Practice Test 40

Reading Passage 1

You should spend about 20 minutes answering Questions 1-13, which are based on Reading Passage 1 given below.

Prehistoric Cave Paintings Took up to 20,000 Years to Complete

A. It may have taken Michelangelo four long years to paint his fresco on the ceiling of the Sistine Chapel, but his earliest predecessors spent considerably longer perfecting their own masterpieces. Scientists have discovered that prehistoric cave paintings took up to 20,000 years to complete. Rather than being created in one session, as archaeologists previously thought, many of the works discovered across Europe were produced over hundreds of generations, who added to, refreshed and painted over the original pieces of art.

B. Until now it has been extremely difficult to pinpoint when prehistoric cave paintings and carvings were created, but a pioneering technique is allowing researchers to date cave art accurately for the first time and show how the works were crafted over thousands of years. Experts now hope the technique will provide valuable insight into how early human culture developed and changed as the first modern humans moved across Europe around 40,000 years ago. Dr Alistair Pike, an archaeologist at Bristol University who is leading the research, said: The art gives us a really intimate window into the minds of the individuals who produced it, but what we don't know is exactly which individuals they were as we don't know exactly when the art was created. If we can date the art then we can relate that to the artefacts we find in the ground and start to link the symbolic thoughts of these individuals to where, when and how they were living.'

C. Hundreds of caves have been discovered across Europe with elaborate prehistoric paintings and carvings on their walls. It is thought the designs, which often depict scenes of animals, were created up to 40,000 years ago-sometime after humans began moving from southern Europe into northern Europe during the last ice age. Traditional dating techniques have relied on carbon dating the charcoal and other pigment used in the paintings, but this can be inaccurate as it only gives the date the charcoal was created not when the work was crafted. 'When you go into these caves today there is still charcoal lying on the ground, so the artists at the time could have been using old charcoal rather than making it fresh themselves' explained Dr.Pike. 'If this was the case, then the date for the painting would be very wrong. Taking samples for carbon dating also means destroying a bit of these precious paintings because you need to take away a bit of the

pigment For carvings, it is virtually impossible to date them as there is no organic pigment containing carbon at all.'

D. The scientists have used their technique to date a series of famous Palaeolithic paintings in Altamira cave, northern Spain. Known as the 'Sistine Chapel of the Palaeolithic', the elaborate works were thought to date from around 14,000 years ago. But in research published by the Natural Environment Research Council's new website Planet Earth, Dr Pike discovered some of the paintings were between 25,000 and 35,000 years old. The youngest paintings in the cave were 11,000 years old. Dr. Pike said:'We have found that most of these caves were not painted in one go, but the painting spanned up to 20,000 years. This goes against what the archaeologists who excavated in the caves found. It is probably the case that people did not live in the caves they painted. It seems the caves they lived in were elsewhere and there was something special about the painted caves.'

E. Dr Pike and his team were able to date the paintings using a technique known as uranium-series dating, which was originally developed by geologists to date rock formations such as stalactites and stalagmites in caves. As water seeps through a cave, it carries extremely low levels of dissolved radioactive uranium along with the mineral calcium carbonate. Over time small amounts of calcium carbonate are deposited to form a hard layer over the paintings and this layer also traps the uranium. Due to its radioactive properties, the uranium slowly decays to become another element known as thorium. By comparing the ratio of uranium to thorium in the thin layers on top of the cave art, the researchers were able to calculate the age of the paintings.

F. The researchers have also applied their technique to engravings found in rocks around Creswell Crags in Derbyshire, which are Britain's only examples of ice age cave art. They proved the engravings were made at least 12,000 years ago. Professor Pablo Arias, an expert on Palaeolithic cave art at the University of Cantabria, Spain, said: 'Until about ten years ago it was only possible to date cave art by using the style of the figures, but this new technique developed by Bristol University allows that date to be accurately bracketed. We want to study how the people of the time behaved and how they felt and Palaeolithic art gives us a way of looking at the type of symbols that were important to them, so we need to know when the people who were making the art actually lived.'

Questions 1-5

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

1 Cave paintings inspired Michelangelo to paint the ceiling of the Sistine Chapel.

2 It now seems that cave paintings were painted in one go and then left untouched.

3 Dr Pike is focusing on dating artefacts found on the ground in the caves.

4 There are a number of disadvantages to using carbon dating to date paintings and carvings.

5 The Altamira cave contains more cave paintings than any other cave in Europe.

Question 6-8

Choose the correct letter, A, B, C or D and write them next to 6-8 on your answer sheet.

6 Dr. Pike believes that

A most caves remained undiscovered for thousands of years.

B archaeologists should not have excavated the caves at all.

C the caves were uninhabited but were treated as important.

D the paintings were painted by the people living in the caves.

7 Uranium-series dating

A was previously used for other purposes.

