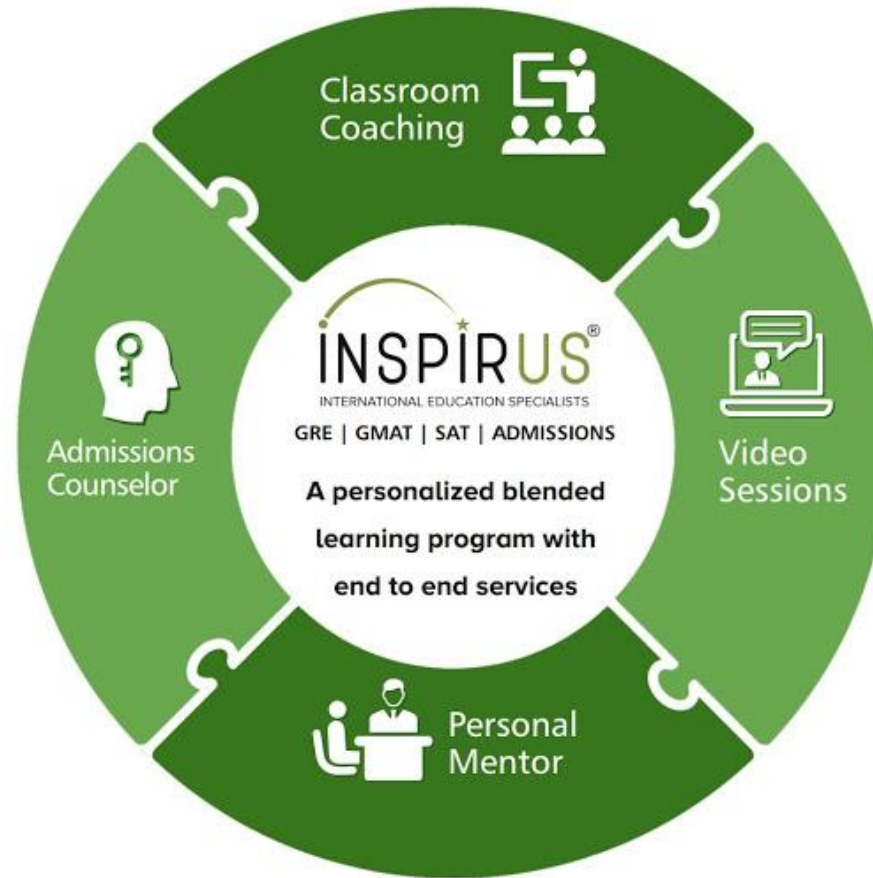


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VERBAL REASONING SESSION 3

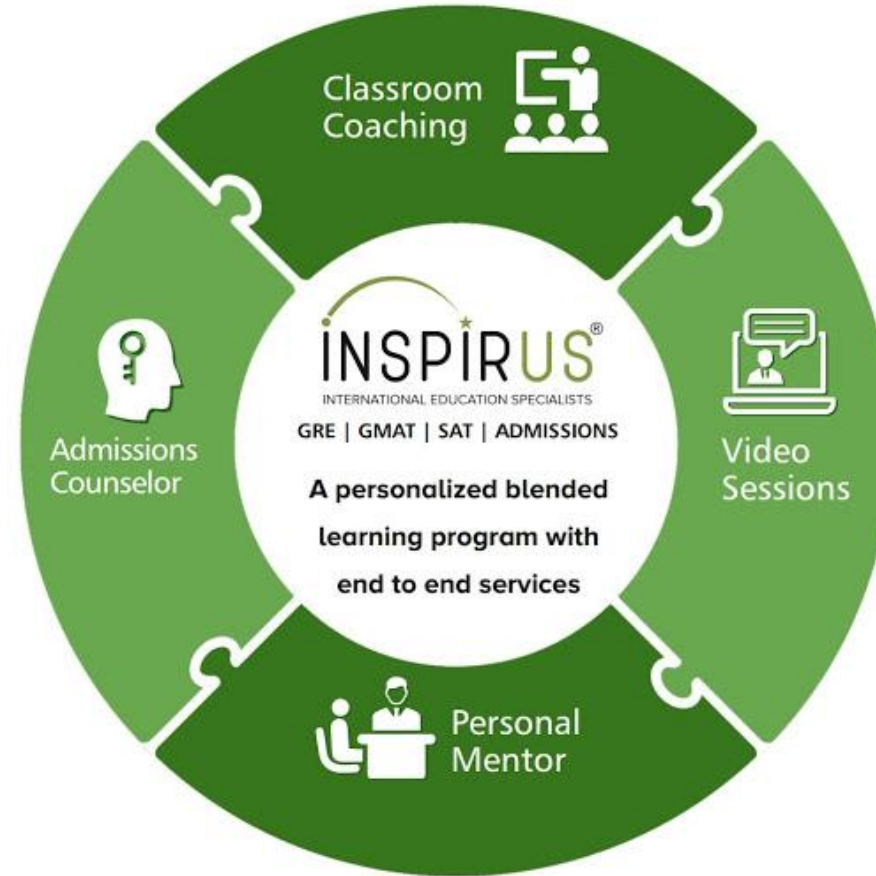


Mixed set of VR questions



VR Practice 15

Earth 2.0



A haul of planets from NASA's Kepler telescope includes a world sharing many characteristics with Earth. Officially named Kepler-452b, this new world orbits at a very similar distance from its star as the Earth, though its radius is 60% larger than the Earth's. Astronomers tend to get excited about such worlds because they might be small and cool enough to host liquid water on their surface and might therefore be hospitable to life. NASA's science chief called the new world "Earth 2.0".

