

**ADVANCED GCE  
CRITICAL THINKING**

Unit 4: Critical Reasoning

**TUESDAY 10 JUNE 2008**

**F494**

Afternoon  
Time: 1 hour 45 minutes

**Additional materials (enclosed):** Answer Booklet (8 page)  
Answer Sheet  
Resource Booklet

**Additional materials (required):**  
None



**INSTRUCTIONS TO CANDIDATES**

- Write your name in capital letters, your Centre Number and Candidate Number in the spaces provided on the Answer Booklet and Answer Sheet.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Answer **all** the questions.
- Section A contains multiple-choice questions which you should answer on the Answer Sheet provided.

**INFORMATION FOR CANDIDATES**

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- You should spend no more than 40 minutes answering Section A.
- You will be awarded marks for the quality of your written communication in Section B.
- The total number of marks for this paper is **110**.

This document consists of **15** printed pages and **1** blank page.



**Section A: Multiple Choice**

Answer **all** questions in this section of the paper.

You are advised to spend no more than 40 minutes on this section of the paper.

- 1 Computer games do not have to be menacing, war-like things which turn young men into non-communicative, passive-aggressive blobs. They have great potential to develop the brain and ethical thinking. The UN, for example, has developed a game called Food Force which involves competing to provide the best aid strategy. Ideas like this should be combined with the resources and technological advances of the big games companies.

‘They have great potential to develop the brain and ethical thinking.’

What is the function of this element in the structure of the argument?

A Explanation.

B Intermediate conclusion.

C Main conclusion.

D Reason.

[1]

- 2 ‘Ideas like this should be combined with the resources and technological advances of the big games companies.’

What is the function of this element in the structure of the argument in question 1?

A Explanation.

B Intermediate conclusion.

C Main conclusion.

D Reason.

[1]

## 3 Which of the following is an argument?

- A** Britain has threatened to pull out of a planned £10 billion deal to buy new fighter aircraft if the US refuse to share secret computer technology needed to maintain control over the armed forces. 'If we can't trust the Americans to provide this, you have to ask what else we should be doing with them in defence terms,' a Ministry of Defence source said.
- B** If you take a placebo, you may feel less pain even though the tablet contains no active medicine. This is because your belief that you are getting medicine makes your body produce its own painkillers. However, a nocebo has the opposite effect. If you are told that it will have an unpleasant effect, you will feel more pain. This is because the brain can turn the chemical signals of anxiety into exaggerated pain.
- C** 'The notion of taking something that was never intended to be art – a penny, or a wisdom tooth – and blowing it up to the size of the Statue of Liberty is very funny. It could lead to all sorts of funny things,' said the sculptor, Bergman, about computer altered sculpture. This just shows how art isn't art anymore.
- D** You can make a difference to your own happiness. Spend time doing the things you enjoy and write about them. Engaging in activities that are in line with your values and interests can improve your sense of wellbeing. You will be happier if you focus on the positives in life by jotting them down in a notebook. [1]

## 4 Vertical Jump Scores of Men and Women at University

Percentile	Men (cm)	Women (cm)
90	64	36
80	61	33
70	58	30
60	48	25
50	41	20
40	33	15
30	23	10
20	20	5
10	5	2.5

Source: [www.udel.edu](http://www.udel.edu)

'75% of the men in this study were later found to be smokers.'

How does this additional evidence affect how strongly the information in the table supports the claim that, 'Men at university can generally jump around twice as high as women at university'?

- A** It is impossible to tell.
- B** It neither strengthens nor weakens it.
- C** It strengthens it.
- D** It weakens it.

[1]

- 5 In future, researchers hope to be able to tell what an animal is feeling by scanning its brain. Techniques such as magnetic resonance imaging are helping scientists to discover and map which parts of the brain are involved in emotion, intelligence and learning. Once we have this map of the human brain, we should be able to find similar areas in the brains of animals. Then we could find out directly what our pet cats and dogs are feeling and compare their range of emotions with the human range.

