

Thinking Skills Assessment Oxford

4502/11

Wednesday 6 November 2013

1 hour 30 minutes

SECTION 1 Thinking Skills Assessment

Instructions to Candidates

Please read this page carefully, but do not open this question paper until you are told that you may do so.

A separate answer sheet is provided for this section. Please check you have one. You also require a soft pencil and an eraser.

Please complete the answer sheet with your TSA candidate number, centre number, date of birth and name.

Speed as well as accuracy is important in this section. **Work quickly, or you may not finish the paper.** There are no penalties for incorrect responses, only points for correct answers, so you should attempt all 50 questions. All questions are worth one mark.

Answer on the sheet provided. Questions ask you to show your choice between five options. Choose the **one** option you consider correct and record your choice on the separate answer sheet. If you make a mistake, erase thoroughly and try again.

Any rough work should be done on this question paper.

Dictionaries and calculators may NOT be used.



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Please wait to be told you may begin before turning this page.

This paper consists of 29 printed pages and 3 blank pages.

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- 1** This week a controversial chef is urging the great British public to sample a fabulous new meat. But instead of a buying bonanza the chef's comments have provoked outrage because the meat in question is horse. Even the staunchest meat-eaters are up in arms. Says a rival chef: 'I would never eat horse meat and would never serve it to my customers. It's not part of our food culture. It's unthinkable.' But aren't we being just the teeniest bit irrational? After all, in France and Belgium, two of our closest neighbours, there are whole shelves of horse meat alongside the beef and chicken. Here we eat lamb and pig, duck, even deer, ostrich and kangaroo. If we eat these, what is logically different about horse? Nothing.

Which one of the following most closely expresses the main conclusion of the above argument?

- A** There is no logical difference between lamb or beef and horse.
 - B** Eating horse meat in Britain is unthinkable.
 - C** The British should follow the example of France and Belgium.
 - D** The British response to eating horse meat is a little irrational.
 - E** Meat-eaters have no good reason for objecting to horse.
- 2** Three thermometers are each accurate to within 2 degrees above or below the temperature they actually read. One reads 7°, one reads 9° and one reads 10°.

What is the minimum range in which the true temperature lies?

- A** 5°–12°
- B** 7°–9°
- C** 8°–10°
- D** 8°–9°
- E** 7°–10°

- 3 The most popular theory about the origin of the Moon is that it was formed from debris breaking off the Earth in a planetary collision 4.5 billion years ago. If this were true, the Moon would be made of the same material as is found on Earth. Examination of Moon rocks shows this to be the case, although there is little iron in Moon rocks. However, this can be explained because, according to the theory, the material that formed the Moon would have come from the Earth's crust, not its iron-rich core. Thus we should accept the theory as true.

Which one of the following identifies the flaw in the above argument?

- A The popularity of a theory is not what determines its truth.
 - B Evidence that is inconsistent with a theory proves that the theory is false.
 - C The explanation offered in the passage is not consistent with the theory.
 - D Evidence that confirms a theory's predictions does not prove that the theory is true.
 - E A theory that is not consistent with the facts should be rejected, not modified.
- 4 The International Code of Zoological Nomenclature states that the earliest recorded scientific name for an organism becomes the official name. This seems fair, but the system is flawed. Textbooks show the sequence of fossil ancestors of the modern horse as: *Pliohippus*, *Merychippus*, *Mesohippus* and the first horse ancestor *Hyracotherium*. The last of these looks out of place. *Hyracotherium* was once, more sensibly, called *Eohippus*; this descriptive name means "dawn horse". The suffix *-hippus* (horse) is consistent with others in the list. *Eohippus* also sounds pleasant. The name was changed when it was discovered that a fossil fragment that had been named *Hyracotherium* was really from the same animal that had, until then, been called *Eohippus*.

Which one of the following conclusions is best supported by the passage above?

- A Common sense is not a major factor in scientific naming decisions.
- B A system of naming organisms based on the date the name was first registered is not the most appropriate.
- C The rules of the International Code of Zoological Nomenclature do not always produce the most sensible name for animals.
- D The name of *Hyracotherium* should be changed back to *Eohippus*.
- E The rules of the International Code of Zoological Nomenclature need to be changed to allow for common sense.

- 5** At Everthorpe Prison in Yorkshire, prisoners made no attempt to escape using ladders placed against the outside walls by drug dealers and prostitutes plying their trades. A prison officer spokesperson said that this was because the authorities had made prisons too comfortable and thus failed to deter criminals. A large number of released prisoners quickly reoffended and returned to prison, where they had all the comforts of home: a television in each cell, breakfast in bed, a wage and cash bonuses for good behaviour.