Kepler-452b joins other so-called exoplanets, such as Kepler-186f, that are similar in many ways to Earth. However, determining which is most Earth-like depends on the properties one considers. Kepler-186f, announced in 2014, is smaller than the new planet, but orbits a red dwarf star that is significantly cooler than our own. However, Kepler-452b orbits a parent star which belongs to the same class as the Sun; it is just 4% more massive and 10% brighter. The mass of Kepler-452b cannot yet be measured and so astronomers have to rely on models to estimate a range of possible masses, with the most likely being five times that of the Earth.

The new world is included in a haul of 500 new possible planets sighted by the Kepler space telescope around distant stars. Twelve of the new candidates are less than twice Earth's diameter, orbiting in the so-called habitable zone around their star. The zone refers to a range of distances at which the energy radiated by the star would permit water to exist as a liquid on the planet's surface if certain conditions are met. Around 20% of Sun-like stars, of which there are countless, have an Earth-sized planet in their habitable zone.

While similar in size and brightness to the Sun, Kepler-452b's host star is 1.5 billion years older than ours. Scientists therefore believe it could point to a possible future for the Earth. It is not known if Kepler-452b is a rocky planet or a small gas planet but, based on its small radius, Kepler-452b has a reasonable chance, between 49% and 62%, of being rocky. If it is a rocky planet, it may be subject to a runaway greenhouse effect similar to that seen on Venus; the increasing energy from its ageing sun might be heating the surface and evaporating any oceans. It could be experiencing now what the Earth will undergo more than a billion years from now.

PRACTICE QUESTIONS

Q15.1 Which of the following statements is definitely false?

- A. Kepler-452b has a diameter 60% larger than the diameter of the Earth.
- B. The radius of a planet can be used as an indicator of how rocky it is likely to be.
- C. Earth 2.0 is smaller than Kepler-186f.
- D. Venus experienced a runaway greenhouse effect.

Q15.2 Which of the following statements can reasonably be concluded from the passage?

- A. The Earth's oceans will eventually disappear.
- B. The Sun has a remaining lifespan of over 1.5 billion years.
- C. All planets orbiting within the habitable zone of their sun contain liquid water.
- D. The Sun is getting bigger and brighter as it gets older.

Q15.3 Which of the following statements is the author most likely to agree with?

- A. Exoplanets are rocky.
- B. Exoplanets revolve around a star similar to the Earth's Sun.
- C. Exoplanets contain liquid water on their surface.
- D. Exoplanets are common in the universe.

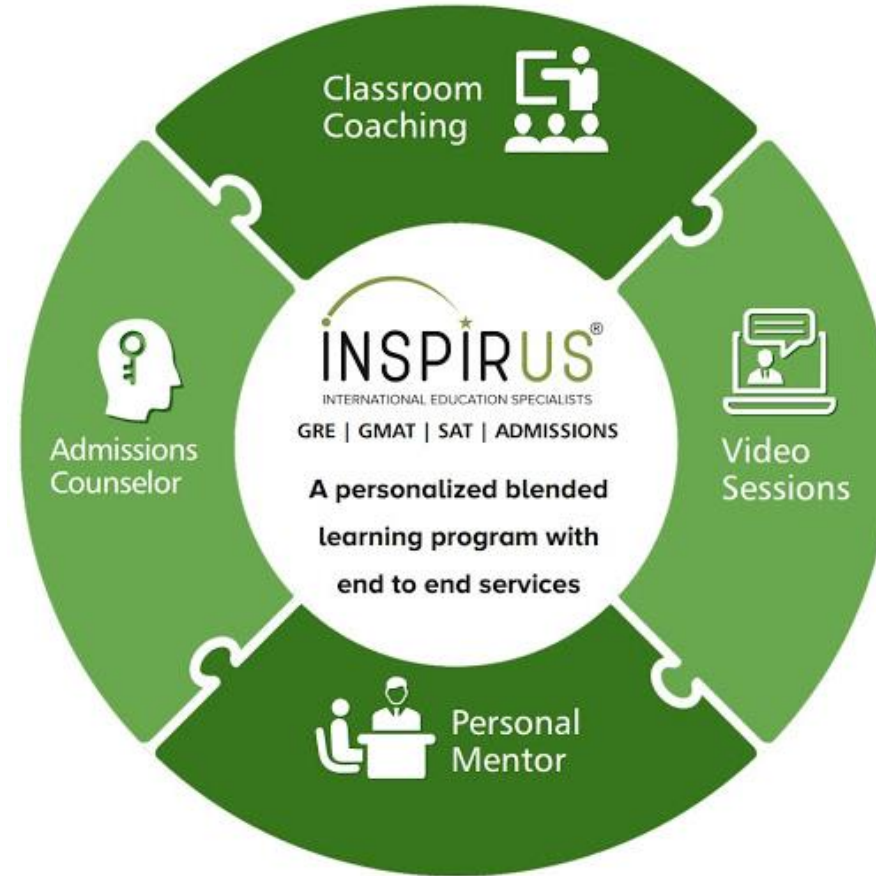
Q15.4 There is no liquid water on Venus.