Source: *New Scientist* p7 23 September 2006

Which of the following is an assumption underlying the argument?

- (i) Understanding which part of the brain is active when someone feels an emotion is the same as knowing what someone is feeling.
- (ii) Pet cats and dogs only have feelings which correspond to human feelings.

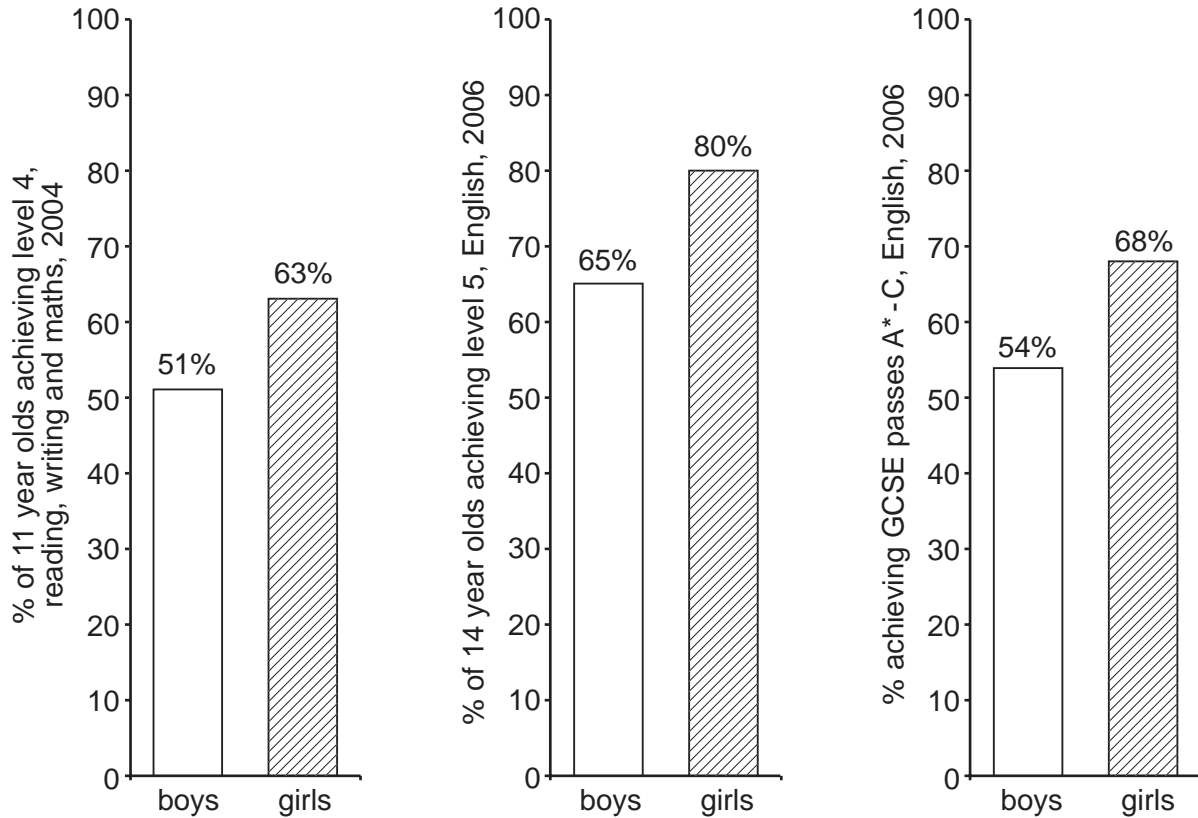
- A (i) only
- B (ii) only
- C Both
- D Neither

[1]

### Proportion of male staff, 2004

Nurseries, childcare, pre-school settings	2%
Primaries	16%
Secondaries	44%

### Achievement gap



Which of the following can reliably be concluded from the evidence presented in the information above?