Which one of the following is an implicit assumption upon which the spokesperson's argument rests?

- A** Prisoners would not reoffend if prisons were less comfortable.
 - B** Many criminals are habitual offenders.
 - C** Not all prisoners are interested in drugs or prostitutes.
 - D** The conditions inside prisons are determined by the prison officers.
 - E** Reoffending rates have recently risen.
- 6** On only 360 occasions during the twentieth century was it possible to write the date in the form DD/MM/YYYY using eight different digits. One example was 28th July 1956 (28/07/1956).

Eleven of Arthur's birthdays have been such dates (though not his date of birth), and in 1974 and 1983 the two digits that did not form part of the date made up his age at the time.

In which year was Arthur born?

- A** 1909
- B** 1916
- C** 1918
- D** 1936
- E** 1938

- 7 In order to qualify for a bonus, employees must fulfil certain criteria:

£1,000 bonus	Absences less than 5%
	Production target exceeded by at least 10%
	Rejects are less than 5% of output
£500 bonus	Absences less than 10%
	Production targets met
	Rejects are less than 8% of output

Workers performed as follows:

	Smith	Jones	Patel	Owololu	McKay
Attendance (%)	95	90	100	96	97
Over production target (%)	+5	+6	+12	0	-4
Product accepted (%)	98	96	95	93	96

Who qualifies for a bonus?

- A Nobody
- B Smith
- C Patel and Smith
- D Owololu, Patel and Smith
- E Jones, Owololu, Patel and Smith

- 8 I stopped in a town called Akeland to ask the way to Eksberg. The only sense I could get from a local was as follows:

Akeland is east of Benford.

Eksberg is north of Cranton.

Ducton is south of Akeland.

Cranton is west of Ducton.

Assuming that 'east' means, as near as it matters, 'due east', which one of the following can be said with certainty?

- A I need to go due west.
- B I need to go to the west, but it may be north-west or south-west.
- C I need to go north-west.
- D I need to go to the north, but it may also be a bit west.
- E I need to go south-west.
- 9 The recent campaign to reduce the number of people who drive while over the legal alcohol limit was very successful. But reducing it further is going to be difficult without addressing one of the main problems: people in rural areas have no choice, in the absence of public transport, but to use their cars. People who live in towns and cities can use buses, trains or readily available taxis if they want to go out for a drink. Furthermore, they don't have to go far to find pubs and clubs. Unless the Government wants the level of drink-driving to increase, it needs to ensure that far more pubs and clubs are built in rural areas.

Which one of the following, if true, would most strengthen the above argument?

- A The legal alcohol limit for drivers is likely to be lowered in the near future.
- B The public have been made much more aware of the dangers of drink-driving.
- C Many pubs in rural areas are closing because of the reduced numbers of customers.
- D The population of rural areas is predicted to increase over the next twenty years.
- E The police concentrate their drink-driving campaign in towns and cities.

- 10** Another pair of British media personalities have announced their separation. Both are well-paid personalities who profit enormously from the publicity they attract from their behaviour. Media personalities like them usually employ agents who can generate publicity, arrange well-paid personal appearances and sell stories and photo shoots to glossy magazines. These agents probably generate more income for some media personalities than their original activity, such as singing. Therefore it's clear that talent is no longer rewarded.

Which one of the following is the best statement of the flaw in the above argument?

- A** These personalities may not be talented.
 - B** Many performers may be rewarded for their own original talent as well.
 - C** Agents generate a large amount of income for their clients.
 - D** Agents may be destroying talent by their actions.
 - E** Personalities do not have to choose to employ agents.
- 11** Films are expensive to produce and must take a significant amount of money at the box office to cover costs before any profit is made. Thus filmmakers are primarily interested in making a film that will appeal to a large number of people and so make a lot of profit. This often leads to the production of superficial, violent films that attract a large audience. Therefore, the Government should invest in the film industry. If it did that, filmmakers would not need to be motivated entirely by the aim for profit.

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

- A** The Government should invest in the film industry.
- B** Filmmakers need to ensure that their films will attract large audiences.
- C** Government investment in the film industry would reduce the need to aim for profit.
- D** The output of the film industry contains too many violent films.
- E** Aiming solely for profit leads to the production of superficial, violent films.

- 12** I have just joined a savings scheme. I will pay in £50 each month and at the end of each complete year I will be paid 5% interest on my average balance (i.e. the average of my starting and finishing amount) for the previous 12 months.

How much will I have in total when my interest has been paid at the end of the second year?
(Answer to the nearest £10.)

