

Question One (1 - 2017)

Leaders of enemy countries are often described by our own political leaders and by the media as “mad”. But some of the features that we associate with madness can be useful assets in a political leader. Self-absorption, obsession, addiction to risk-taking and frenzied creativity all apply to some leaders agreed to have been “great”, as well as to those described as “mad”. People without some of those characteristics would be unlikely either to seek power or to be successful. The label “mad” is cynically used as a way of dehumanising and discrediting leaders of countries with whom we are in dispute.

Which one of the following best expresses the main conclusion of the above passage?

- A People who seek power do so for their personal aggrandisement.
- B There is agreement on which leaders are “great” or “mad”.
- C A definition of a successful leader is one who can obtain and hold power.
- D Political leaders have personality traits not normally found in the general population.
- E The use of the word “mad” is a propaganda tool rather than a genuine description.

Question Two (8 - 2017)

Rosie needs to mow her lawn. She has just bought a new lawn mower, and believes she can mow at a rate of 2m^2 a minute. With her old mower, she could only mow the lawn at a rate of 1m^2 a minute. Her lawn is 10m by 25m . There is a patio in one corner which is 2m by 3m and which she does not need to mow.

How much time does she save with her new lawn mower?

- A 122 minutes
- B 125 minutes
- C 128 minutes
- D 244 minutes
- E 250 minutes

Question Three (7 - 2017)

7 Below is a summary of all the second-hand cars sold by Bargain Cars during 2012 and 2013:

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2012 | 85 | 83 | 98 | 102 | 118 | 135 | 88 | 97 | 116 | 83 | 125 | 128 |
| 2013 | 123 | 106 | 87 | 114 | 90 | 106 | 124 | 113 | 131 | 77 | 92 | 75 |

Which month of 2013 saw the biggest increase in sales compared with the previous month?

- A April
- B June
- C July
- D September
- E November

Question Four (13 - 2017)

13 The following table summarises the results of all the matches played last season in a football league. (The home team's score is always given first.) Each team plays every other team in the league twice; once at home and once away.

| | | <i>away team</i> | | | | | | | | | |
|------------------|---------|------------------|--------|--------|--------|------|---------|-------|--------|-------|---------|
| | | Amazon | Danube | Ganges | Hudson | Nile | Orinoco | Rhine | Tigris | Volga | Yangtze |
| <i>home team</i> | Amazon | | 2-2 | 2-1 | 4-0 | 1-1 | 2-1 | 1-3 | 2-0 | 1-2 | 1-1 |
| | Danube | 1-3 | | 1-4 | 2-1 | 2-3 | 0-1 | 2-1 | 0-0 | 2-5 | 0-1 |
| | Ganges | 2-2 | 3-1 | | 2-0 | 1-2 | 2-3 | 1-3 | 1-2 | 3-1 | 2-0 |
| | Hudson | 1-2 | 0-1 | 2-1 | | 0-1 | 1-3 | 2-1 | 1-0 | 1-4 | 0-0 |
| | Nile | 2-0 | 3-0 | 1-2 | 3-1 | | 1-0 | 3-3 | 2-3 | 2-0 | 1-2 |
| | Orinoco | 4-1 | 0-0 | 3-1 | 2-0 | 3-2 | | 2-2 | 3-1 | 1-2 | 2-0 |
| | Rhine | 2-3 | 2-1 | 1-1 | 3-0 | 1-2 | 2-0 | | 3-0 | 2-2 | 3-1 |
| | Tigris | 1-1 | 2-2 | 1-3 | 1-0 | 2-0 | 0-2 | 0-3 | | 2-4 | 1-0 |
| | Volga | 3-2 | 3-0 | 2-1 | 4-1 | 2-2 | 1-0 | 1-2 | 4-0 | | 1-1 |
| | Yangtze | 0-2 | 1-2 | 2-0 | 2-1 | 3-1 | 0-3 | 0-2 | 2-0 | 1-3 | |

Which was the only team that scored at least one goal in every match they played last season?

- A Amazon
- B Ganges
- C Nile
- D Rhine
- E Volga

Question Five (18 - 2017)

I am planning to repaint the walls and the ceiling of my dining room. The room has the shape of a rectangular box and is 8 m long, 4m wide and 3 m high. I do not need to paint the door and the three windows, the combined surface area of which is 10 m^2 . Paint is sold in 8-litre tins and 1 litre of paint is sufficient for a surface area of 12 m^2 .