- True False Can't tell



VR Practice 16

Dyeing To Bake



Liquid Dye is made out of synthetic colourings with a water base, usually found in little plastic squeeze bottles. Being water-based, it is the least intense and weakest of all food colourings, meaning you will need to use more of it to achieve a brighter or deeper colour. If you use a significant amount, the extra liquid has the potential to thin and throw off a recipe. It is thus most suited to recipes requiring lighter colours.

Liquid Gel Dye is a synthetic colouring with a water, glycerine and/or corn syrup base, which is available in small dropper bottles that contain a thick gel-like liquid. It is harder to find than liquid dye and, because of its thick texture, it can be harder to incorporate into thick or stiff dough. However the colour in liquid gel dye is more concentrated than traditional liquid food colourings, so you need less, which is important in recipes where you want to minimise the amount of liquid added (such as in sweets or icing recipes). Since you need less, there is less of a chance the colouring will adversely flavour the food too.

Gel Paste Dye is a synthetic colouring with a water, glycerine and/or corn syrup base, usually found in small pots or jars. It is an even more concentrated form of liquid gel dye and is therefore thicker; you only need a small amount, so it can be slightly less messy than using dropper bottles. Gel paste dye is very effective in dyeing a large amount of mix (like cake mix) and produces dark, saturated colours. It is easy to add too much colouring, which cannot be undone. Online reviews by users suggest that red dyes “produce a weird metallic taste”.

Powdered Dye is a synthetic colouring with no water, glycerine or corn syrup, found in jars. Since there is no liquid in powdered dyes, it's great in recipes where any added liquid can lead to a disaster, like in crystal sugar, chocolate, macaroons or meringues. Powdered dye won't dry out like other food dyes and has an extremely long shelf life – great for producing really dark shades of colour.

Q16.1 With regard to liquid dyes, which of the following conclusions is the author most likely to disagree with?

- A. Using large quantities of liquid dyes will not affect taste.
- B. Liquid dyes are good to achieve pastel tones.
- C. It is not advisable to make macaroons with liquid dye.
- D. When using liquid dyes to obtain a bright colour, it is best to reduce the amount of water/milk used in the recipe by an equivalent amount.

Q16.2 An amateur baker has a stock of each of the four types of dye, but the labels setting out the ingredients are missing. He wishes to bake a bright red cake with a stiff mix for someone who is allergic to glycerine. Which is the most suitable dye to use?

- A. Liquid dye.
- B. Liquid gel dye.
- C. Gel paste dye.
- D. Powdered dye.

Q16.3 Which conclusion can be drawn from the passage?

- A. Gel paste dye dries out more quickly than liquid dye.
- B. Red gel paste dye is not a natural product.
- C. Non-red gel paste dye does not taste metallic.
- D. Powdered dye does not affect taste.

Q16.4 Which conclusion can be drawn from the passage?

- A. One cannot use two types of dye in the same cake mix.
- B. Gel paste dye is hard to incorporate into stiff dough.
- C. Powdered dye is not water soluble.
- D. Gel paste dye is more expensive than liquid gel dye.

Q16.5 Someone with a corn allergy cannot use liquid gel or gel paste dyes.