- A** £1230
- B** £1260
- C** £1290
- D** £1380
- E** £1990

- 13** Every Thursday, Marilyn spends 10 hours making 60 cakes to sell at her local market. The cost of the ingredients to make each cake is £1.60 and Marilyn charges £6 an hour for her time. She usually sets the sale price for a cake at 75% more than the total costs of making it. However, when she sells to her friends she gives them a 10% discount on the normal sale price.

What do her friends have to pay for one of Marilyn's cakes?

- A** £3.42
- B** £4.10
- C** £4.29
- D** £4.55
- E** £4.88

- 14** A business, facing turbulent times, changed the wages of its workers by the same percentage in two successive years, but the changes were in opposite directions.

Which of the following best describes the wages of the workers after the second change?

- A** The same as the original wage.
- B** Necessarily higher than the original wage.
- C** Necessarily lower than the original wage.
- D** Higher than originally if the first change was an increase, otherwise lower.
- E** Higher than originally if the first change was a decrease, otherwise lower.

- 15** Those in favour of coursework contributing to A-Level grades say that this is much fairer than assessment by exam only, as it means that students who are willing to work hard but who perform poorly in exams will have a better chance of doing well. However, this arrangement currently allows far more opportunity for cheating, casting doubt on its fairness. For example, there is a growing market for customised essays, available (for a fee) via the Internet. At the moment the only deterrent is a teacher's vigilance, but while teachers might identify work that seems atypical for individual students, they won't necessarily detect when, for example, a student has had an unacceptable amount of help from family or friends.

Which one of the following conclusions is best supported by the passage above?

- A** Assessment by coursework is not necessarily fairer than assessment by examination.
- B** The opportunities for cheating in coursework mean that A-Levels should be assessed by exams only.
- C** Traditional examinations are still the fairest way of grading A-Level students.
- D** There is no entirely fair way of assessing students at A-Level.
- E** Examinations do not assess how hard a student has worked.

- 16** Largely because of the influence of celebrity TV chefs and increased customer demand, many supermarkets have recently enlarged the amount of game (e.g. rabbits, pheasants and venison) in their meat sections. Factory farming is seen as cruel to the animals involved. Rabbit meat, in particular, is selling well as it is tastier than chicken and is cheaper than beef or pork. Game is also low in fat and cholesterol. If people are really concerned about animal welfare they should take advantage of the increased availability of game in the supermarkets. They will also be getting a nutritious and cheap diet.

Which of the following best expresses the underlying assumption in the above argument?

- A** Supermarkets want to improve their animal welfare image.
- B** The influence of celebrity chefs on shoppers cannot be underestimated.
- C** No game meat is produced using factory farming methods.
- D** Cheapness does not necessarily provide good value.
- E** Supermarkets always respond to customer demands.

- 17** The production of standard disposable nappies from petrochemicals is wholly unsustainable. It is estimated that, while in disposable nappies, a baby will generate two tonnes of used nappies which will end up in landfill. Washable nappies have a significantly reduced environmental impact at production and at eventual disposal. Landfill sites are already in short supply, with recycling programmes aiming to reduce waste. However, if the Government wants to meet its sustainability targets it must do more to increase the use of washable nappies.

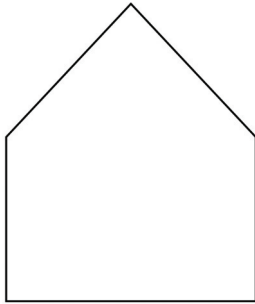
Which one of the following, if true, would most strengthen the above argument?

- A** The washing process of nappies involves further energy consumption.
 - B** Some disposable nappies are made of natural polymers and are compostable.
 - C** Most disposable nappies would take in excess of 500 years to bio-degrade in landfill conditions.
 - D** Several local authorities have incentive programmes to encourage parents to choose washable over disposable nappies.
 - E** By 2014 all local authorities must offer doorstep recycling and many already offer composting bins and appliance collection.
- 18** Sven is a keen cyclist and is riding from Alvros to Berget. At his normal cycling speed this will take him 30 minutes. His wife, Helga, will go by car to bring him and his bike back. They leave at the same time, but two thirds of the way between the two towns the car breaks down and Helga has to walk the rest of the way. The car goes at three times the speed Sven cycles. But Helga walks at only one third of the speed he cycles.

Who arrives at Berget first, and by how much (to the nearest minute if necessary)?

- A** Helga by 12 minutes.
- B** They arrive at the same time.
- C** Sven by 7 minutes.
- D** Sven by 33 minutes.
- E** Sven by 37 minutes.

- 19 I am making a patchwork quilt from leftover pieces of cloth of various shapes and sizes. This pentagonal piece of cloth is rather large, so I want to cut it into two pieces.



Which one of the following combinations is it **not** possible to produce by making one straight cut across a pentagonal piece of cloth?

