maternal smokers have abnormal lung function.
- A True                      B False

168. ———, smoking appears to have immunosuppressive effects.
- A In most cases                      B In general                      C In some cases                      D In very few cases
169. ——— is formed as a by-product of combustion and is thus present in tobacco smoke.
- A CO<sub>2</sub>                      B H<sub>2</sub>O                      C CO                      D H<sub>2</sub>O<sub>2</sub>
170. The dose of the toxin, CO, per cigarette is ——— times the dose of nicotine.
- A 5                      B 12                      C 10 to 20                      D 3
171. The binding of CO to hemoglobin is tenacious, with a half-life of ——— hours.
- A five to six                      B around two                      C four to five                      D over eleven
172. At birth, the healthy newborn hematocrit is normally ——— percent.
- A 39 to 57                      B 36 to 58                      C 44 to 64                      D 56 to 73
173. ———, the principal alkaloid in tobacco, is a major contributor to the addictive properties of smoking.
- A Irritant bases                      B Nicotine                      C CO                      D Tar
174. Regarding tobacco smoke studies, arsenic was detectable but not quantifiable (limit of quantitation = ——— ng per cigarette).
- A 1.2                      B 2.7                      C 5.4                      D 12.8
175. ——— metals can influence electron-exchange reactions and oxidative stress within cells.
- A Interim                      B Terminal                      C Transition                      D Alkaloid
176. Researchers have investigated ——— as the agent in cigarette smoke responsible for LBW in newborns of smokers.
- A cadmium                      B technetium                      C promethium                      D astatine
177. The most commonly observed effects of PAHs in animal studies are growth retardation and:
- A anemia                      B chronic elevated BP                      C physical malformations                      D fetal mortality
178. Clinical studies of exposure to PAH-containing mixtures of pollutants in utero have reported:
- A reductions in birth weight                      B variations in length                      C variations in head circumference                      D all of the above
179. Cigarette smoke inhibits the growth of the chick chorioallantoic ——— (CAM).
- A membrane                      B mitosis                      C melamine                      D menthanol
180. Researchers have reported that endothelial cells from the umbilical cords of infants born to smokers had a 30-percent reduction in ENOS activity and a 22-percent reduction in ENOS levels.
- A True                      B False
181. ——— of women who smoke during the first pregnancy also smoke during the second.
- A One-half                      B Two-thirds                      C One-fifth                      D One-fourth
182. Because only about ——— percent of women successfully control tobacco dependence during pregnancy, smoking cessation is recommended before pregnancy.
- A 10                      B 15                      C 20                      D 30
183. Tobacco use in women coexists with other risk behaviors or morbidities, including mental health disorders and substance use.
- A True                      B False

## CHAPTER NINE: A VISION FOR THE FUTURE

184. The ——— has called tobacco use “the single most preventable cause of death in the world today”.
- A CDC                      B Mayo Clinic                      C WHO                      D NIH

185. Smokers who quit after the age of ——— years continue to have excess risk for tobacco-related diseases.
- A 25                                      B 32                                      C 37                                      D 44
186. Approximately 1 in ——— deaths in the United States had COPD as the underlying cause.
- A 30                                      B 20                                      C 45                                      D 25
187. Approximately 19 percent of women of reproductive age smoke cigarettes, and based on birth certificate data, more than 1 in ——— women reported smoking during pregnancy.
- A 10                                      B 12                                      C 15                                      D 20
188. If the population ceased smoking, this single behavior change would be tantamount to a vaccine against ——— of cancer deaths.
- A one-eighth                              B one-fifth                              C one-fourth                              D one-third
189. Data indicate that less than ——— percent of smokers are offered assistance in quitting annually.
- A 45                                      B 55                                      C 30                                      D 62
190. The federal excise tax on cigarettes rose from \$0.24 to ——— on April 1, 2009.
- A \$1.01                                      B \$0.52                                      C \$0.49                                      D \$0.88
191. Although there are many subjective and behavioral methods, researchers have devoted little attention to cognitive and neurophysiological measures of addiction through the use of functional magnetic resonance imaging or positron emission tomography.
- A True                                      B False
192. Both active and involuntary smokings are the cause of at least ——— types of cancer.
- A 15                                      B 7                                      C 4                                      D 12

**TOBACCO AND DISEASE COURSE POST-TEST ANSWER SHEET**

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