True

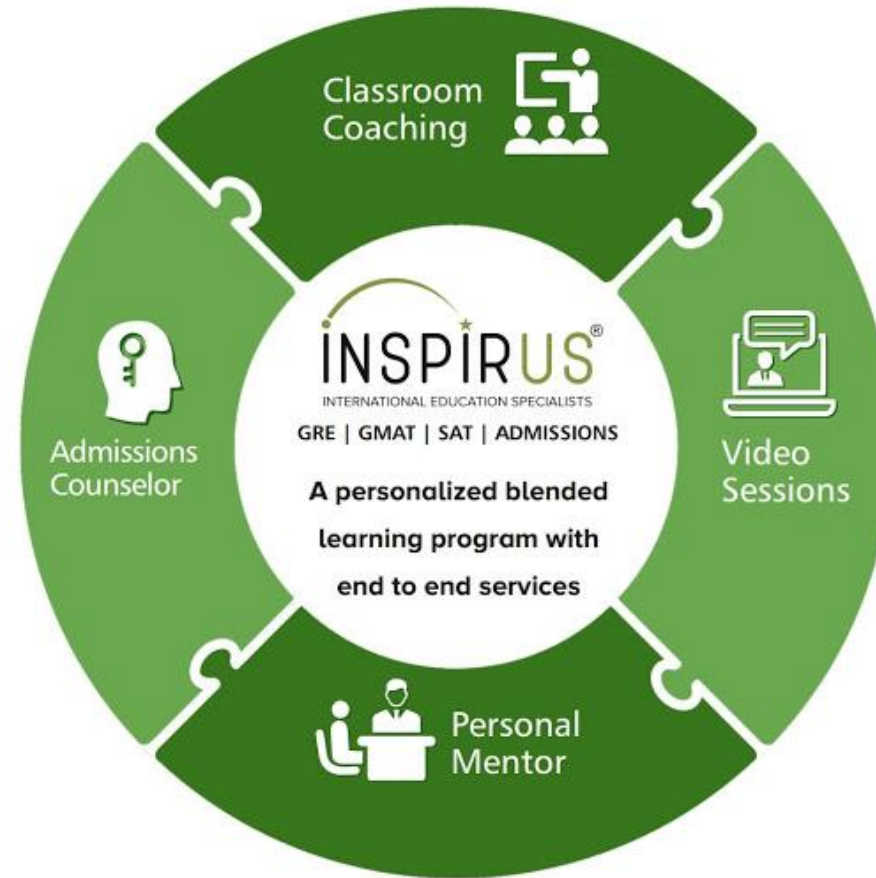
False

Can't tell



VR Practice 17

A Battle of Wills



A woman cut out of her mother's will was awarded a £200,000 inheritance in what could prove a landmark ruling. She will now be able to buy her housing association property. Ms Jackson went to court after her mother left her entire £600,000 estate to a range of animal and other charities when she died in 2006. The Court of Appeal ruled that she should receive a third of the estate, in a ruling which could significantly weaken people's right to leave money to those they want to inherit it, it is thought.

Ms Jackson had disappeared at the age of 16 with her boyfriend; her mother never forgave her and refused to leave her a single penny of her estate, which was instead left to charities such as the Wildlife Fund and the RSPB. Ms Jackson, who was an only child born two months after her father died, had previously won the right to an inheritance of £50,000 after a district judge concluded that she had been "unreasonably" excluded by her mother. That ruling was subsequently reversed by the Appeal Court, who ruled that she was entitled to a share of the money. Justifying the decision, Lady Justice Arden said that Ms Jackson's mother had been "unreasonable, capricious and harsh".

Experts say the ruling means you can still disinherit your children but you'll have to explain why and what connects you to those you do leave money to. That'll make it easier for adult "disinherited" children to challenge wills and claim greater sums by way of reasonable provision.

In previous cases:

- Animal charities won an appeal to inherit property worth £350,000 despite claims it had been a verbal "deathbed gift" to the homeowner's nephew.
- A builder who cleaned an elderly man's gutters for free was left £500,000 when the pensioner died, but faced a court battle with the family to keep the money. The court awarded him the full amount.
- Last year, a 98-year-old woman left £300,000 to a window cleaner instead of her "favourite nephew", who challenged the will in the High Court and won the case.

Q17.1 How much did Ms Jackson receive in total?

- A. £200,000.
- B. £250,000.
- C. A third of £650,000 (£600,000 + £50,000).
- D. The value of her housing association property.

Q17.2 The value of Ms Jackson's housing association property is:

- A. Less than £200,000.
- B. £200,000.
- C. More than £200,000.
- D. Unknown.

Q17.3 If this case acts as a precedent, what is the most likely conclusion that could be drawn from the passage?

- A. People will have to leave all their money to their children.
- B. Charities will no longer be able to be included in wills.
- C. Wills will be valid as long as the children inherit something.
- D. Wills will only be valid if the sum of money left to the children represents a reasonable percentage of the value of the estate.

Q17.4 Which of the following cannot be reasonably concluded from the passage?

- A. Courts do not always rule in favour of the relatives.
- B. The charities involved in Ms Jackson's case received £400,000.
- C. Ms Jackson's mother was not mentally competent enough to draw up a reasonable will.
- D. Charity donations through wills will decrease.

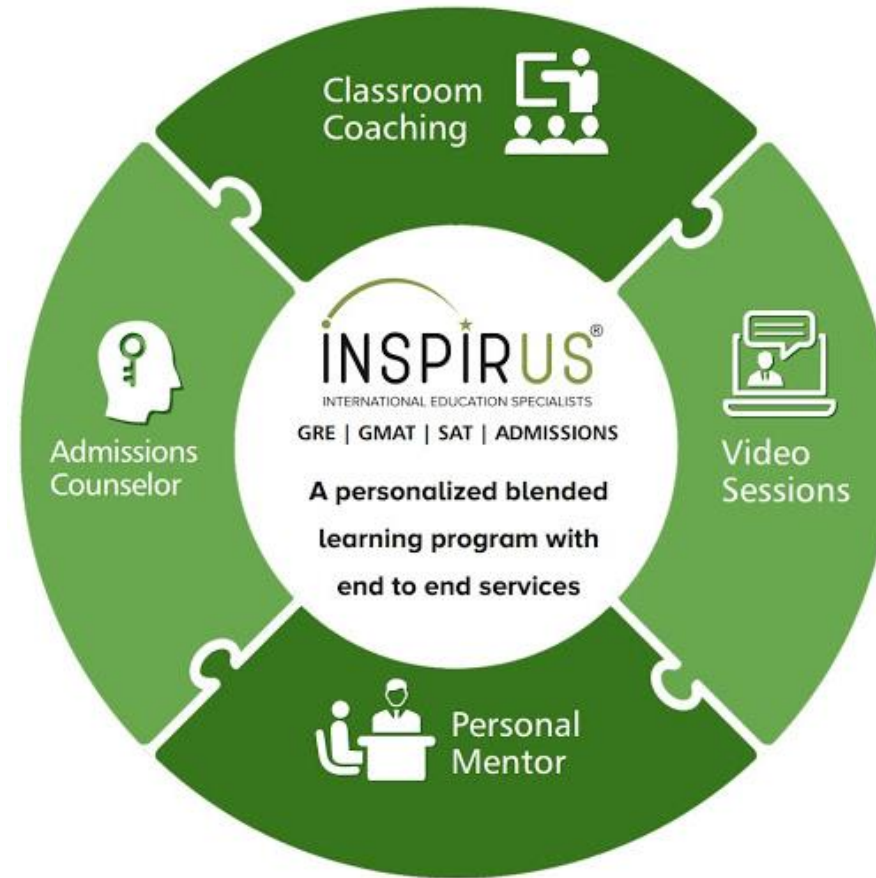
Q17.5 Following the judgement, at least one third of a deceased person's estate should go to the children.