B is a technique that was invented by Dr Pike.

C relies on the presence of stalactites in the caves.

D only works with caves that are underwater.

8 Professor Pablo Arias

A is sceptical about the benefits of the new dating technique.

B is enthusiastic about what the new technique will achieve.

C used the technique to successfully date Creswell Crags.

D believes it is necessary only to study the symbols in the art.

Questions 9-14

Choose your answers from the box and write the letters A-H next to Questions 9-14.

What is said about each of these things found in the caves?

A When this is removed, it damages the painting.

B This can damage the stalactites and stalagmites in the caves.

C Over time, this turns into a different element.

D We could determine when it was made, but not when it was used.

E This is produced as a result of radioactive decay.

F Scientists used to think that this was a mineral.

G This contains no carbon-based elements at all.

H This can act as a firm coating over something.

9 charcoal

10 pigment

11 carving

12 uranium

13 calcium carbonate

14 thorium

Reading Passage 2

You should spend about 20 minutes on Questions 15-27, which are based on Reading Passage 2 below.

Children Tested to Destruction?

English primary school pupils subjected to more tests than in any other country.

A. English primary school pupils have to deal with unprecedented levels of pressure as they face tests more frequently, at a younger age, and in more subjects than children from any other country, according to one of the biggest international education inquiries in decades. The damning indictment of England's primary education system revealed that the country's children are now the most tested in the world. From their very earliest days at school, they must navigate a set-up whose trademark is 'high stakes testing, according to a recent report

B. Parents are encouraged to choose schools for their children based on league tables of test scores. But this puts children under extreme pressure which could damage their motivation and self-esteem, as well as encouraging schools to teach to the test at the expense of pupils wider learning, the study found. The findings are part of a two-year inquiry – led by Cambridge University – into English primary schools. Other parts of the UK and countries such as France, Norway and Japan used testing but it was, 'less intrusive, less comprehensive, and considerably less frequent', Cambridge's Primary Review concluded.

C. England was unique in user testing to control what is taught in schools, to monitor teaching standards and to encourage parents to choose schools based on the results of the tests, according to Kathy Hall, from the National University of Ireland in Cork, and Kamil Ozark, from the University of Oslo, who conducted the research. 'Assessment in England, compared to our other reviewed countries, is pervasive, highly consequential, and taken by officialdom and the public more generally to portray objectively the actual quality of primary education in schools, their report concluded. Teachers' leaders said the testing regime was 'past its sell-by date' and called for a fundamental review of assessment

D. Steve Sinnott, General Secretary of the National Union of Teachers, said England's testing system was having a 'devastating' impact on schools. Uniquely, England is a country where testing is used to police schools and control what is taught,' he said. When it comes to testing in England, the tail wags the dog. It is patently absurd that even the structure and content of education is shaped by the demands of the tests. I call on the Government to initiate a full and independent review of the impact of the current testing system on schools and on children's learning and to be prepared to dismantle a system which is long past its sell-by date.'

E. John Dunford, General Secretary of the Association of School and College Leaders, warned that the tests were having a damaging effect on pupils. The whole testing regime is governed by the need to produce league tables,' he said. 'It has more to do with holding schools to account than helping pupils to progress.' The fear that many children were suffering intolerable stress because of the tests was voiced by Mick Brookes, General Secretary of the National Association of Head Teachers. There are schools that start rehearsing for key stage two SATs [Standard Assessment Tests] from the moment the children arrive in September. That's just utterly ridiculous/ he said. There are other schools that rehearse SATs during Christmas week. These are young children we are talking about. They should be having the time of their lives at school not just worrying about tests. It is the breadth and richness of the curriculum that suffers. The consequences for schools not reaching their targets are dire – heads can lose their jobs and schools can be closed down. With this at stake, it's not surprising that schools let the tests take over.'

F. David Laws, the Liberal Democrat schools spokesman, said: The uniquely high stakes placed on national tests mean that many primary schools have become too exam-focused.' However, the Government rejected the criticism. 'The idea that children are over-tested is not a view that the Government accepts' a spokesman said. 'The reality is that children spend a very small percentage of their time in school being tested. Seeing that children leave school up to the right standard in the basics is the highest priority of the Government.'

G. In another child-centred initiative, both major political parties in the UK-Labour and the Conservatives – have announced plans to make Britain more child-friendly following a report by UNICEF which ranked the UK the worst place to be a child out of 21 rich nations. Parents were warned that they risked creating a generation of battery-farmed children by always keeping them indoors to ensure their safety. The family's minister, Kevin Brennan, called for an end to the cotton wool culture and warned that children would not learn to cope with risks if they were never allowed to play outdoors.

Questions 15-19

Complete the sentences.

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

15 According to the inquiry, the amount of testing puts a lot of _____ on young children.

16 The education report describes testing in England as_____

testing.