- A It is uncertain what effect male teachers have on achievement.
- B Male teachers improve boys' performance at secondary school but have an even better effect on girls' performance.
- C More male teachers at secondary school have no effect on boys' performance.
- D More male teachers at secondary school improve boys' performance.

[1]

- 7 Consider the following claim together with the information given in Q6:  
'The achievement gap between boys and girls begins early and tends to grow wider throughout full time education with 59% of first class and upper second degrees going to women.'

This claim may be inaccurate because:

- (i) the statistics don't follow a single year group
- (ii) the school and university statistics are not comparable
- (iii) the gap does not grow throughout secondary school.

**A** (i) and (ii) only

**B** (i) and (iii) only

**C** (ii) and (iii) only

**D** All of these

[1]

- 8 If Doddy does not have paws she cannot be a cat. However, Doddy is a cat, so she does have paws.

Which of the following uses the same pattern of reasoning as the argument above?

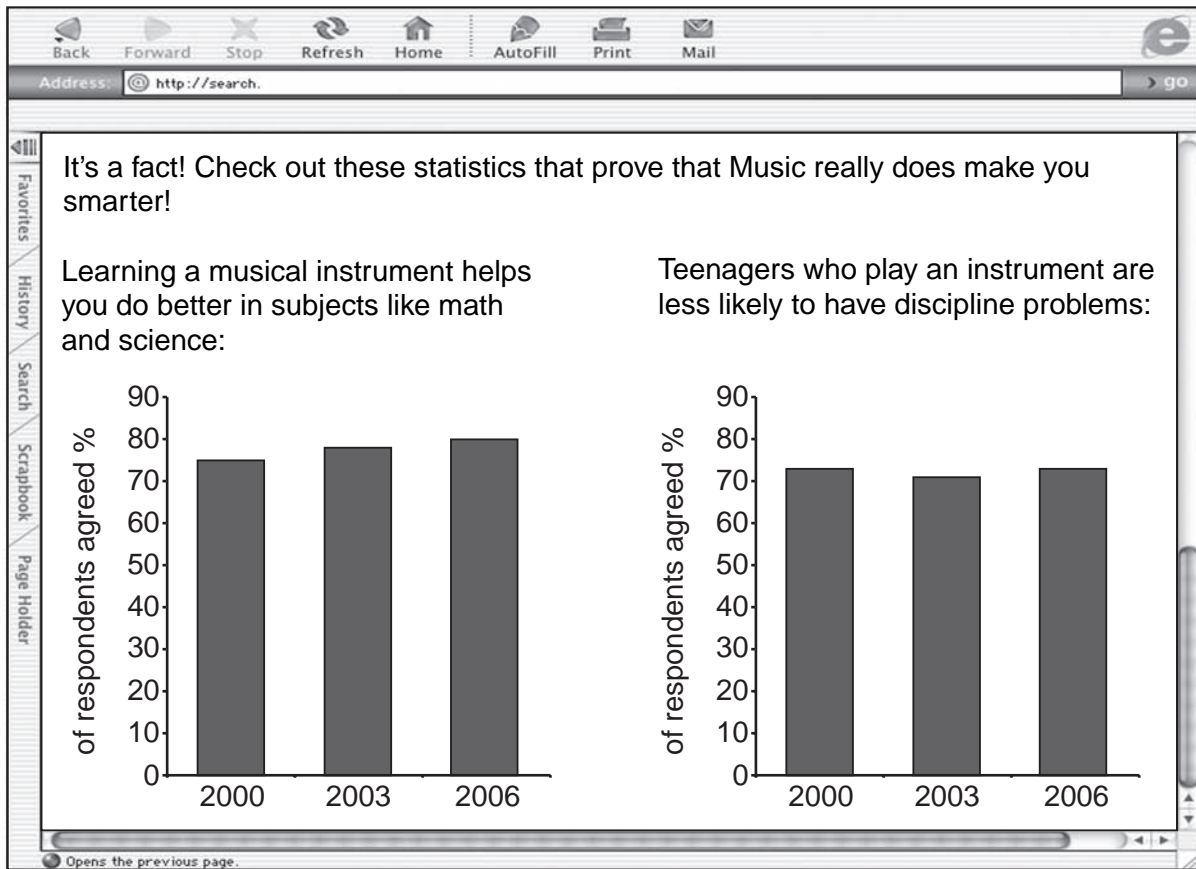
**A** If Aisha cannot read music, she cannot be a concert pianist. However, Aisha is a concert pianist, so she can read music.