- True False Can't tell



VR Practice 22

Frankenburger



He didn't succumb to Google's appetising offer. Biochemist Patrick Brown, founder of the start-up company Impossible Foods, rejected a proposal for a Google buy-out to the tune of 200 to 300 million dollars to acquire his innovation: vegetal (i.e. plant-based) meat.

It is actually Google who had first initiated research in that field in 2013, when it financed a Dutch scientist who went on to create an artificial burger from beef stem cells. A total of 20,000 muscle fibres are needed so that the whole thing looks like a burger, to which are added salt, breadcrumbs and egg powder as well as beetroot juice and saffron. Without those last two ingredients the burger would look grey, far from the real colour of meat. In contrast, Patrick Brown has invented a vegetal burger, which is made from a secret recipe containing not a single traditional ingredient. Only a small clue is given on the company's website: "We have looked at all animal products at molecular level and have selected the proteins and nutrients which are specific to plant seeds in order to recreate the wonderfully complex experience of eating meat."

Taste-wise, the Google burger (often called Frankenburger by the media) was tested in London by volunteers who felt it had an intense taste close to real meat, but lacked fat and therefore tasted a little dry. No official tasting of the vegetal burger has yet taken place, though a journalist from the New-York-based *Wall Street Journal* who tried it said it was amazing and "had the appearance, the taste and cooks on the grill like a real burger"; all that without the taste of blood, states the article.

As for the cost, Google spent 250,000 Euros developing their burger and in 2015 it was estimated that it would cost only 10 Euros to make one, which opens the door to possible retail. Impossible Foods has not revealed the price of its innovation but hopes to manufacture its burger by the end of 2015, with a retail price of 20 Dollars (18 Euros) to remain competitive in the burger market.

According to Patrick Brown, people are prepared to stop consuming meat if there are "new choices on offer which are more delicious and satisfying". As to whether vegetarians will try the Frankenburger, the jury is out, given that some will struggle with the fact that it still contains animal cells from animals, even if they are donated voluntarily by the animal.

Q22.1 Which of the following can be concluded from the passage with regard to the two types of burger (Impossible Foods (IF) and Google), based on 2015 data and assuming both companies intend to make a profit?

- A. Google burgers will have a lower retail price than IF burgers
- B. Google burgers cost less to manufacture than IF burgers.
- C. Google has manufactured 25,000 burgers so far.
- D. The IF burger will retail at less than 1.8 times the price of the Google burger.

Q22.2 With which of the following statements are the readers of the passage most likely to disagree?

- A. The Google burger does not require animal slaughter.
- B. Pure vegetarians are likely to prefer the IF burger to the Google burger on ethical grounds.
- C. The Google burger is not vegetarian.
- D. The IF burger may be more appealing to New York customers than London customers.

Q22.3 Patrick Brown is a vegetarian.

- True False Can't tell

Q22.4 Beetroot juice and saffron modify the colour but not the taste.

- True False Can't tell

Q22.5 Adding fat to the Google burger would enhance its taste and texture.

- True False Can't tell

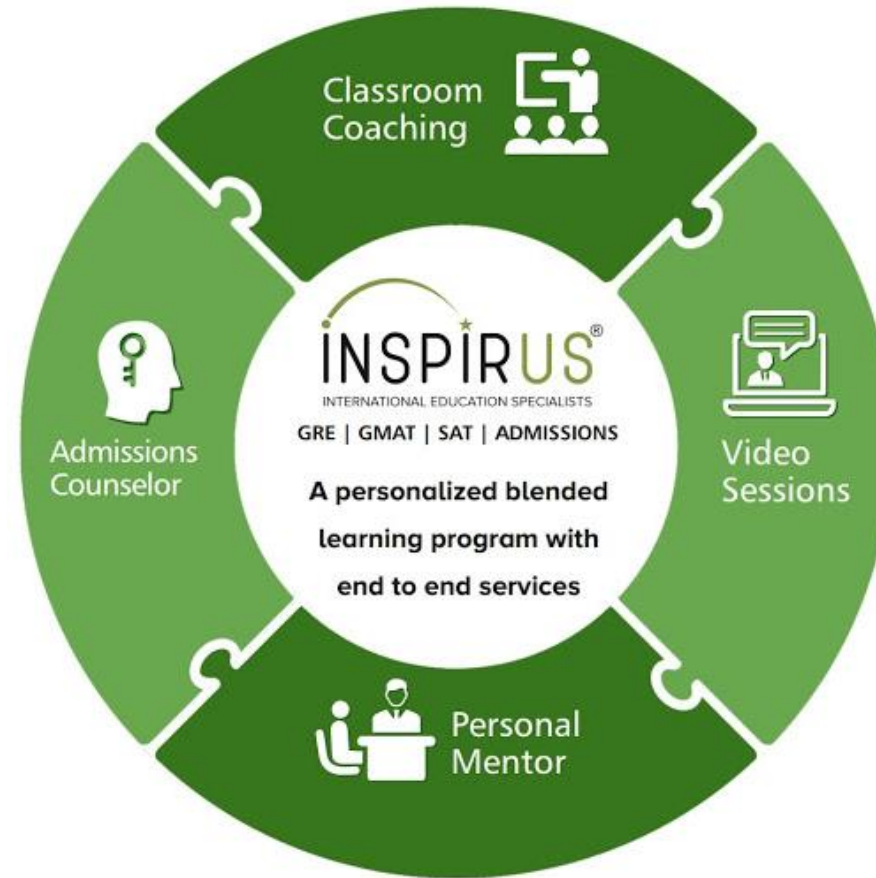
Q22.6 Without added colourant, the Google burger looks grey because it lacks blood.