17 Parents often select their childrens schools after studying test results in _____ .

18 Kathy Hall and Kamil Ozark believe testing in England is also used to evaluate _____ in schools.

19 The major political parties have promised to make Britain _____ in view of the UNICEF report.

Question 20-23

Do the following statements agree with the information given in Reading Passage 2? 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

20 Steve Sinnott says what is taught at school should be more tightly controlled.

21 According to John Dunford, children would make more progress with much shorter and easier tests.

22 Mick Brookes wants to see earlier student preparation for SATs.

23 David Laws agree with the opinions of Mick Brookes.

Questions 24-27

Choose the correct letter, A, B, C or D and write them next to 24-27 on your answer sheet.

24 What does the government argue?

A There is not enough testing at present.

B Tests at primary school are too easy.

C Tests are not given too frequently.

D Teachers should take more tests.

25 The government spokesman

A is extremely critical of the way exams are written.

B accepts many of the points made by the teachers' leaders.

C thinks education is what the government is most interested in.

D argues it is the teacher's fault that students are tested so much.

26 According to UNICEF, children in the UK

A often spend too much time in the worst kind of places.

B are not so well behaved as in other countries.

C are not as rich as children in 21 other countries.

D could be having much more fulfilling childhoods.

27 What is the point Kevin Brennan makes?

A Children use too many electrical devices.

B Children would learn by being outside more.

C It's too risky for children to be outside on their own.

D The most important thing is the children's safety.

Reading Passage 3

You should spend about 20 minutes on Questions 28-40, which are based on Reading Passage 3 below.

Three ways to Levitate a Magic Carpet

A. It sounds like a science fiction joke, but it isn't. What do you get when you turn an invisibility cloak on its side? A mini flying carpet- So say physicists who believe the same exotic materials used to make cloaking devices could also be used to levitate tiny objects. In a further breakthrough, two other research groups have come to a step closer to cracking the mysteries of levitation. Scientists have levitated objects before, most famously using powerful magnetic fields to levitate a frog. But that technique, using the repulsive force of a giant magnet, requires large amounts of energy. In contrast, the latest theories

exploit the natural smaller amounts of energy produced by the quantum fluctuations of empty space.

B. In May 2006, two research teams led by Ulf Leonhardt at St. Andrew's University, UK, and John Pendry at Imperial College, London, independently proposed that an invisibility cloak could be created from exotic materials with abnormal optical properties. Such a cloaking device – working in the microwave region – was manufactured later that year. The device was formed from so-called 'metamaterials', exotic materials made from complex arrays of metal units and wires. The metal units are smaller than the wavelength of light and so the materials can be engineered to precisely control how electromagnetic light waves travel around them. They can transform space, tricking electromagnetic waves into moving along directions they otherwise wouldn't say, Leonhardt.

C. Leonhardt and his colleague Thomas Philbin, also at St. Andrew's University, realised that this property could also be exploited to levitate extremely small objects. They propose inserting a metamaterial between two so-called Casimir plates. When two such plates are brought very close together, the vacuum between them becomes filled with quantum fluctuations of the electromagnetic field. As two plates are brought closer together, fewer fluctuations can occur within the gap between them, but on the outer sides of the plates, the fluctuations are unconstrained. This causes a pressure difference on either side of the plates, forcing the plates to stick together, in a phenomenon called the Casimir effect.

D. Leonhardt and Philbin believe that inserting a section of metamaterial between the plates will disrupt the quantum fluctuations of the electromagnetic field. In particular, metamaterials have a negative refractive index, so that electromagnetic light waves entering a metamaterial bend in the opposite way than expected, says Leonhardt. That will cause the Casimir force to act in the opposite direction – forcing the upper plate to levitate. The work will appear in the New Journal of Physics.

E. Federico Capasso, an expert on the Casimir effect at Harvard University in Boston, is impressed. Using metamaterials to reverse the Casimir effect is a very clever idea' he says. However, he points out that because metamaterials are difficult to engineer, it's unlikely that they could be used to levitate objects in the near future. But there are good signs that quantum levitation could be achieved much sooner, by other methods. Umar Mohideen at the University of California Riverside and his colleagues have successfully manipulated the strength of the Casimir force by increasing the reflectivity of one of the plates so that it reflects virtual particles more efficiently. Modifying the strength of the Casimir force is the first step towards reversing it, says team member Galina Klimchitskaya at North-West Technical University in St Petersburg, Russia.

F. Capasso and his colleagues have also been working on an alternative scheme to harness a repulsive Casimir effect Their calculations show that a repulsive Casimir force could be set up between a 42.7 micrometre-wide gold-coated polystyrene sphere and a silicon dioxide plate if the two are immersed in ethanol. 'Although the Casimir force between any two substances – the ethanol and gold, the gold and the silicon dioxide, or the silicon dioxide and the ethanol – is positive, the relative strengths of attraction are

different, and when you combine the materials, you should see the gold sphere levitate' he says.