- A A triangle and a quadrilateral.
- B A triangle and a pentagon.
- C A triangle and a hexagon.
- D A quadrilateral and a pentagon.
- E A quadrilateral and a hexagon.

- 20** Thomas needs to book a place to sit a test next week, but is free only in the mornings. The test centre runs the test every day from Monday to Friday and holds a morning and an afternoon sitting. Each sitting has a total of 100 places available and will take place in the main hall unless there are 30 or fewer candidates, in which case a smaller room is used. He does not like to take tests in crowded places, so he wants to make sure that he is in the main hall and will try to be with the smallest number of other candidates possible. The number of places that are still available are shown in the table below.

Day	Spaces available a.m.	Spaces available p.m.
Monday	75	67
Tuesday	48	47
Wednesday	57	2
Thursday	39	10
Friday	63	46

On which day should he choose to sit the test?

- A** Monday
 - B** Tuesday
 - C** Wednesday
 - D** Thursday
 - E** Friday
- 21** In recent years there has been a great deal of media attention focused on the private lives of politicians and world leaders, with particular attention paid to their personal relationships. There are those who suggest that this attention is unwarranted because only their professional abilities are important to their political role. This attitude fails to consider that the public have little insight into the day-to-day lives of world leaders and, indeed, few points of reference. Personal lives offer common ground. In democratic states leaders are elected based on how the public perceive them, and private lives can offer an insight into an individual's values. The personal aspects of a politician's life should continue to be reported if the electorate find it important.

Which one of the following, if true, most strengthens the above argument?

- A** All those in the public eye are subjected to media attention.
- B** Some politicians have high profile affairs.
- C** Attention on their private lives can cause leaders to lose their focus.
- D** Many of the public are very interested in the family lives of sports personalities.
- E** Most politicians claim to be respectable and honest in all aspects of their lives.

- 22** Criminals often give themselves away by their lifestyle. My neighbour is a criminal because he bought and is living in a very expensive house, which I know he could not afford as he is officially working only in a poorly paid job.

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

- A** The cat keeps bringing mice into the house. He never eats them, so I assume he hunts them either because that is his instinct or for pleasure.
- B** It is impossible to write more than four pages in half an hour. You have just handed in seven pages of writing. You must, therefore, have spent longer than half an hour on it.
- C** The bank was extremely well guarded and robbing it would require very careful planning. The thieves who broke in yesterday must have spent months planning every detail of the crime.
- D** All my friends save money through the year and then go on holiday. I am saving every month, so I think I should be able to go on holiday soon.
- E** If the police want to identify criminals they need to watch how they are spending their money. They do want to catch them, so they watch out for people buying cars or houses they cannot legally afford.

- 23** There is often concern about the large quantities of money earned by top singers. It could be argued that there are many ways in which this money could be spent that would be beneficial to a large number of people. However, these people are receiving high earnings because they are the best at what they do and those who are better than others at what they do should be rewarded.

Which one of the following best illustrates the principle underlying the argument above?

- A** To become a doctor requires a much longer course of study than other professions; therefore, doctors should receive a higher rate of pay than members of those other professions.
- B** When making the decision about who should be accepted onto the course, the bottom third of the applicants based on the results were eliminated immediately.
- C** Since efficiency is the most important aspect of the work, the end of year bonus was awarded to the member of staff who had made the best use of time over the year.
- D** When deciding on the member of staff to be promoted, the director of the company looked at the records of the applicants and chose the one who had done the most overtime in the past year.
- E** The prize for the best film was decided by taking the one that made the most money at the box office in its opening week.

- 24** Mr Daley has bought some used carpeting for his new 24 m x 12 m car showroom. The carpet is in 8 m x 4 m rectangles which will be joined using a strip of double-sided tape along all seams. Additionally, double-sided tape will be needed to stick the carpet around the edges of the showroom.

What is the minimum amount of tape he requires?

- A** 72 m
- B** 108 m
- C** 144 m
- D** 216 m
- E** 288 m

25

WINTER SPECTACULAR

AT

THE PLAYTIME THEATRE

From: Saturday 7th December

To: Saturday 28th December

Performances nightly at 7 pm (Sun–Fri)

(Saturdays at 5.30 pm and 8.30 pm)

Matinees Weds, Thurs and Sat at 2 pm

Tickets from £8

(Theatre closed 25th December)

How many times will the Winter Spectacular be performed at the Playtime Theatre during its run?

- A** 31
- B** 34
- C** 35
- D** 36
- E** 38

- 26** A popular option at the Pizza Parlour is the 'Plus Two' pizza, which is a basic cheese and tomato pizza plus a choice of any two different additional toppings from the following list:

Tuna Ham Chicken Onion Mushroom Sweetcorn

This gives 15 variations, which can be calculated as follows:

Each of the six additional toppings can be combined with one of the other five to create 30 pairs, but this counts each pair twice, e.g. tuna and ham; ham and tuna.