**B** If Bharat doesn't practise reversing round the corner, he will fail his driving test. However, he does practise reversing round the corner, so he should pass his test.

**C** If Mike cannot kick a ball, then he cannot be a footballer. However, Mike can kick a ball, so he is a footballer.

**D** If Oz goes to the gym tonight, he should lose weight. He is losing weight, so going to the gym has been working.

[1]



2006 US Gallup Poll  
Source: [www.amromusic.com](http://www.amromusic.com)

Which of the following expresses a reason why these statistics do not prove that music makes you smarter?

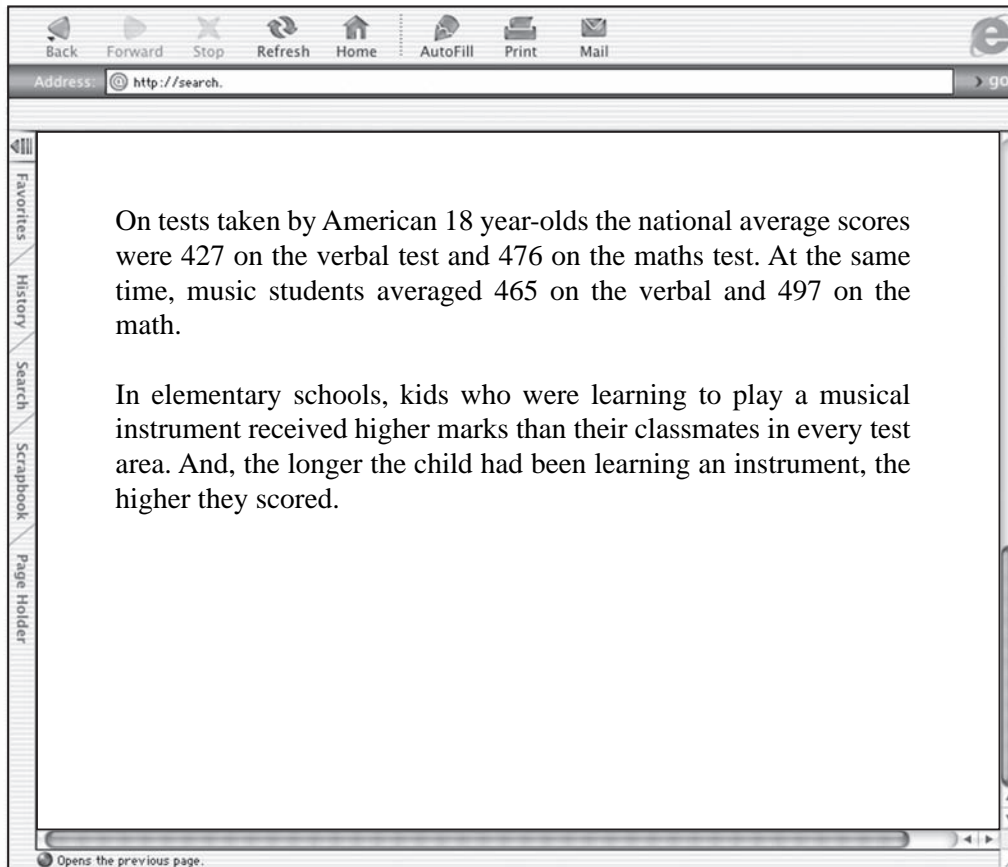
- (i) This survey is limited to the US so it cannot be extended to the effects of music in the UK.
- (ii) Many of the respondents are likely to be responding based on uninformed opinion rather than evidence.