G. Capasso's early experiments suggest that such repulsion could occur and that in turn could be used to levitate one object above another. It's very early work, and we still need to make certain this is really happening, but we are slowly building up experimental evidence for quantum levitation/says Capasso, who presented his results at a conference on Coherence and Quantum Optics in Rochester, New York, in June. 'This is a very exciting experimental result because it is the first demonstration that we can engineer a repulsive Casimir force' says, Leonhardt.

Questions 28-32

Do the following statements agree with the claims of the writer in Reading Passage 3? Write

YES, if the statement agrees with the writer's claims

NO, if the statement contradicts the writer's claims

NOT GIVEN, if it is impossible to say what the writer thinks about this

28 A mini flying carpet is a possibility according to some scientists.

29 Cloaking devices can be used for levitation.

30 Scientists now know all about levitation.

31 Things can be transported from place to place using empty space technology.

32 The most recent research into levitation has made use of large magnets.

Question 33-37

Choose the correct letter, A, B, C or D and write them next to 33-37 on your answer sheet.

33 Ulf Leonhardt and John Pendry

A worked together on a project in 2006.

B both came up with the same idea.

C invented the microwave oven.

D used only basic objects in their research.

34 Metamaterials are

A similar to light, but with a smaller wavelength.

B a combination of simple metals and wires.

C able to change where electromagnetic waves go.

D engineered when light waves travel around them.

35 The importance of the Casimir effect is that it

A doesn't require a vacuum in order to work.

B increases the number of plates that can be used.

C creates large and frequent fluctuations.

D creates a pressure difference and stickiness.

36 Leonhardt and Philbin think that putting a metamaterial between two plates will

A cause the top plate to rise above the bottom plate.

B stop electromagnetic light waves bending.

C stop the Casimir force from working.

D not affect electromagnetic fluctuations.

37 Why is it important to change the strength of the Casimir force?

A to reflect the plates.

B to help reverse the force.

C to see virtual particles better.

D to enable other scientists to progress.

Questions 38-40

Complete each sentence with the correct ending A-F below.

38 Capasso is unconvinced that _____

39 Capasso has calculated that _____

40 Capasso has admitted that _____

A gold can be used to produce levitation.

B a particular type of ethanol has to be used.

C the levitation will last for only a few seconds.

D using metamaterials will help lead to levitation in the short term.

E his experiment will be extremely costly to perform.

F his idea is still only a theory.

Answers

[restrict paid=true]

Reading Passage 1

1. **NOT GIVEN**
2. **FALSE** because it says in paragraph 1: ‘Rather than being created in one session, as archaeologists previously thought, many of the works discovered across Europe were produced over hundreds of generations, who added to, refreshed and painted over the original pieces of art.’
3. **FALSE** because it says in paragraph 3: ‘If we can date the art then we can relate that to the artefacts we find in the ground’.
4. **TRUE** because it says in paragraph 5: ‘this can be inaccurate’; ‘Taking samples for

	carbon dating also means destroying a bit of these precious paintings because you need to take away a bit of the pigment.'; 'For carvings, it is virtually impossible to date as there is no organic pigment containing carbon at all'.
5.	**NOT GIVEN**
6.	**C** because it says in paragraph 6: 'It is probably the case that people did not live in the caves they painted. It seems the caves they lived in were elsewhere and there was something special about the painted caves'
7.	**A** because it says in paragraph 7: 'uranium-series dating, which was originally developed by geologists to date rock formations'.
8.	**B** because it says in paragraph 8: 'this new technique developed by Bristol allows that date to be accurately bracketed'.
9.	**D** because it says in paragraph 5: 'it only gives the date the charcoal was created not when the work was crafted .'
10.	**A** because it says in paragraph 5: 'destroying a bit of these precious paintings because you need to take away a bit of the pigment'.
11.	**G** because it says in paragraph 5: 'For carvings, it is virtually impossible to date them as there is no organic pigment containing carbon at all.'
12.	**C** because it says in paragraph 7: 'uranium slowly decays to become another element known as thorium'.
13.	**H** because it says in paragraph 7: 'small amounts of calcium carbonate are deposited to form a hard layer over the paintings'.
14.	**E because it says in paragraph 7: 'the uranium slowly decays to become another element known as thorium'**

Reading Passage 2

15.	**pressure**
16.	**high stakes**
17.	**League tables**

18. **teaching standards**
19. **more child-friendly**
20. **FALSE** because he says in paragraph 4: “England is a country where testing is used to police schools and control what is taught’ and he says that this is ‘devastating’, suggesting he thinks there should be less control over what is taught, not more.
21. **NOT GIVEN**
22.