- True False Can't tell



VR Practice 24

America Queen



Steamboats (aptly named!) have been through a few cycles since John Fitch first operated a primitive one on the Delaware River in 1787. Originally steamboats were not the opulent creatures we picture today. They were cargo vessels, stripped down for maximum speed, since quick delivery, especially for livestock and produce, was vital. People were an afterthought. Then railways came along, making steamboats an also-ran in the cargo-moving race. Increasingly, steamboats catered for passengers, with on-board entertainment and such. Fares varied, just like on ocean-going ships of the day (and you could also work on-board in exchange for passage).

The new owners of *American Queen* (capacity 420 passengers) have returned to the traditional steamboating audience: a crowd with a lot of grey hair and no interest in the parasailing and snorkelling you find offered on Caribbean cruises. The nightly song and dance shows are generally introduced with the phrase "Remember when". The *American Queen* barely pays lip service to the idea of on-board exercise, with only a small gym. Most activities are of the sit-and-listen variety, e.g. talks about steamboat history, piano bar and eating. Food on-board is served in a large dining room. The service in the dining room is a little rocky since the staff is green and therefore more or less learning on the job. But the food is better than food on a boat has the right to be. Even though my ticket cost £1,872, the dessert on the second night convinced me that I hadn't nearly paid enough. Anyone who doesn't feel stuffed with what is being served in the dining room can eat at the River Grill on a rear deck, and at the front of the boat a little snack bar sells hot dogs, snacks and cappuccinos.

Along the journey, we come across various towns filled with historic mansions crying out to be toured. Various cotton, sugar and tobacco plantations can also be visited on the way. There is a riverboat casino in Natchez and a string of land-based gaming parlours in Vicksburg.

At each stop, the cruise line sets up a free hop-on/hop-off bus circuit to take guests to nearby attractions, some of which grant free admission to passengers from the boat. But for an additional fee – £36 was typical – the more adventurous can take a variety of premium tours.

Q24.1 Which of these statements about steamboats cannot be deduced from the passage?

- A. They were originally designed to carry animals and goods.
- B. Some passengers could travel without paying any money.
- C. They used to carry cotton, sugar and tobacco.
- D. They were not powered by steam.

Q24.2 Which of these statements cannot be deduced about the *American Queen* from the passage?

- A. Cruises are mostly attended by older people.
- B. There are few opportunities to exercise on-board.
- C. There is more than one food outlet on-board.
- D. There is a casino on-board.

Q24.3 Which of these statements is the author most likely to agree with?

- A. Food on-board is good value for the price of the cruise.
- B. Food portions served in the dining room are too small.
- C. Some of the dining room waiters can get sick when sailing.
- D. Passengers of the *American Queen* often tend to go on Caribbean cruises too.

Q24.4 The writer enjoyed his dessert on the second night.

- True False Can't tell

Q24.5 All premium tours incur an additional fee.

- True False Can't tell

Q24.6 Vicksburg and Natchez are towns on the Delaware River.

- True False Can't tell

Q24.7 John Fitch was the inventor of steamboats.

