

ACADEMIC READING PRACTICE TEST 6 Part 1

READING PASSAGE 1

Questions 1 - 14

You should spend about 20 minutes on **Questions 1 – 14** which are based on Reading Passage 1 below.

Amber - Frozen Moments in Time

Amber has a deep fascination both for ordinary people as a gem and for the scientist for whom it provides a glimpse into the past, a window into history. The majority of amber which has been discovered and studied originates in the Cenozoic Era. The earlier Mesozoic which consists of the Cretaceous, Jurassic and Triassic periods has also produced amber but in smaller and scarcer quantities due to its much older age. One of the problems associated with Mesozoic amber is the level of degradation it undergoes. Ancient fossil resin can be badly affected by oxidation, erosion, excessive heat and pressure.

Amber begins as resin exuded from trees millions of years ago possibly to protect themselves against fungal or insect attack or as a by-product of some form of growth process. Most known deposits of amber come from various tree species which are now extinct. Baltic amber was produced by a giant tree called *Pinites succinifer*, a tree sharing many characteristics of the currently living genus *Pseudolarix*. The true reason for this resin discharge from various species of trees is not fully understood. Scientists have theorised that it also could be a form of desiccation control, an aid to attract insect pollinators or even a reaction to storm or weather damage.

The resin from the trees needs to go through a number of stages in order to become amber. The first stage involves the slow cross chain linking of the molecular structure within the resin, a kind of polymerisation. This makes the resin hard but easily broken compared to its original state of being soft and plastic. Once it is in this state, the resin can be called copal. Following the polymerisation the next stage is the evaporation of volatile oils inside the copal. The oils, called turpenes, slowly permeate out of the amber. This second stage may take millions of years before the process turns the copal into something approaching the structure of amber. It is speculated that either one or both of these stages in the formation of amber must take place in an anaerobic environment or it may have to sustain a period of immersion in sea water. Amber which is exposed to air for several years undergoes oxidation which causes a distinct darkening and crusting of the gem's surface producing over many years tiny splinters and shards.

The chemical structure of amber is not consistent, not even within a single fragment, let alone a single deposit. Consequently numerous chemical formulas have been attributed to it. The reason for this wide variation is simply because amber is not a true mineral; it is an organic plastic with variable mixtures. Some aspects of amber are fairly consistent though. On Moh's scale of hardness it lies between 2 and 2.5. It has a refraction index of 1.54 and a melting point between 150 - 180°C. The colour range is extremely varied, ranging from near white (osseous) through all shades of yellow, brown and red. There are even examples of blue and green amber. Blue - green amber is thought to have two possible causes: either the permeation of raw resin by mineral deposits present in the soil into which it fell, or the settling of volcanic dust and ash onto the resin when it was first secreted.

One of the most exciting and interesting aspects of amber are the inclusions, both

flora and fauna, which are found within it. The most frequent inclusions to be found in amber, particularly Baltic, are examples of the order Diptera or true flies. These tiny flies would have lived on the fungus growing on the rotting vegetation of the amber forest of which no doubt there was enough to support an enormous population. Occasionally a small lizard will be found trapped and encased in amber, particularly from the Dominican Republic deposits. The American Natural History Museum has a famous example of a 25,000,000 year old gecko. Another unusual find is the remains of a frog discovered in a piece mined in the Dominican Republic. At first it was thought to be just one animal with some tissue preserved. The distinct shape of the frog can be seen but most of the flesh has deteriorated and several bones are exposed, some broken. Under closer scrutiny a count of the bones suggests that this particular frog must have had at least 6 legs. Palaeontologists speculate that a bird that ate the frogs may have had a feeding site, perhaps on a branch directly above an accumulating pool of resin; hence the numerous bones present. The complete frog was perhaps an unlucky drop by the bird when it alighted on the branch. Mammalian hair can also infrequently be found trapped as tufts or single strands. When found in the Baltic area, hair in amber is often attributed to sloths that lived within the ancient forest. Resin in the process of hardening usually develops a skin whilst the interior is still soft. Occasionally amber of this nature has impressions stamped on its surface and thus becomes a trace fossil. For instance the clear impression of a cat's paw has been found on a piece of amber found in the Baltic area.

The faking of inclusions in amber has been a major cottage industry since the earliest times. Gum is melted gently and suitable inclusions placed into the matrix; this is frequently some kind of colourful insect. Artificial colour is always a dead give away of a bogus amber fossil.

Questions 1 - 4

Read the passage *Amber - Frozen Moments in Time* again and look at the statements below.

In boxes 1 - 4 on your answer sheet write:

TRUE *if the statement is true*

FALSE *if the statement is false*

NOT GIVEN *if the information is not given in the text*

- 1 Both animal and plant life have been found trapped in amber.
- 2 Theorists claim that amber must be submerged at some point during its formation process.

- 3 It's common to find impressions of animals made on the skin of amber while it was hardening.
- 4 There are two theories for how amber can develop different colours.

Questions 5 - 8

Complete the following statements with the best ending from the box on the next page

Write the appropriate letters **A - G** in boxes **5 - 8** on your answer sheet.

- 5 For the most part Baltic amber found today was originally created by plant life which...
- 6 The faking of encasing things in amber is something which...
- 7 Prehistoric decaying forests provided food which...
- 8 Amber is a natural material which...

- | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>A ... grew to a great height all over the world.</p> <p>B ... takes place in small houses.</p> <p>C ... entrapped flies would have fed on.</p> <p>D ... can be spotted by the colour.</p> <p>E ... happened only in the Baltic area.</p> <p>F ... produced gases conducive to amber formation.</p> <p>G ... has a broad diversity in its chemical formula.</p> |
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Questions 9 - 11

According to the text which **THREE** of the following are **NOT** given as possible reasons for the production of the resin by trees which later forms amber?

Choose **THREE** letters (**A – H**) and write them in boxes **9 – 11** on your answer sheet.

The order of your answers does not matter.

- | | |
|----------|------------------------------------------------|
| A | A defence system |
| B | Changes in the molecular structure of the tree |
| C | A development side-effect |
| D | An effect of the Baltic weather |
| E | A way of dealing with water loss |
| F | The result of oxidisation |
| G | Part of the reproduction process |
| H | A result of damage |

Questions 12 – 14

Complete the summary below describing the amber formation process.

Choose your answers from the box below the summary and write them in boxes 12 – 14 on your answer sheet.

NB There are more words than spaces, so you will not use them all.

SUMMARY

The formation of amber goes through various stages of which at least one it has been theorised will need the absence of air. Starting as a viscous (12) _____ from a tree, the malleability changes as the material becomes (13) _____ with a modification of its structure at the molecular level. The next stage takes place over a long time as turpenes seep out of the material leaving an amber-like material which must undergo further degradation from exposure to (14) _____ before it can finally be recognised as what we know as amber today.

tough	evaporation	polymers
soft	secretion	sea water
oxygen	expansion	brittle