Which of the following does not give a result of 15?

- A** The total number of matches when six teams play each other once.
 - B** The total number of handshakes when six people shake hands with each other.
 - C** The total number of crackers needed for six children to pull a cracker with each of the others.
 - D** The total number of partnerships possible when two people are chosen from a shortlist of six to represent their society in a debate.
 - E** The total number of cards sent when six friends send each other Christmas cards.
- 27** There is a naive view that the problem of rapid population growth can be effectively solved if enough money is invested in family planning services. But it is no accident that the world's highest population growth rates are in poverty-stricken sub-Saharan Africa. Child mortality in this region remains stubbornly high, so it makes sense for women to have lots of children to ensure that at least one son survives into their old age. Children are also economic necessities for peasant families engaged in traditional agriculture; in many systems the larger the family, the more land is allocated to it. It follows that only by reducing the demand for large families through economic development can the problem of overpopulation be solved.

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

- A** The need for economic development is greatest in sub-Saharan Africa.
- B** The demand for large families is mainly caused by high child mortality.
- C** The main consequence of a lack of economic development is overpopulation.
- D** Overpopulation can be properly tackled only by economic development.
- E** To believe that family planning services can reduce population growth is to be naive.

- 28** It is clear that telepathy is not possible because, if it were, people would be able to transfer their thoughts to each other for important purposes – for example, passing an examination. But this does not happen. The only supposed demonstrations of telepathy are about trivial matters.

Which one of the following arguments has the same logical structure as the above argument?

- A** It is obvious that humans cannot travel through time. No one has ever done this, except in novels and films, and we know that these are fiction.
- B** If humans were descended from apes, they would have some of the same patterns of behaviour. There are some patterns of behaviour common to humans and apes. So humans are descended from apes.
- C** If hypnotism could cure illnesses, we would not have to rely on drugs. But hypnotism cannot cure illness. So we do have to rely on drugs.
- D** It is evident that human life is the most intelligent form of life on Earth, because humans can exploit other life forms for their own purposes, and that is exactly what the most intelligent life form would have to be able to do.
- E** There is no evidence that intelligent life exists beyond our planet. If there were intelligent life elsewhere in the universe, we would by now have had clear evidence of its existence. So there is no intelligent life other than that on Earth.

- 29** For the second year running the Silver Star Prize for art was awarded to a video artist, raising again the big question: What is great art? Many have condemned this year's choice on the grounds that a documentary-style video film cannot be considered as creative art at all in the way that, say, painting and sculpture can. The Silver Star jury, however, praised the 'emotional force of the work and its complexity beneath an apparently simple surface'. If they are right in this evaluation then clearly video is as much a medium for great art as any other form of expression.

Which one of the following is an underlying assumption of the argument above?

- A** Any work with emotional force and complexity is capable of being great art.
- B** The decision of the jury to award the prize for a video was the right one.
- C** No-one can really answer the question: What is great art?
- D** This year's winning exhibit was deceptively simple.
- E** Painting and sculpture are the highest forms of creative art.

- 30** An acre of land planted with sugar beet produces 550 gallons of ethanol from the sugar by fermentation. A car converted to run on E75 (a 75% ethanol, 25% petrol mixture) can do 40 miles per gallon.

If you drive 20,000 miles per year, how many acres of sugar beet will be needed to produce the ethanol you need?

- A** $(20000/40 \times 25/100)/550 = 0.23$
B $(20000/40 \times 75/100)/550 = 0.68$
C $(20000/40 \times 100/75)/550 = 1.21$
D $(40/20000 \times 100/75) \times 550 = 1.47$
E $(20000/40 \times 100/25)/550 = 3.63$

- 31** The following table gives information about five different car models.

Model	Engine capacity (litres)	Fuel tank capacity (litres)	Maximum fuel economy (miles per litre)
Clipper	1.5	60	12
Ghia	2.0	70	11
Sedan	2.5	75	10
Estate	3.0	80	8
Saloon	4.0	82	5

Which of these models will travel furthest on one full tank of petrol under optimum conditions?

- A** Clipper
B Ghia
C Sedan
D Estate
E Saloon

- 32 The table below shows the percentage of adults, grouped by age and socio-economic group, with no natural teeth.

	Age group					
	25–34	35–44	45–54	55–64	65–74	75+
Professionals, employers and managers	1	3	10	22	48	71
Intermediate	1	4	14	34	53	71
Skilled manual	2	7	23	48	66	82
Semi-skilled and unskilled manual	3	14	34	58	71	87

Which one of the following conclusions can be drawn from the table above?