- True False Can't tell

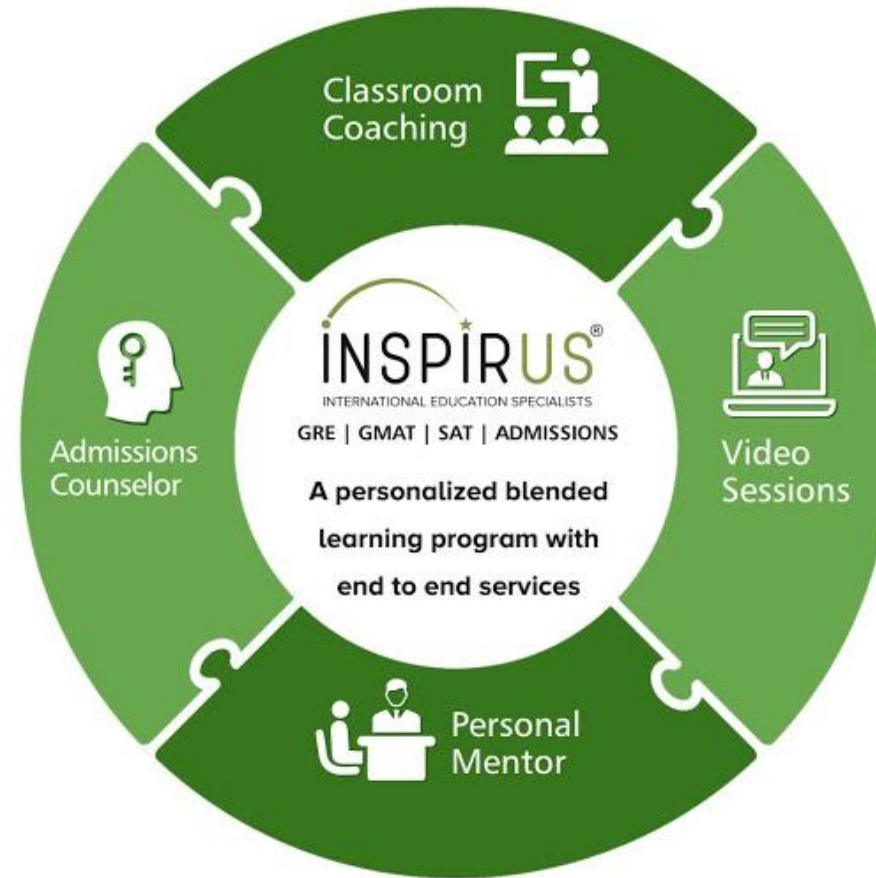
Q24.8 Ocean-going ships used to charge fixed fees.

- True False Can't tell



VR Practice 13

Saving Neil Armstrong's Spacesuit



A fundraising campaign was launched a few days ago to preserve the spacesuit worn by Neil Armstrong when he became the first astronaut to walk on the Moon.

The US National Air and Space Museum is trying to raise \$500,000 to safeguard the spacesuit and build a climate-controlled display case.

The spacesuit curator at the Air and Space Museum in Washington said:

“In most of the 46 years since the spacesuit was used, we’ve owned it at the Smithsonian Air and Space Museum; it was transferred to us by NASA after they finished testing it. It was on display until 2006, at which point we decided to take it off display and place it in our state-of-the-art facility, which is at cool temperature and low humidity, just to preserve it and figure out a way in which we can further display it, in readiness for the 50th anniversary of Neil Armstrong’s first step on the Moon.

“The suit is a very complex machine made of many different materials, about 12 different types of fabric combined together in one. Now, to preserve and conserve each textile individually would be very easy, but we would have to take the suit apart and we are not prepared to do that. We have to conserve it all as one thing. We want to use what are now state-of-the-art conservation techniques of imaging and photography so we are able to map the suit entirely, get a very close-up look at it, and provide virtual visitors on the internet with a 360-degree experience. We will also develop a special display support, which will allow air to circulate around the suit. We are also going to buy a special display case, which will provide the climate that I discussed earlier and will enable us to display the suit on time for that 50th anniversary in 2019.”

PRACTICE QUESTIONS

Q13.1 In what year was this piece of text most likely written?

- A. 2005.
- B. 2008.
- C. 2012.
- D. 2015.

Q13.2 Which one of the following statements is the author most likely to agree with?

- A. All fabrics used to make the spacesuit require low temperature and low humidity to be preserved.
- B. All fabrics used to make the spacesuit require air circulation to be preserved
- C. Visitors to the museum will be able to see the spacesuit for themselves, albeit through a glass wall.
- D. Visitors to the museum will only be able to see the spacesuit via interactive computer screens.

Q13.3 Until 2006, the suit was on display but not in a special atmosphere.

- True False Can't tell

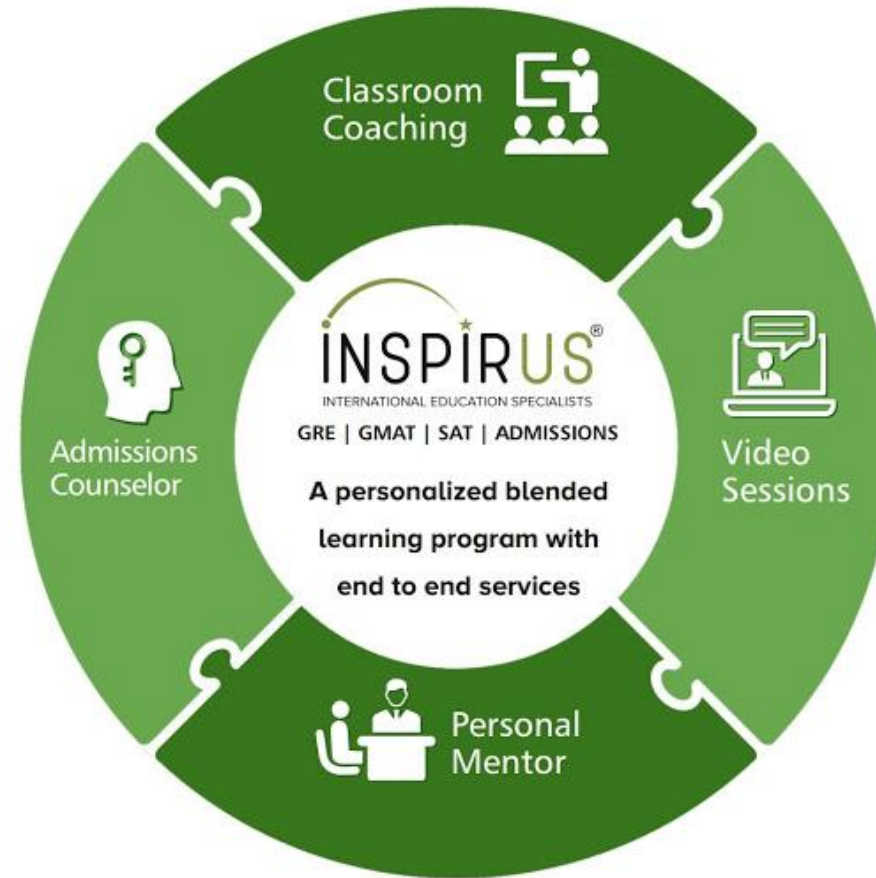
Q13.4 The \$500,000 that the museum is trying to raise will cover the full cost of the climate-controlled display care and of the photography/imaging work.

