



Đề thi thật 1: Ambergris – what is it and where does it come from?

In the ancient world, the waxy grey substance we now refer to as ambergris was highly prized for its medicinal properties, and was widely used as a spice, which was believed to be an aphrodisiac when added to food or wine. Ambergris itself is pleasantly aromatic, especially when warmed, and it was also highly valued as a fixing agent in the making of perfume, since it enabled a scent to retain its fragrance for much longer than might otherwise have been possible. Most ambergris was found in the form of lumps floating on the surface of the sea, or washed up on the shores of tropical and temperate oceans. At one time, ambergris was worth its weight in gold, but there was much confusion about its origins.

Ambergris was known to the Arabs as 'ambar' and was originally called amber in the West in the Middle Ages. This eventually led to further confusion in the popular mind between ambergris and true amber, the mineral known to mineralogists as succinite, which is actually fossilised tree resin, and generally yellow in colour. Both substances were rare and costly, and both were associated with the sea, largely because for Europeans the most common source of amber was the shores of the Baltic. In Chapter 92 of Moby Dick, the American writer Herman Melville pours scorn on those who believed the two substances to be the same:

"Though the word ambergris is but the French compound for grey amber, yet the two substances are quite distinct. For amber, though at times found on the sea-coast, is also dug up in some far inland soils, whereas ambergris is never found except upon the sea. Besides, amber is a hard, transparent, brittle, odorless substance, used for mouth-pieces to pipes, for beads and ornaments; but ambergris is soft, waxy, and so highly fragrant that it is largely used in perfumery."

Questions 1–6

According to the information in Reading Passage 1, classify the following facts as referring to:

A ambergris only

B amber only

C both ambergris and amber

D neither ambergris nor amber

Write the correct letter, A, B, C or D, in boxes 1–6 on your answer sheet.

1. very expensive

2. a food flavouring

3. used as currency

4. sweet-smelling

5. referred to by Herman Melville

6. can be seen through



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Moby Dick was published in 1851, by which time the mystery of the origins of ambergris had been resolved by the scientific community. In 1783, the botanist Joseph Banks, who had accompanied Captain James Cook on his voyages of discovery in the Pacific, presented a paper to the Royal Society of London by the German physician Dr. Franz Xavier Schwediawer in which it was conclusively proved that ambergris came from sperm whales. In this, he was confirming an observation made in the 13th century by the great Venetian traveller Marco Polo who, while on the island of Socotra in the Indian Ocean, had witnessed a sperm whale vomiting up ambergris. But whereas Marco Polo imagined that the whale had swallowed the lump in the depths of the sea, Schwediawer showed that the origin of the material was inside the whale itself.

The sperm whale is the largest of the odontocetes, or toothed whales. Males can grow up to 20 meters in length. Melville described the sperm whale as the 'king of whales', and his novel Moby Dick is based on the pursuit of one such creature. Sperm whales are renowned for their ability to dive to great depths, possibly as far as 3,000 metres below the surface, and for remaining underwater for periods of two hours or more in pursuit of their favourite prey, the giant squid.

Questions 7–9

Complete the flow-chart below.

Choose NO MORE THAN TWO WORDS from the passage for each answer.

Write your answers in boxes 7–9 on your answer sheet.

How ambergris is formed

Ambergris is formed in whales because of problems digesting the 7..... of giant squid.

Black liquid is produced and is 8..... from time to time.

The liquid 9..... on contact with the air.



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It is from the problems the whales have in digesting the beaks of such creatures that ambergris has its origins. The beak is sharp and irritates the whale's lower intestine, which responds by producing a black, foul-smelling liquid. It is not clear to scientists whether this secretion should be considered a normal response by the whale's digestive system or a pathological one, but from time to time large quantities of the liquid are vomited up by the whale. Once outside the whale's body and exposed to air, the substance hardens, acquiring the waxy, greyish and pleasantly aromatic characteristics of ambergris. Often the beaks of squid are still found embedded in lumps of ambergris, some of which can weigh several hundred kilograms. Melville took some delight in contrasting the origins of ambergris with the high value placed upon it by refined society:

"Who would think, then, that such fine ladies and gentlemen should regale themselves with an essence found in the inglorious bowels of a sick whale!"

Questions 10–13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 10–13 on your answer sheet, write:

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

10. In the 20th century, most of the world's ambergris came from processing dead whales.

11. The value of ambergris has increased recently.

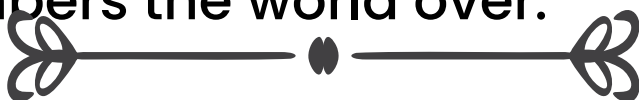
12. Ambergris remains an important ingredient in perfume.