- A Most people have lost their natural teeth by the age of 55.
 - B Professional people tend to keep their natural teeth longer than semi-skilled and unskilled manual workers.
 - C Manual work is bad for your teeth.
 - D People without natural teeth tend not to be employed as managers.
 - E There are over three times as many 45–54 year-old manual workers with no teeth as professionals.
- 33 'Organic food is no healthier than other produce, scientists claim.' This was the headline in an article published in 2009 in *The Independent*. It reported that a comprehensive review of 50 years of evidence showed no appreciable difference in nutrient levels between organic and conventional farm produce. If the review is correct shoppers will think twice about buying organic food, especially if the price difference remains significant. Only if people really do receive some health benefit in return for the extra money will the current upward trend in organic sales continue.

Which one of the following presents the strongest challenge to the above argument?

- A Shoppers who read *The Independent* are more likely to buy organic produce than readers of other newspapers.
- B Most shoppers take more notice of price than they do of nutritional benefits when choosing to buy.
- C If the review is correct, shoppers will have received no health benefit in the past 50 years, yet organic sales have continued to rise.
- D If organic food had more nutritional value than conventional farm produce, scientists would have found out long before now.
- E If there is no appreciable difference in nutrient levels there is no advantage for shoppers in switching back to conventional produce.

- 34** There is widespread dissatisfaction and disillusionment in Britain with politics and with politicians, who are seen as untrustworthy. Many of the electorate do not even bother to vote in a general election. In Switzerland democracy is more direct than in Britain, in the sense that many referendums take place, and many important political decisions are thus based directly on the votes of citizens rather than on those of their elected representatives. Surveys show that in those parts of Switzerland where more of these important decisions are made by referendum, the citizens are happier than in those areas where there is less opportunity to influence decisions. So if we were to adopt the Swiss system in Britain, the dissatisfied and disillusioned British electorate would be much happier.

Which one of the following identifies the flaw in the above argument?

- A** It assumes that most Swiss citizens vote in general elections.
- B** It assumes that there is only one reason why some Swiss citizens are happier.
- C** It assumes that British citizens would trust politicians if there were more referendums.
- D** It assumes that there is only one reason why the British are disillusioned with politics.
- E** It assumes that better policies emerge when important decisions are made by referendum.

- 35** Sound economics may underlie the Government's plans to put more prisons under private control, but the privatisation of prisons is nonetheless wrong. Although some countries observe basic human rights, they have the power to take away the liberty of individuals who break certain laws. This power is so far-reaching that only the State itself, acting through its officers, should be entrusted with it. Many prisoners have disturbed backgrounds and a contempt for authority, so exceptional disciplinary measures are needed to maintain order. The power to enforce such measures should not be left to private, profit-making organisations.

Which of the following best expresses the main conclusion of the argument above?

- A** The State has far-reaching powers and duties.
- B** The privatisation of prisons is wrong.
- C** Order in prisons often requires special disciplinary measures.
- D** Prison inmates often have disturbed backgrounds and a contempt for authority.
- E** Special disciplinary powers should not be entrusted to private organisations.

- 36** Last month, in an attempt to improve my fitness, I began to run daily. The maximum distance I have time to fit in on any particular day is 8 miles, but my aim is to maintain an average of at least 5 miles per day.

After 15 days my average was just under 6 miles per day, then the following day I increased my average to just over 6. Since then (for the last 9 days, up to and including today) I have been able to run only 2 miles each day.

What is the **minimum** number of days from now until I can bring my average back up to 5 miles per day?