- A (i) only
- B (ii) only
- C Both
- D Neither

[1]



10 The website contains the following additional information:

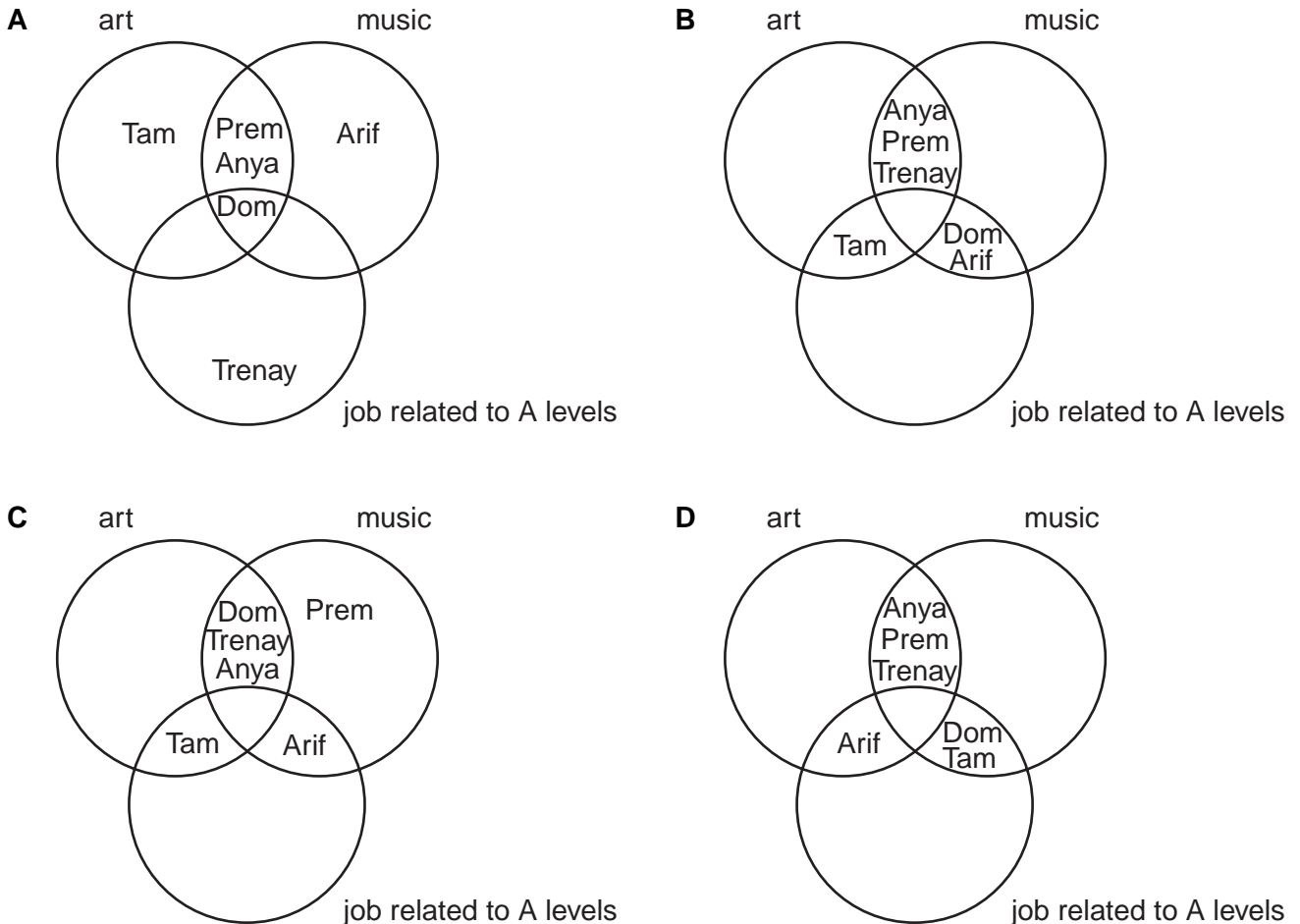


How does this information affect the strength of support for the claim that music makes you smarter?

