

# AP ENVIRONMENTAL SCIENCE



## QUESTION CATALOGUE

# AP Environmental Science

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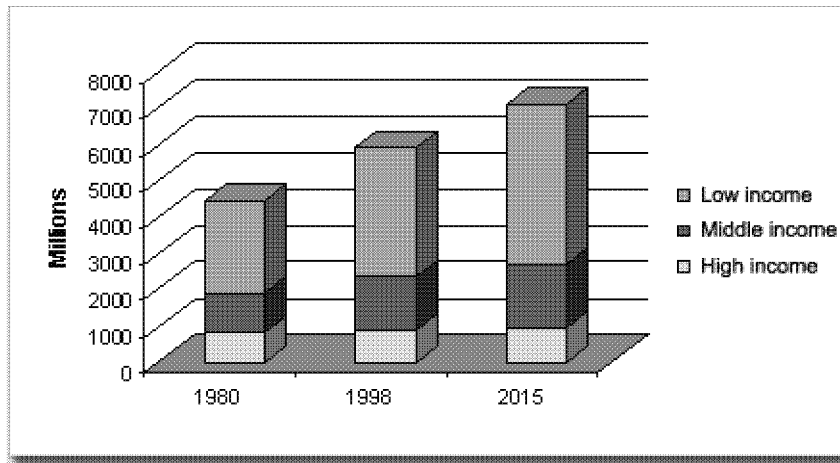
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Base your answers to questions 1157 and 1158 on the graph below that shows world population values and estimates.



1157. In many countries, birth rates have decreased. Why is the population size projected to increase by 2015?
- (A) A slight increase in birth rate in large countries outweighs the decrease in birth rate in smaller ones.
  - (B) Birth control is not practiced in many countries.
  - (C) Population growth increases exponentially, even though birth rates are decreasing.**
  - (D) Population growth is a linear expression, causing population size to continuously increase.
  - (E) The population size is projected to increase and decrease cyclically.
1158. In 1998, the population size of people in the middle income category was approximately
- (A) 150 thousand
  - (B) 1.5 million
  - (C) 15 million
  - (D) 1.5 billion**
  - (E) 15 billion

74. The phenomenon known as exponential growth shows
- (A) doubling time
  - (B) positive feedback**
  - (C) negative feedback
  - (D) sustainability
  - (E) a steady state
161. Which of the following statements is true?
- (A) The annual productivity of an ecosystem is always greater than the annual biomass increase of its herbivores**
  - (B) The annual productivity of an ecosystem is always less than the annual biomass increase of its herbivores
  - (C) The annual productivity of an ecosystem is always the same as the annual biomass increase of its herbivores
  - (D) The annual productivity of an ecosystem is independent of the annual biomass increase of its herbivores
  - (E) The annual productivity of an ecosystem is always the same as the sum of the annual biomass increase of its herbivores and the annual biomass increase of its carnivores
195. One might find all of the following on the banks of a river EXCEPT
- (A) riparian strips
  - (B) phytoplankton
  - (C) blue green algae
  - (D) phragmites
  - (E) squid**
226. Detritus food chains are characterized by
- (A) larger organisms
  - (B) low-nutrient environments
  - (C) inactive, heat-conserving organisms
  - (D) complex, interrelated trophic levels**
  - (E) motile organisms
330. The process by which one species limits another's access to some resource, regardless of its abundance, is known as
- (A) exploitation competition
  - (B) territoriality
  - (C) interference competition**
  - (D) intraspecific competition
  - (E) niche exclusion
711. In an aquatic ecosystem, zooplankton occupy
- (A) the first trophic level
  - (B) the second trophic level**
  - (C) the third trophic level
  - (D) the fourth trophic level
  - (E) no particular trophic level
735. Bog succession takes place through a process of
- (A) sedge runner construction**
  - (B) dune formation
  - (C) soil creation facilitated by lichen
  - (D) soil creation facilitated by microbes
  - (E) desalinization and cultural eutrophication