- A** 2 days
- B** 4 days
- C** 9 days
- D** 18 days
- E** 26 days

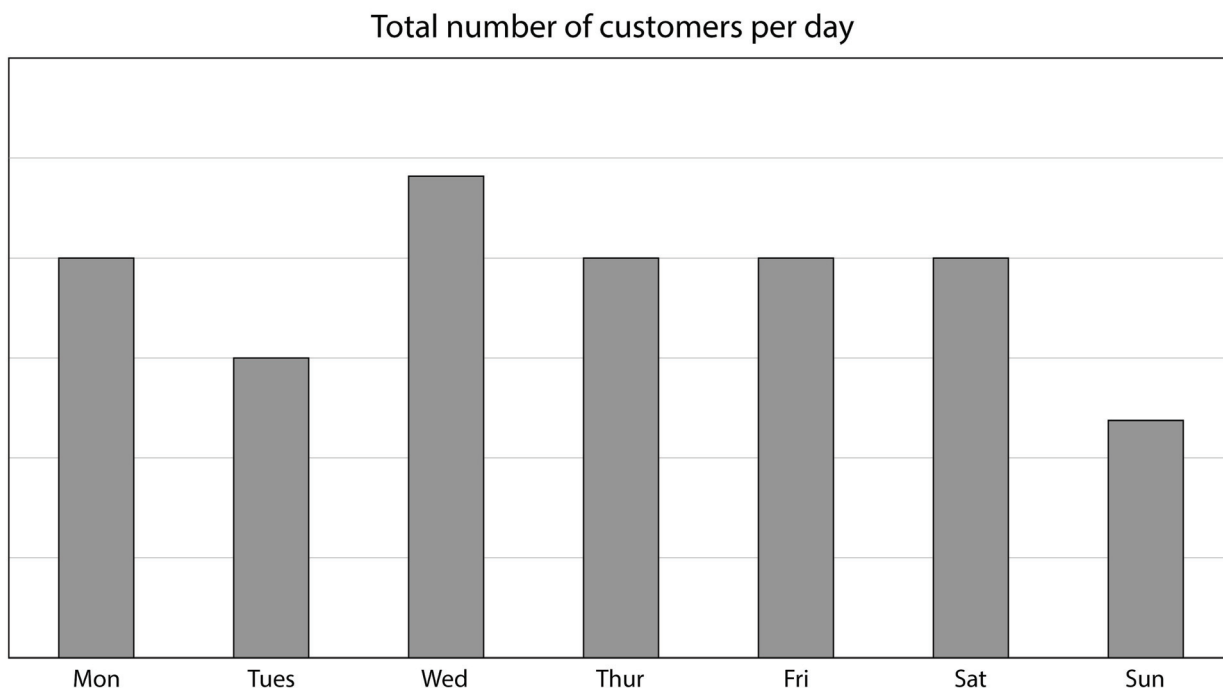
- 37** I have a bird automaton that, when activated, flaps its wings and whistles three different tunes successively, selected at random from its repertoire of ten. It performs one of its ten tunes for 10 seconds, six of them for 15 seconds each and three of them for 20 seconds each.

When my granddaughter visits she is fascinated, activating it again and again as soon as it stops each time. On her last visit she kept it going for a whole hour, and I lost count of how many times she activated it.

What is the **maximum** number of times that my automaton could possibly have been activated during one hour?

- A** 75
- B** 80
- C** 90
- D** 120
- E** 225

- 38 Graham recorded the number of visitors to his shop each day last week and presented the results in the bar chart below:



When he calculated the number of customers per hour he found that he had the same number for five of the days, but the values for Tuesday and Friday were slightly higher. The opening hours of the shop are as follows:

Day	Open	Close
Monday	8 am	6 pm
Tuesday	?	?
Wednesday	8 am	8 pm
Thursday	8 am	6 pm
Friday	?	?
Saturday	8 am	6 pm
Sunday	10 am	4 pm

Which one of the following could be the opening hours of the shop for Tuesday and Friday?

- A Tuesday 9.30 am–5.30 pm, Friday 8.00 am–6.30 pm
- B Tuesday 9.00 am–4.30 pm, Friday 8.30 am–6.00 pm
- C Tuesday 9.00 am–4.30 pm, Friday 8.00 am–6.00 pm
- D Tuesday 9.00 am–5.00 pm, Friday 8.00 am–6.30 pm
- E Tuesday 10.00 am–5.00 pm, Friday 8.30 am–6.00 pm

- 39** Compare and contrast the initial responses of two 'major world powers' to the Haitian earthquake disaster. Within hours, the USA had sent in hospital and assault ships and an aircraft carrier with 19 helicopters, the 82nd Airborne division with 3,500 troops and hundreds of medical personnel. It put the country's small airport back on an operational footing. Meanwhile, across the Atlantic, the European Union (EU) geared itself up with a Brussels press conference led by its High Representative. A small group of bored-looking journalists in the Commission's lavishly appointed press room heard her stumbling through a prepared statement, in which she said that she had conveyed her 'condolences' to the UN Secretary-General, and pledged three million Euros in aid. The USA's willingness to act proves that it is the only genuine superpower.

Which one of the following, if true, would most weaken the above argument?

- A** Haiti is much closer to the USA than to the European Union.
- B** The European Union has as many men in its armed forces as the USA.
- C** Of the countries of the EU, only Great Britain and France possess the naval and airborne capacity for major overseas operations.
- D** The countries of the EU respond to this and all humanitarian crises individually because their armed forces are allied but not integrated.
- E** The response of the USA to the crisis was criticised by France as having a hidden agenda of wanting to increase its influence in Haiti.