- A It is uncertain. The correlation between music and better test scores might be because children who learn instruments generally have parents who support learning.
- B It neither strengthens nor weakens it. Two studies are not enough to come to any conclusions about the link between music and becoming smarter.
- C It strengthens it. There are two studies, one of which comes from important national tests, which show a strong causal link between learning an instrument and performing better in tests.
- D It weakens it. We do not know the total marks for the tests so the better marks gained by instrument players might be insignificant. [1]

- 11 Six of us from Sixth Form College met up last week, seven years after leaving. We've all achieved so much. Dom now plays for the City of Birmingham Symphony Orchestra, and Anya and Prem have finished training as solicitors. Trenay runs her own web based sales business, and Tam is developing a career as a graphic designer. Arif is a proud stay-at-home Dad who also writes for NME and Computer Music. All of us studied either art or music A level at sixth form college. Three of us studied both, and none of these three has a job related to our sixth form subjects.

Which of the following diagrams best represents the information about the friends?



[1]

- 12 We should keep using skinny models in fashion. In an art gallery, the walls are always painted white. Using a different shade would be making a statement and therefore distracting attention from the painting. Some fashion designs can be challenging enough without additional distractions.

Which of the following best expresses a weakness in the analogy?

- A** A painting does not care which wall it hangs on but a woman does care which clothes she wears.
- B** Artists intend people to look at their paintings. Fashion designers intend people to look at their designs.
- C** Clothes are not flat paintings to hang on walls but three dimensional constructions which must exist in a relationship with the wearer.
- D** It is patronising to women to suggest that they are only as important as walls.

[1]

13 How might the argument in Q12 best be countered?

- A Fashion designers should restrict themselves to making clothes for real women.
- B Fashion designers should give up their pretensions to be artists; they are only making clothes.
- C Fashion design has an important role in creating the look, the art and the culture of the time.
- D Fashion design is not only art, but also profoundly influential on our everyday lives. [1]

14 Everybody is honking horns about roads policy, from the extension of the London congestion charge to road pricing proposals. Yet one question has been shunted off the political map by lentil-munching, cycling Greens: whatever happened to big investment in new roads? Maybe we could expend less energy on constructing driving-related debates that go round in circles and more on building the roads that society needs to get moving. There is a pile of statistics demonstrating the inadequacies of Britain's road network. Motorways which are crucial to our road network form barely 1% of our roads and grew by just 150 miles in the decade to 2005. Britain now has half the motorway density of Germany. Even without road pricing the Government already takes about £45 billion a year in taxes from road users and spends no more than £7 billion of it on roads. The no-more-roads prejudice is fuelled by the green make-do-and-mend consensus that now extends across every lane of the political highway.

Extract from Mick Hume, The Times, 20 February 2007

Which of the following best expresses a weakness in the use of evidence in the passage?