13. New uses have recently been found for ambergris.



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Sperm whales were ruthlessly pursued by commercial whalers in the 19th and 20th centuries. In 1963–64 alone, almost 30,000 individuals were killed, and only the imposition of a ban on the hunting of sperm whales in 1984 saved the species from extinction. Ambergris was by far the most valuable product to be extracted during the processing of the whales' carcasses, and over 90 per cent of the annual worldwide total was acquired in this way, as a by-product of commercial whaling. However, even before the ban on hunting sperm whales was imposed, the 1972 Marine Mammal Protection Act had prohibited trade in ambergris. Just as petroleum and plastic products were replacing other natural products of whaling, so ambergris was supplanted in the making of perfume by other materials, some natural and some synthetic in origin. Nevertheless, it is possible that, as sperm whale populations recover to their former numbers in the wild, so the sight of lumps of ambergris washed ashore along the tide line will once again become a familiar one to beachcombers the world over.





Đề thi thật 2: The Analysis of Fear

Researchers are investigating the processes in the brain that give rise to fear in animals. The results may lead to new ways to treat human anxiety

Over the years, the majority of people acquire a range of skills for coping with frightening situations. They will attempt to placate a vexed teacher or boss and will shout and run when chased by a hostile stranger. But some individuals become overwhelmed in circumstances others would consider only minimally stressful: fear of ridicule might cause them to shake uncontrollably when called on to speak in a group, or terror of strangers might lead them to hide at home, unable to work or shop for groceries. Why do certain people fall prey to excessive fear?

Ned H. Kalin and Steven E. Shelton at the University of Wisconsin-Madison are addressing this problem by identifying specific brain processes that regulate fear and its associated behaviors. Despite the availability of non-invasive computer imaging techniques, such information is still extremely difficult to obtain in humans. Hence, they have turned their attention to another primate, the rhesus monkey. These animals undergo many of the same physiological and psychological developmental stages that humans do, but in a more compressed time span.

Questions 27 – 30

Choose the correct letter, A, B, C or D.

Write the correct letter in boxes 27-30 on your answer sheet.

27. In the first paragraph, the writer points out that

A. fear and stress are different feelings

B. most humans develop strategies for dealing with fear.

C. business situations cause more fear than others.

D. some people never experience fear.

28. When discussing the use of rhesus monkeys as experimental subjects, the writer notes that

A. they react more quickly to fear than humans.

B. they are more influenced by fear than humans.

C. their mental growth resembles that of humans.

D. their brains work more slowly than those of humans.



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29. Which of the following did Kalin and Shelton outline as the second stage in their research project?

- A. the identification of expressions of anxiety in monkeys
- B. the identification of situations that arouse stress in monkeys
- C. an analysis of brain development in monkeys
- D. the study of reactions to fear in monkeys of different ages

30. In the fourth paragraph, the writer notes that the three related situations

- A. reflect common experiences for infant humans and monkeys.
- B. highlight the similarities between monkey and human infant care.
- C. were predicted to cause monkeys more distress than human infants.
- D. were graded in terms of their potential effect on young monkeys.



Đề thi thật 2: The Analysis of Fear

As we gain more insight into the nature and operation of neural circuits that modulate fear in monkeys, it should be possible to pinpoint the brain processes that cause inordinate anxiety in people, and to devise new therapies to counteract it. Effective interventions would be particularly valuable if they were applied at an early age, as growing evidence suggests overly fearful youngsters are at high risk of later emotional distress.

When they began their studies two decades ago, Kalin and Shelton knew that they would first have to find cues that elicit fear and identify behaviors that reflect different types of anxiety. With such information in hand, they could then proceed to determine the age at which monkeys begin to match defensive behaviors selectively to specific cues. Finally, by determining the parts of the brain that reach maturity during the same time span, they could gain clues to the regions that underlie the regulation of fear and fear-related behavior.

The experiments were carried out at the University of Wisconsin-Madison. Kalin and Shelton discerned varied behaviors by exposing monkeys between six and 12 months old to three related situations. In the alone condition, an animal was separated from its mother and left by itself in a cage for ten minutes. In the no-eye-contact condition, a person stood motionless outside the cage and avoided looking at the solitary infant. In the stare condition, a person was again present and motionless but, assuming a neutral expression, peered directly at the animal. These positions are no more frightening than those that primates encounter frequently in the wild, or those that human infants encounter every time they are left at a day-care center.

Questions 31 – 35

Look at the following responses of monkeys (Questions 31–35) and the list of conditions below.

Match each response with the correct condition, A, B or C.

Write the correct letter, A, B or C, in boxes 31–35 on your answer sheet. NB You may use any letter more than once.