D. Biological

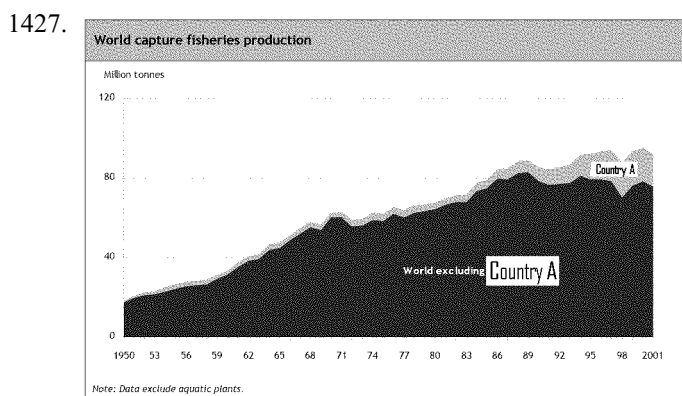
a. Food and other agricultural products

1423. The most land and least labor is needed for which type of agriculture?
- (A) Industrialized agriculture in developed countries.
  - (B) Industrialized agriculture in developing countries.
  - (C) Intensive traditional agriculture.
  - (D) Shifting cultivation in tropical forests.
  - (E) **Nomadic herding in developing countries.**

1424. The US agriculture business
- (A) **is inefficient in that it consumes a huge amount of fossil fuel energy relative to the food energy that it produces**
  - (B) requires more labor than other types of agriculture and the agriculture businesses of developing countries
  - (C) grew mostly in size due to the second green revolution in which dwarf varieties of grain were introduced
  - (D) is a relatively minor industry in the US, compared to steel, automotive, and housing industries
  - (E) uses up more energy growing food than processing food

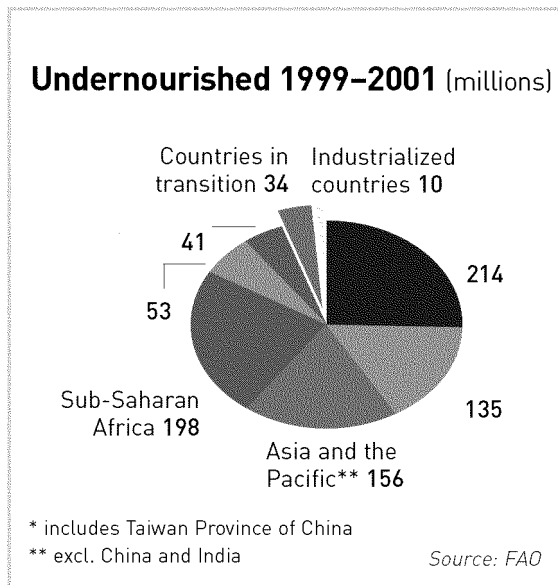
1425. When several crops are planted together in strips between trees and shrubs that provide fruit or fuel wood, this is known as
- (A) intercropping
  - (B) **agroforestry**
  - (C) interplanting
  - (D) polyculture
  - (E) polyvarietal cultivation

1426. Considerable areas of wetland can be found in all the following states EXCEPT
- (A) Delaware
  - (B) South Carolina
  - (C) Florida
  - (D) Louisiana
  - (E) **California**



- In the graph above, what country most likely is represented by A?
- (A) Russia
  - (B) South Africa
  - (C) US
  - (D) Japan
  - (E) **China**

Base your answers to questions 1428 and 1429 on the graph below.



1428. What area most likely has 214 million people suffering from malnutrition?
- (A) **India**
  - (B) China
  - (C) Russia
  - (D) Latin America
  - (E) Middle East

1429. Currently in all of the world, the majority of the countries that suffer from food shortage are in Africa. Yet Africa does not have the highest number of people who are undernourished. Which explains this best?
- (A) There is a margin of error for the measurements that the above graph was based on.
  - (B) People in Africa get a higher content of dietary requirements besides only carbohydrates.
  - (C) Conditions in the world have changed drastically from the year 2001 when the graph above was made.
  - (D) **Other areas are more undernourished because they don't have the money to buy food that is available.**
  - (E) There is more unrest in other areas, including political instability and wars, which causes famines.