- True False Can't tell



VR Practice 28

Antibiotics



Bacteria have a talent for learning new ways to survive, thus rendering some of the best drugs ineffective. And so, in the same way that we would buy a new car after having written off the previous one, when a drug has stopped fulfilling its role, we just move on to another one. Apply that model to antibiotics and you soon have a situation where none of the drugs available work anymore, so-called “antibiotics apocalypse”. One way in which we, as a society, have responded to this problem since the 1980s has been to intensify research to find new classes of antibiotics. But, to use the driving analogy, isn’t it time that we took driving lessons instead of simply changing car every time we crash one? We, indeed, need to learn to use antibiotics more responsibly.

Some healthcare systems are making substantial progress and the UK is at the front of that. However, taking a global view, we are way away from resolving the issue. In the UK alone, despite good awareness of the dangers of overusing antibiotics, approximately 10 million out of the 40 million antibiotic prescriptions given each year are deemed inappropriate. Patients have been criticised for an ‘addiction’ to the drugs and doctors are being reproached to be a ‘soft touch’ by being too keen to prescribe them, or rapidly wilting under patient demand. Consequently, patients are taking antibiotics for conditions for which they would never work, such as viral infections (colds, sore throats) or conditions which would resolve themselves without any treatment. And, as a result, we risk seeing multi-drug-resistant infections, which may cause death, like in the old days.

In many countries, unlike in the UK where a prescription from a doctor is required, antibiotics are simply available over the counter without the need for a prescription or seeing any kind of health professional. And there is also another problem in the misuse of antibiotics in livestock and fish farms, which all serves to exacerbate the problem along the food chain as and when people consume them unknowingly.

There are promising new drugs potentially coming out. Indeed a US research group has found a new method of growing bacteria, which has yielded 25 potential new antibiotics. But we are not out of the woods yet until we can grow up and become more responsible!

PRACTICE QUESTIONS

Q28.1 Which of the following is not a cause of antibiotic overuse?

- A. Doctors giving in to patients’ insistent requests.
- B. Self-medication by patients.
- C. Lack of research into new antibiotics.
- D. Lack of patient understanding of the purpose of antibiotics.

Q28.2 Which of the following is not a consequence of antibiotic overuse?

- A. Patients with a cold may spend longer recovering from it.
- B. There is a constant need to develop new antibiotics.
- C. Some patients may die.
- D. It is possible for people who have never used antibiotics to treat an illness to become resistant to them.

Q28.3 Which policy would the author most likely agree could best resolve the problem of antibiotic overuse in the UK?

- A. Stepping up research efforts into new antibiotics.
- B. Criminalising inappropriate prescriptions by doctors.
- C. Making antibiotics available over the counter.
- D. Running an awareness campaign amongst the population.



Bacteria have a talent for learning new ways to survive, thus rendering some of the best drugs ineffective. And so, in the same way that we would buy a new car after having written off the previous one, when a drug has stopped fulfilling its role, we just move on to another one. Apply that model to antibiotics and you soon have a situation where none of the drugs available work anymore, so-called “antibiotics apocalypse”. One way in which we, as a society, have responded to this problem since the 1980s has been to intensify research to find new classes of antibiotics. But, to use the driving analogy, isn’t it time that we took driving lessons instead of simply changing car every time we crash one? We, indeed, need to learn to use antibiotics more responsibly.

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There are promising new drugs potentially coming out. Indeed a US research group has found a new method of growing bacteria, which has yielded 25 potential new antibiotics. But we are not out of the woods yet until we can grow up and become more responsible!

Q28.4 Which statement is the author most likely to agree with?

- A. Antibiotics are addictive.
- B. Antibiotics can be deadly, even at normal dose.
- C. Antibiotics should not be taken whilst driving.
- D. Antibiotics do not kill viruses.

Q28.5 Which of the following statements is the author most likely to agree with?

- A. If left untreated, colds simply resolve themselves.
- B. A quarter of doctors wrongly prescribe antibiotics.
- C. Doctors need to be firmer with demanding patients.
- D. Most doctors prescribe antibiotics inappropriately because they are unable to reach the correct diagnosis.

Q28.6 Some doctors prescribe antibiotics, knowing they will not work.

- True False Can't tell





Thank you