31. aggressive facial expressions

32. prolonged stillness

33. a combination of contradictory signals

34. appeals for maternal protection

35. the production of soft sounds

List of Conditions

A. the alone condition

B. the no-eye-contact condition

C. the stare condition



Đề thi thật 2: The Analysis of Fear

In the alone condition, most monkeys became very active and emitted frequent gentle 'coo' calls made with pursed lips. More than 40 years ago it was deduced that when an infant monkey is separated from its mother, it yearns to regain the closeness and security provided by nearness to the parent. These responses help to draw the mother's attention. In contrast, in the more frightening no-eye-contact situation, the monkeys reduced their

activity greatly and sometimes froze for extended periods of time. When an infant spots a potential predator, its goal shifts from attracting the mother to becoming inconspicuous. Inhibiting motion and freezing are common attempts to achieve this in many species. If the infant perceives that it has been detected, its aim shifts to warding off an attack. So the stare condition evoked a third set of responses. The monkeys made several hostile gestures: barking (forcing air from the abdomen through the vocal cords to emit a harsh, growl-like sound) and staring back. Sometimes the animals mixed the threatening displays with submissive ones, such as fear grimaces, which look something like wary grins, or grinding of teeth.

Questions 36 - 40

Complete the summary below.

Choose NO MORE THAN THREE WORDS AND/OR A NUMBER from the passage for each answer.

Write your answers in boxes 36-40 on your answer sheet.

Once they had identified three types of defensive behaviour, Kalin and Shelton grouped the monkeys according to their 36....., in order to discover precisely when they were able to respond appropriately to different fear-related cues. They videotaped their results and found that monkeys as young as 37 reacted to the cues but in a haphazard fashion. The researchers noted that they seemed to be unaware of the 38.....who were around them. Despite demonstrating 39 , the monkeys in the middle groups failed to react in ways corresponding to the experimental situation. The oldest group, however, reacted in the same way as 40.....and the researchers concluded that monkeys are capable of selective responding between nine and 12 weeks old.



Đề thi thật 2: The Analysis of Fear

Having identified three categories of defensive behaviors, Kalin and Shelton set about determining when infant monkeys first begin to apply them effectively. Several lines of work had led them to surmise that the ability to make such choices emerges when an infant is around two months old. To establish the critical period of development, they examined four groups of infant monkeys ranging in age up to 12 weeks old. The babies were separated from their mothers, left to acclimatize to a cage, and then exposed to the alone, no-eye-contact and stare conditions. All sessions were videotaped for analysis. They found that the infants in the youngest group (no more than two weeks old) engaged in defensive behaviors. But they lacked some motor control and seemed to act randomly, as if they had not noticed the human beings that were present. Babies in the two intermediate-age groups had good motor control, but their actions seemed unrelated to the test condition. Only animals in the oldest group (nine- to 12-week olds) conducted themselves differently in each situation, and their reactions were both appropriate and identical to those of mature monkeys. This finding meant motor control was not the prime determinant of selective responding and that nine to 12 weeks is the critical age for the appearance of a monkey's ability to adaptively modulate its defensive activity to meet changing demands.





Đề thi thật 3: The Constant Evolution of the Humble Tomato

Heirloom tomatoes—varieties that have been passed down through several generations of a family because they are thought to have a particularly good flavor—are really no more 'natural' than the varieties available in grocery stores. New studies promise to restore their lost, healthy genes.

A

Famous for their taste, color, and organic appearance, heirloom tomatoes are favorites of gardeners and advocates of locally grown foods. The tomato enthusiast might conclude that, given the immense varieties, heirlooms must have a more diverse and superior set of genes than the tomatoes available in grocery stores, those ordinary hybrid varieties such as cherry and plum. However, their seeming diversity is only skin-deep: heirlooms are actually feeble and inbred—the defective product of breeding experiments that began hundreds of years ago, and exploded thanks to enthusiastic backyard gardeners. The irony of all this," says Steven Tanksley, a geneticist at Cornell University, is all that diversity of heirlooms can be accounted for by a handful of genes. There're probably no more than 10 mutant genes that create the diversity of heirlooms you see. But rather than simply proving that the myth about the heirloom's diversity is wrong, Tanksley's deconstruction of the tomato genome, along with work by others, is showing how a small berry-like fruit from the Andes became one of the world's top crops.

Questions 18–21

Look at the following statements (Questions 18–21) and the list of researchers below. Match each statement with the correct researcher, A, B, C, or D.

Write the correct letter, A, B, C, or D, in boxes 18–21 on your answer sheet.