1432. Farmers can have crops with higher vitamin yield and higher protein yield by
- (A) cutting down on herbicide use
  - (B) using crop rotation techniques
  - (C) replacing inorganic fertilizers with organic fertilizers
  - (D) using more nitrates and phosphates in their fertilizers
  - (E) **planting genetically engineered crops**

## IV. ENVIRONMENTAL QUALITY

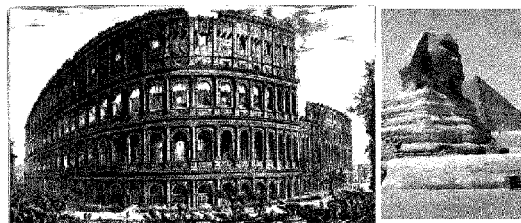
### A. Air, Water and Soil Pollution

166. Which of the following indoor air pollutants is INCORRECTLY matched with its effects on humans?
- (A) Asbestos--lung cancer
  - (B) Methylene chloride--nerve disorder
  - (C) Formaldehyde--diabetes**
  - (D) Radon-222--lung cancer
  - (E) Styrene--kidney and liver damage
417. Stone decay occurs approximately twice as rapidly in cities as in rural areas and is due mainly to
- (A) the absence of wildlife
  - (B) the preservative effects of synthetic pesticides on minerals
  - (C) the deteriorating effects of acid precipitation**
  - (D) higher relative humidity
  - (E) none of the above
459. Indoor air pollution
- I. is of great concern in developed nations
  - II. is of great concern in developing nations
  - III. affects mainly those with compromised health
- (A) I only
  - (D) I and II only**
  - (B) II only
  - (E) I and III only
  - (C) III only
672. Aerosols of which of the following cause harm to natural features and buildings in the troposphere?
- (A) CFCs
  - (B) HFCs
  - (C) sulfate ions**
  - (D) sulfur dioxide
  - (E) nitrous oxide
727. Indoor air pollution, as opposed to outdoor air pollution,
- (A) is generally found in smaller concentrations
  - (B) has extremely varied sources**
  - (C) has not been around for very long
  - (D) has acute and specific effects on diverse individuals
  - (E) is associated with increased risk of cancer
1515. Which of the following is TRUE about asbestos?
- (A) Asbestos fibers brought home in the clothes and hair of mine workers can cause increased rates of cancer in family members.**
  - (B) U.S. asbestos companies have resisted health claims from US workers and are still operational in the US.
  - (C) Asbestos causes mostly skin diseases and liver cancer.
  - (D) Asbestos is a cheap building material which is rather weak and inflexible, only used because of its low cost.
  - (E) Today asbestos are still used in the US for things like brake linings and water pipes that aren't exposed to people.

## 2. Effects of Pollutants

### c. Natural features and buildings

837. The harmful effects of pollution on natural features and buildings could be greatly reduced with the widespread use of
- (A) catalytic converters
  - (B) sulfur-based combustible fuels
  - (C) scrubbers**
  - (D) coal power
  - (E) none of the above
902. All of the following air pollutants cause grave damage to both stone and metal building materials EXCEPT
- (A) sulfur dioxide
  - (B) sulfuric acid
  - (C) nitric acid
  - (D) particulate matter
  - (E) hydrogen sulfide**
1197. The Sphinx and the Colosseum, two ancient buildings, have recently undergone serious destruction.



Which of the following accurately describes the cause of the destruction of the two structures?