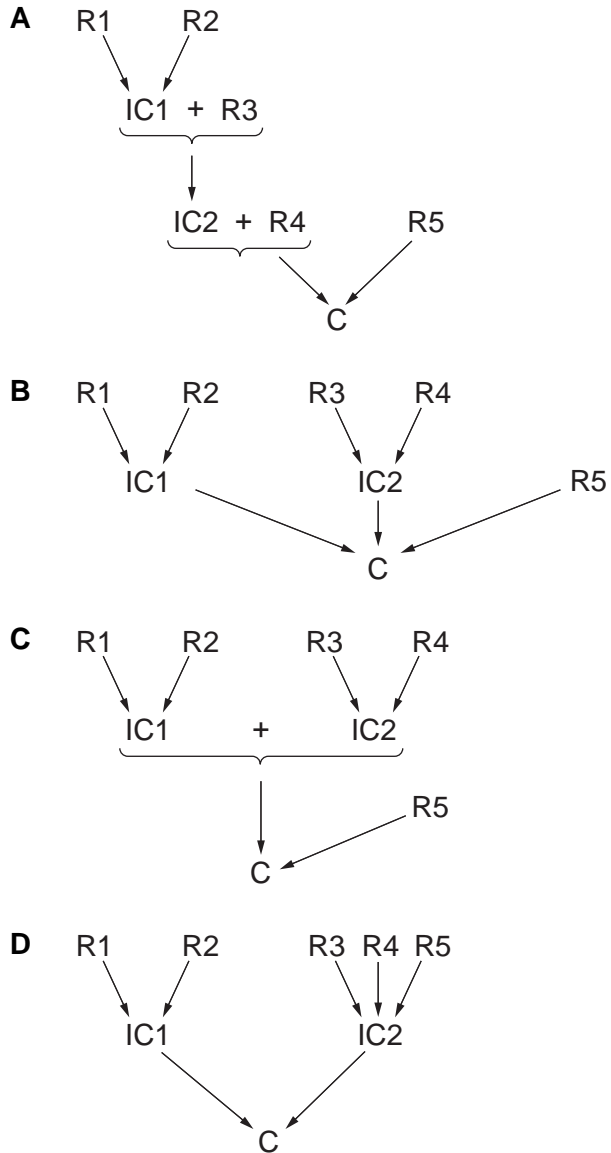
- A Demonstrating that the motorway network has not grown and is not dense does not show that it is inadequate.
- B It is ineffective to compare Britain to Germany because the two countries are very different.
- C It might be much more environmentally friendly to have only half the motorway density of Germany.
- D Motorways are only 1% of our road network, so they are not representative of our roads. [1]

15 Which of the following is not a weakness in the argument about roads in Q14?

- A Attacking the arguer
- B No reasons given
- C Restricting the options
- D Straw person [1]

16 It is time that men rebelled and burned their ties (C). The tie is a symbol of oppression (IC1) – ties impose conformity (R1) and turn men into wage slaves (R2). They are a health risk (IC2) – men who wear them too tight have a higher risk of glaucoma (R3) and all of us risk strangulation as we gain weight (R4). And then there are novelty ties – as good a reason as any for binning ties (R5).

Which of the following diagrams best represents the structure of the argument about ties?



R= reason  
 IC= Intermediate conclusion  
 C= Conclusion

[1]

- 17** The fact that I am female and that I like both pink and gadgets does not mean that I like pink gadgets. Games publishers are desperate to get more women playing: after all, we represent a shade more than 50% of the population and that's a lot of disposable income not being chucked at the likes of EA Games, Lionhead, Sony et al. But instead of thinking about what turns women off games (too much blood, soldiers, aliens, Lara Croft), they've decided the way to our hearts is through pink hardware. It's patronising to try to sell us stuff we don't want by making things pink. Sorry guys, you have to find a better way of reaching out to women.

Extract from Kate Bevan, *The Guardian*, 7 December 2006

'...after all, we represent a shade more than 50% of the population and that's a lot of disposable income not being chucked at the likes of EA Games, Lionhead, Sony et al.'

Is this element:

- A** An assumption?
- B** A counter argument?
- C** An explanation?
- D** A reason? [1]

- 18** 'Sorry guys, you have to find a better way of reaching out to women.'

Which of the following best describes how far the reasoning in the passage supports this claim?

