The most common causes of tsunamis are underwater earthquakes. To understand underwater searquakes, you must first understand plate tectonics. The theory of plate tectonics suggests that the lithosphere, or top layer of the Earth, is made up of a series of huge plates. These plates make up the continents and seafloor. They rest on an underlying viscous layer called the asthenosphere.

Think of pie cut into eight slices. The pie crust would be the lithosphere and the hot, sticky pie filling underneath would be the asthenosphere. On the surface, drying time and more. Each layer was mixed to just the right level of varnishes and other ingredients. Besides color, the art contained different binding agents, pigments, layers. Often, individual layers of the same piece of art contained different binding agents, pigments, varnishes and other ingredients. Besides color, each layer was mixed to just the right level of thickness, glossiness, texture, evenness of the surface, drying time and more.

In Rembrandt’s time, artists mixed their own paints, which they then spread onto canvas in layers. Often, individual layers of the same piece of art contained different binding agents, pigments, varnishes and other ingredients. Besides color, each layer was mixed to just the right level of thickness, glossiness, texture, evenness on the surface, drying time and more.
However, paint layers are though to analyze because they are spread so incredibly thin. The thinnest ones rise just a thousandth of a millimeter above the layer below them. Using a variety of chemical and physical analytical methods, along with old written records, scientists have been able to identify pigments and other inorganic materials in many ancient paintings.

For the new study, the scientist used some of the most high-tech equipment around to look at the “Portrait of Nicolaes Van Bambeeck,” which Rembrandt van Rijn painted in 1641. First they took a cross-section from a miniscule section of the painting. Then they used a variety of methods to probe the layers, including a technique called Time of Flight — Secondary Ion Mass spectrometry (ToFSIMS). This technique involves sending a focused, high-energy beam of ions at the layered sample, then observing the ions that bounce back. By analyzing the energy and chemical nature of the ejected ions, scientists can deduce detailed information about the types of elements and chemical bonds held within.

For the second greyish layer of paint on the “Portrait of Nicolaes van Bambeeck,” the scan showed, Rembrandt mixed oil and a small amount of lead with wheat flour. It’s not clear yet whether Rembrandt used wheat earlier or continued to use ingredient after painting the “Portrait of Nicolaes van Bambeeck,” who was a rich wool merchant. But the researchers also found wheat in the “Portrait of Agatha Bas,” the merchant’s wife.

What would the paragraph following the passage be likely to discuss?

A. The ToF-SIMS
B. Paintings of other 17th century artist
C. Written evidence of the use of wheat flour
D. The painting “Portrait of Agatha Bas”
E. Other technique used in the research

What is the main idea of paragraph 3?

A. There are some advantages of using paint layers.
B. Scientists have found the thinnest layer of ancient paintings.
C. There are inorganic materials in ancient paintings.
D. There are some methods to crack layer painting mystery.
E. The chemical ingredients for layer painting contain different pigments.

According to paragraph 1, which of the following words can best describe scientists effort to identify ingredients in Rembrandt’s paintings?

A. Glorious
B. Effortless
C. Involuntary
D. Lenghtly
E. Laborious

How does the author organize the ideas in the passage?

A. By arguing other theories of old painting’s ingredients.
B. By comparing one Rembrandt’s works to his other works.
C. By discussing possible ingredients used at Rembrandt’s time.

D. By presenting the research’s findings and describing its process.
E. By discussing the importance of knowing what ingredients Rembrandt used.

What does the word ‘they’ in “...own paints, which they then ...(line 5) refer to?

A. Layers
B. Artists
C. Paints
D. Pigments
E. Ingredients

Soaring carbon emissions from a meat-hungry developing world could be cut back substantially by improving animal breeds and feed, according to a study. It is estimated that livestock farming contributes 18-51 per cent of the world’s greenhouse gas emissions. Demand for livestock products is predicted to double by 2050 as a result of growing populations, urbanization, and better income in the developing world, which will cause emissions to rise.

The study, published in the Proceedings of the National Academy of Science, suggest that 12 per cent of total livestock-related emissions in 2030 could easily be shortened with simple improvements in production. These include: switching to more nutritious pasture grasses; suppleting livestock diets based on grass with small amounts of crop residues or grains; restoring degraded grazing lands; growing trees that trap carbon while producing leaves that livestock could eat; and adopting more productive breeds.

“Organizations from the West, especially the World Watch Institute, have continued to blame livestock-keeping for being one of the major polluters of the world, yet livestock keeping’s positives by far outweigh the negative,” said Mario Herrero, co-author of the paper and a senior scientist at International Livestock Research Institute.

Livestock farmers in developing countries have a relatively small environmental footprint and their animals provide them with food, income and transport for their crops, said John Byron. “What these farmers need are technological options and economic incentives that help them intensify their production in sustainable ways,” he added.

Steinfeld, coordinator of the Livestock, Environment and Development Initiative at the Food and Agriculture Organization, said: “If one were able to connect this to smallholder development by making poor farmers benefit through the possibility of carbon offsets and carbon markets that would indeed create a win-win situation where one would have socioeconomic benefits, targeting poor people, while reducing the carbon ‘hoofprints’ i.e the carbon footprint of livestock”.

Improving livestock production should be done...
20 to improve livehoods and not just for climate reasons, said Kirtana Chandrasekaran, food campaigner for Friends of the Earth. She added that intensive agriculture also contributes to biodiversity loss so “it’s very dangerous” just to look at lowering emissions “when there’s a whole host of other factor affecting improvement in livestock farming”.

41. The theme of these two text would most likely be

A. research for better livestock farming.  
B. livestock farming and carbon emissions.  
C. livestock as a top source of air pollution.  
D. arguments for sustainable livestock farming.  
E. cutting carbon emissions in livestock farming.

42. The following ideas reflect opinions in two texts, EXCEPT ...

A. better management in livestock farming links to less gas emissions.  
B. better life quality should also result from improved livestock farming.  
C. sustainable livestock farming potentially leads to low carbon emissions.  
D. despite its carbon emissions, livestock farming gives more advantages.  
E. livestock industries have affected greenhouse gas emissions significantly.

43. It can be concluded from the two texts that cattle productions are considered ‘successful’ if they ...

A. contribute more to economic benefits for the humans livehood.  
B. address reduction of carbon emissions, biodiversity and better quality of life.  
C. result from provisions of appropriate technology and economic motivations.  
D. are controlled from the side of economic and technological management.  
E. consider both technology and natural factors affecting livestock farming.

44. Which of following statements can be hypothetically figured out based on the information in these two texts?  

A. the increase in population, urbanization, and earnings leads to the higher demand for livestock consumptions, and thus the higher carbon emissions.  
B. the significant increase in greenhouse gas emissions in due to changes in people’s lifestyles and activities, including the higher demand for livestock products.  
C. desirable livestock farming is parallel with reduction of greenhouse gas emissions, improvement of biodiversity, and better socioeconomic quality of the poor.  
D. whatever the technological attempts are made to improve livestock production to meet the people’s demand, higher carbon emission will constantly increase.  
E. although it affects positively the poor’s socioeconomic status, livestock farming activities negatively influence biodiversity as well as global climate condition.

45. The argument for livestock farming in the first text differs significantly from that in the second text in that the first text deals with ...

A. seven minor topics; the second three minor ones.  
B. three major topics; the second five major ones.  
C. one general topic; the second two minor ones.  
D. two major topics; the second three major ones.  
E. eight minor topics; the second six minor ones.
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