- (A) Increased surface temperatures due to higher pollution levels and subsequent ozone depletion cause weathering of the structure.
  - (B) Power plants and motor vehicle pollution causes acid rain to form, which dissolves the structures.**
  - (C) Stronger wind velocities in recent years have led to wind erosion of the structures.
  - (D) Increased rain fall has washed away portions of the structures.
  - (E) The structures are naturally weathering with time.
1516. High asbestos concentrations are found in an old school building that is still in use. Which of the following is the most logical and cost-efficient solution?
- (A) Improving air circulation
  - (B) Wetting the asbestos to control dust
  - (C) Removing the asbestos
  - (D) Sealing, wrapping, or containing the asbestos**
  - (E) Burning the asbestos away

222. Gross domestic product is a measure of
- (A) the quality of life in a country
  - (B) how many people are employed in a country
  - (C) a country's economic growth
  - (D) the sum of all goods and services produced within a country's borders in a period**
  - (E) the average after-taxes income level for the citizens of a given country
336. The cost of production is determined by all of the following EXCEPT
- (A) direct costs
  - (B) standard costs
  - (C) fixed costs
  - (D) variable costs
  - (E) floating costs**
337. Cost benefit analysis includes all of the following EXCEPT
- (A) determining whether the private sector provides adequate public services
  - (B) assessing the private sector's inefficiencies and their impact upon health and safety
  - (C) meeting the needs of society in a cost-effective way
  - (D) determining external costs to society**
  - (E) quantifying the aspects of a project into monetary units
398. GNP and GDP are limited as measures of a nation's well-being in that
- (A) they fail to account for imported and exported goods
  - (B) they fail to account for foreign workers operating within a country
  - (C) they fail to account for double-counting
  - (D) they fail to account for the depletion of natural resources**
  - (E) they fail to account for wages earned
619. Which of the following approaches to funding environmental cleanup would be most likely to have the least negative economic impact for the United States?
- (A) Funding is provided by taxpayer money
  - (B) Funding is provided by a combination of taxpayer money and money from the polluter
  - (C) Funding is provided entirely by the polluter**
  - (D) Funding is provided entirely by voluntary donations
  - (E) Funding is not provided and nature is left to clean
856. The old saying, "A bird in the hand is worth two in the bush," most clearly reflects the economic concept of
- (A) externality
  - (B) indirect costs
  - (C) marginal costs
  - (D) future value**
  - (E) ornithological value

861. An example of demand-side management by a power company is
- (A) offering cash awards to homes using energy-efficient devices**
  - (B) reducing electricity output during lull periods
  - (C) setting minimum kWh per household requirements
  - (D) offering lower rates to high-demand consumers
  - (E) adjusting rates to account for future market demand expectations
883. Environmentally sound alternatives to automobile travel include
- I. Electric bikes
  - II. Two-stroke motor scooters
  - III. Public transportation
- (A) I only
  - (B) II only
  - (C) I and II only
  - (D) I and III only**
  - (E) I, II and III
955. All of the following statements about cost-benefit analysis are true EXCEPT
- (A) Corporate estimates of the cost to control pollution are often many times lower than the actual cost turns out to be.**
  - (B) It is often easier to determine the cost portion of cost-benefit analysis than the health and environmental benefits.
  - (C) Cost-benefit analysis is by its very nature an uncertain science.
  - (D) Cost-benefit analysis is used to help formulate and evaluate environmental legislation.
  - (E) All of the above statements are true.
1146. Which of the following is an example of risk-benefit analysis, or cost-risk analysis?
- (A) Mine Safety Laws
  - (B) Automobile speed laws**
  - (C) National health insurance coverage
  - (D) Clean Air Act
  - (E) None of the above
1147. Following a summer concert festival, demand for food in the local supermarkets decreases, as does the supply. This causes which of the following?
- (A) An increase in the equilibrium price and an increase in quantity
  - (B) An increase in the equilibrium price and a decrease in quantity
  - (C) A decrease in equilibrium price and an increase in quantity
  - (D) A decrease in equilibrium price and a decrease in quantity**
  - (E) None of the above