- A** It misrepresents the games publishers' case by suggesting that they are only interested in women's money. This does not affect the support for this claim because it is only a rhetorical device, not part of the argument.
- B** It misrepresents the games publishers' case by suggesting that they are only interested in women's money. This weakens the support for the claim slightly because games manufacturers may really be trying to appeal to women who like pink.
- C** Just because some women do not like pink gadgets does not mean that no women like pink gadgets. This barely weakens the support for the claim because the games companies still need to address women's interests.
- D** Just because some women do not like pink gadgets does not mean that no women like pink gadgets. This weakens the support for the claim significantly because it shows that the author is generalising unreasonably. [1]

- 19** Science does not work by the rhetorical convention found in legal courts that every story has precisely two sides that must be accorded equal weight. People who deny climate change claim that they have the right to news coverage to balance the 'other side' of the argument. To 'balance' the informed opinion of many scientists with their own beliefs. The same tactic is used alongside rhetorical attacks by quacks, creationists and conspiracy theorists who all claim that it is only fair that their side of the dispute is heard. Science, however, is not fair. It is not prepared, for example, to acquit gravity of making apples fall on the basis that someone can argue 'reasonable doubt.'

Which of the following can be reliably concluded from the reasoning in the passage?

- (i) Science is not prepared for its views to be challenged.
- (ii) Scientists must learn to use rhetoric to counter rhetorical attack.
- (iii) Rhetorical attacks can never be scientific.

- A** i) and ii) only
- B** i) and iii) only
- C** All of these.
- D** None of these.

[1]

- 20** What is the purpose of the reference to gravity in the passage in Q19?

- A** It suggests that arguments which are not based on science have no right to be heard in debates about important issues.
- B** It suggests that doubts based on conventions of fairness should not be allowed to challenge scientific claims based on evidence.
- C** It suggests that lawyers should not attempt to use reasonable doubt to counter apparently strong arguments.
- D** It suggests that it is as certain that climate change is true as it is that gravity is true.

[1]

**Section B: Analysing and evaluating argument**

Read the article, "The sky's the limit", and answer questions 21 to 25.

**Analyse**

- 21 Name and briefly explain the function of the following elements in the structure of the argument about genius:
- (a) 'Trouble is, the thinking is wrong.' (paragraph 3) [2]
  - (b) 'The most gifted child runners usually do not go on to be Olympic champions.' (paragraph 4) [2]
  - (c) 'It [creating elite schools or classes] gives the wrong message to those children who are not selected, at a crucial stage in their development.' (paragraph 6) [2]
  - (d) We need to change education to give each individual the best chance of coming close to greatness, not just the brightest children. (Not stated in text) [2]
- 22 Analyse in detail the structure of the reasoning in paragraph 7 by identifying reasons, intermediate conclusions etc. [9]

**Evaluate**

- 23 'The thinking [about genius as a gift] is wrong.' (Paragraph 3) Evaluate the support given to this claim by the reasoning in paragraphs 3 – 5. [21]

Support your evaluation by **selectively** referring to:

- Flaws in the reasoning and their impact on the strength of the reasoning.
- Assumptions which must be made and their impact on the reasoning.
- The effectiveness of the use of evidence and examples.

- 24 'When it comes to creating an environment in which [our children] can fulfil their potential, it seems that we're getting it wrong. (para 6)' Evaluate the support given to this claim by the reasoning in paragraphs 6 – 7. [9]

**Develop your own Reasoning**

- 25 'All children should be educated in exactly the same way.'

Write your own argument to support or challenge this claim. [18]

**Total marks for Section B [65] marks**

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*Copyright Acknowledgements:*

- Q.4 text Source: University of Delaware, [www.udel.edu](http://www.udel.edu)  
Q.5 text Source: New Scientist, p7, 23 September 2006, [www.newscientist.com](http://www.newscientist.com)  
Q.9 text Source: Amro Music, [www.amromusic.com](http://www.amromusic.com)  
Q.14 text Extract from Mick Hume, *Of course we need more roads. It's a no-brainer*, The Times, 20 February 2007  
Q.17 text Extract from Kate Bevan, *Technobile: The only woman who would buy pink gadgets is Paris Hilton – and who wants to be like her?*, The Guardian, 7 December 2006

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