How many tins of paint do I need to buy?

- A 1
- B 2
- C 6
- D 8
- E 17

Question Six (22 - 2017)

Either young people are getting cleverer each year or examinations are becoming easier for students to pass. Since there is very little evidence from IQ testing and other supposed benchmarks that young people are more intelligent now than in the past, we must conclude that the examination system is easier for students today than it was in the past.

Which one of the following most closely parallels the reasoning used in the above argument?

A Farmers must choose between using organic or non-organic fertilisers on their land. Organic fertilisers can produce a lower crop yield and farmers may find it difficult to change to organic methods if they have been using non-organic methods for some time. Farmers should therefore consider the longer-term impacts of their decisions.

B Every year millions of holidaymakers decide whether to holiday in the UK or abroad. Since most of us like to have a degree of predictability in terms of holiday weather, we should not be surprised that, given the choice, most people would holiday abroad.

C Researchers have looked at the communication between different animals and found that meerkats have a series of alerts and calls that fall into two categories, greetings and alarms. Since we can be sure that this meerkat is not calling as a greeting, we must accept that he is attempting to raise the alarm.

D Wood burning stoves are a better way to heat your home than an open fire. Wood burning stoves are highly efficient, whereas an open fire loses a great deal of heat up the chimney. More people should therefore install wood burning stoves in their homes.

E When allocating emergency appointments, receptionists prioritise children and the elderly above other patients. If you are neither a child nor elderly, you may have to wait longer to see a doctor.

Question Seven (23 - 2017)

A huge number of people have taken up cycling in recent years, and this is a welcome development. But if cycling helmets were made compulsory, it would deter people from cycling. There is risk in everything. And there is also such a thing as personal responsibility. It is not the role of the government to stop people from harming themselves. Forcing cyclists to wear helmets is undue state interference in personal choices. Which one of the following illustrates the principle used in the above argument?

- A Alcoholics should not receive publicly funded treatment for their addiction because it is too expensive.
- B Recreational drugs should be legalised.
- C Professional cyclists should promote the wearing of helmets.
- D The government should combat cyberbullying by passing appropriate legislation.
- E It is right for parents to be fined if their children are absent from school without permission

Question Eight (24 - 2017)

A laboratory technician has made up a stock mixture of two chemicals, X and Y, ready for use by all of the groups in Year 9 at a High School. He has mixed 6.0 kg which is $\frac{4}{10}$ of X and $\frac{4}{10}$ of Y. He realises that he has used the wrong mix and, rather than waste the chemicals he has used so far, he is going to add some more of chemical X so that the mix consists of 40% of X and 60% of Y.

What mass of chemical X must he add?

- A 1.0kg
- B 1.5kg
- C 2.0kg
- D 2.5kg
- E 3.0kg

Question Nine (25 - 2017)

Five friends wanted to go on holiday together, but they found it difficult to decide where to go. Jo and Mel both wanted to go to Portugal, with France as their second choice. Kim wanted to go to Majorca, while Lexy's first choice was Greece and Naz's was Tenerife. Naz and Kim both put France as their second choice, while Lexy gave it as her third choice, preferring Tenerife as her second choice. Kim and Mel put Tenerife as their third choice. Jo's third choice was Greece, and Naz's was Majorca. They agreed to allocate three points for a 1st choice, two points for a 2nd choice and one point for a 3rd choice. The friends decided that they would not go anywhere which was not someone's first choice.

Where did they go on holiday?

- A France

- B Greece
- C Majorca
- D Portugal
- E Tenerife

Question Ten (30 - 2017)

There are two ways of scoring points in a ball game: a 'major' scores 5 points and a 'minor' scores 3 points. In a match played yesterday, the Reds beat the Blues 77–52 despite the fact that the Blues scored exactly twice as many majors as minors, whilst the Reds scored exactly half as many majors as minors.

How many majors were scored altogether in yesterday's match?

- A 9
- B 12
- C 15
- D 18
- E 21

Open Questions

Should governments only fund scientific research if it is of direct benefit to society?

Should convicted criminals be allowed to vote?