18. The transplanting of certain genes into tomatoes can change their shape.
19. The flavor of the heirloom tomato is largely dependent on actual yield and cultivation.
20. A new type of tomato can be produced that is stronger than the original heirloom tomato yet equally sweet and flavorful.
21. The wide variety of heirloom tomatoes is due to only a small number of genes.

List of Researchers

- A. Steven Tanksley
- B. Esther van der Knaap
- C. Roger Chetelat
- D. Doug Heath



Đề thi thật 3: The Constant Evolution of the Humble Tomato

B

The cultivated tomato is a member of the nightshade family that includes New World crops such as the potato, which spread around the globe after Christopher Columbus brought them back to Spain in the 15th century. But whereas scientists have uncovered a wealth of archaeological evidence on early farming practices in the New World, the record is blank when it comes to the tomato. The modern tomato seems to have its origins in the Andes in South America and may have been domesticated in Vera Cruz, Mexico. Primitive varieties still grow throughout the Americas. All told, botanists call as many as 13 species 'tomatoes' and consider an additional four to be closely related.

C

One might assume that one of these known wild species became today's cultivated crop, but that's not the case: the Mother Tomato has never been found. The closest relative is the currant tomato, which, based on genetic comparisons, split from today's tomato some 1.4 million years ago. So researchers like Tanksley have to work backward, crossing tomato varieties and species in order to understand how various genes influence shape and size. Once isolated, Tanksley later inserts those genes into other tomato varieties to make his case with a dramatic transformation.

Questions 22–26

Complete the sentences below.

Choose ONE WORD ONLY from the passage for each answer.

Write your answers in boxes 22–26 on your answer sheet.

22. There is little information on the origin of the tomato despite the existence of data on the growing of other New World crops.

23. Although it is uncertain, the tomato is thought to have first grown in the -----.

24. In regard to genetic similarities, the type of tomato ----- is the nearest to the earliest.

25. A genetic ----- which is evident in pomodoro produced larger tomatoes.

26. ----- are a problem for heirloom tomatoes because they frequently lead to damage and deterioration.



Đề thi thật 3: The Constant Evolution of the Humble Tomato

D

Tanksley concludes from his analyses that in their effort to make bigger, tastier, and faster-growing fruit, our ancestors ultimately exploited just 30 mutations out of the tomato's 35,000 genes. Most of these genes have only small effects on tomato size and shape, but recently Tanksley and his colleagues reported that they found a gene that increases fruit size by 50 percent. It was probably the most important event in domestication. The first written record of tomatoes—from Spain in the 1500s—confirms that this mutation, which enlarges tomatoes by producing compartments known as locules, existed back in the same yellow tomatoes that gave Italians the word pomodoro, or golden apple. Besides size, tomato farmers also selected for shape. To discover those genes, Esther van der Knaap, a Tanksley alumnus now at The Ohio State University, took a gene from one heirloom tomato and inserted it into a wild relative. She observed that, as a result, the tiny fruits became shaped like pears.

E



Đề thi thật 3: The Constant Evolution of the Humble Tomato

E

The selection of these traits has, however, affected the heirloom's hardiness. They often suffer from infections that cause the fruit to crack, split, and otherwise rot quickly. Wild plants must continuously evolve to fend off such infections, points out Roger Chetelat of the Tomato Genetics Resource Center at the University of California. But in their quest for size, shape, and flavor, humans have inadvertently eliminated defensive genes. As a result, most possess only a single disease-resistant gene. Chetelat elaborates that heirlooms' taste may have less to do with their genes than with the productivity of the plant and the growing environment. Any plant that produces only two fruits, as heirlooms sometimes do, is highly likely to produce juicier, sweeter, and more flavorful fruit than varieties that produce 100, as commercial types do. In addition, heirlooms are sold ripened on the vine, a certain way to get tastier results than allowing them to mature on the shelf. This means breeders feel confident that getting germ-beating genes back into heirlooms won't harm the desirable aspects of the fruit. Modern breeding has resuscitated grocery store tomatoes with an influx of wild genes; in the past 50 years, as many as 40 disease-resistant genes have been bred back into commercial crops.



Đề thi thật 3: The Constant Evolution of the Humble Tomato

F

In 1996, a tomato breeder and former Tanksley student named Doug Heath began a favorite project. After 12 years of traditional breeding with the help of molecular markers, he created a new multi-colored tomato less prone to cracking and also endowed with 12 disease-resistant genes. The original heirloom plant, Heath explains, had defective flowers, which is one reason why it produced only two fruits compared with the 30 he gets from his new variety. He claims he is also able to maintain a comparable flavor and sugar profile even on productive plants. The heirloom's defects are, after all, just an accident of a narrow breeding strategy left over from the very beginning of genetic modification.