- 40** One of the most catastrophic scenarios that could hit this planet would be a world without fish. Surely this is a matter for the UN to act on – and swiftly. Areas of ocean should be set aside as no-go zones for trawlers of any nationality, to enable our dwindling fish stocks to have somewhere to reproduce with impunity. We are told that farmed fish is just as good, but this is futile if the wild fish that are fed to the farmed fish disappear. This crisis should be moved right to the top of the global agenda.

Which one of the following is an underlying assumption of the above argument?

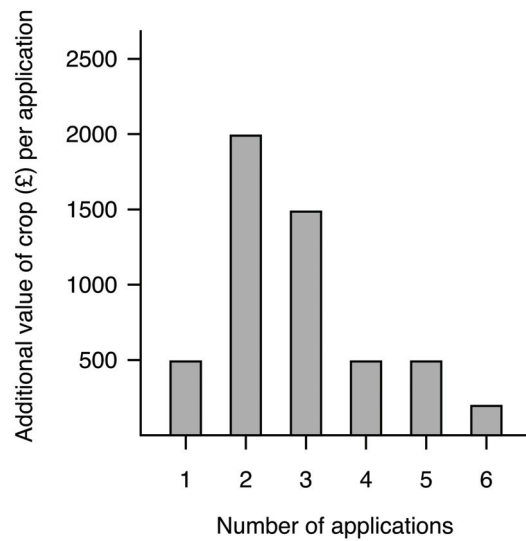
- A** At present fish cannot reproduce safely in the wild.
- B** There is not enough publicity about the fishing crisis.
- C** Farmed fish does not taste as good as wild fish.
- D** Fish farming is impossible without wild fish as food.
- E** Foreign trawlers are responsible for dwindling fish stocks.

- 41** Many rich countries protect their farming sectors with generous subsidies. It may be claimed that this policy can benefit countries in which people are starving or malnourished by encouraging farmers to produce more food than can be consumed in their own countries. But the policy is not in the best interests of poorer countries. Poor countries do not want charitable handouts – they want to develop the ability to feed their populations by their own efforts. If the amount spent on the European Commission's Common Agricultural Policy were invested in, say, irrigation schemes, that would transform the agriculture of many impoverished nations. This would surely be a better way to solve the problem of world hunger.

Which one of the following, if true, would most strengthen the above argument?

- A** Malnutrition is less likely to occur in countries with slow population growth.
- B** Wars and natural disasters such as floods are major causes of malnutrition.
- C** Much of the excess food produced by rich countries rots before it can be exported.
- D** Without subsidies to farmers in rich countries, the countryside would deteriorate.
- E** Agriculture in poor countries is less mechanised than in rich countries.

- 42** The graph below shows the additional financial value of repeated applications of fertiliser applied to crops in a field for a year. For example, two applications gives £2,000 more value to the crop than one application.



If each application of fertiliser costs £1,000, how many applications should be made to maximise the farmer's profit?

- A** 0
- B** 2
- C** 3
- D** 4
- E** 5

- 43 There is a half-hourly train service that operates along the Rowbina Valley, between Erd and Teovil. Leaving Erd at 10 and 40 minutes past each hour, trains stop at Aregon, Lowley, Ergen, Uble and Gidion before arriving at Teovil 51 minutes after departure from Erd. In the opposite direction, trains leave Teovil at 20 and 50 minutes past each hour, arriving at Erd 51 minutes later.

Distances Chart (km)

Erd						
6	Aregon					
11	5	Lowley				
17	11	6	Ergen			
24	18	13	7	Uble		
29	23	18	12	5	Gidion	
36	30	25	19	12	7	Teovil

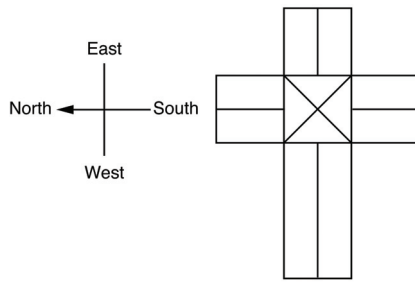
The trains normally average a speed of 60 km/h, but this rises to 80 km/h if they are running late. They stop for three minutes at each station en route, but this is reduced to two minutes when running late.

Yesterday the 10.20 am train from Teovil arrived at Uble on time, but because of a technical fault, remained at Uble for 22 minutes. There were no further delays.

How many minutes late was yesterday's 10.20 am train from Teovil when it arrived at Erd?

- A 5 mins
- B 8 mins
- C 10 mins
- D 13 mins
- E 15 mins

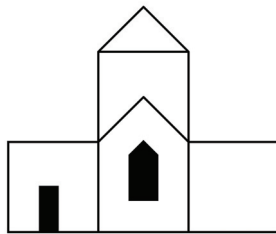
- 44 The diagram below shows a view of a church from above:



There are three windows facing south, two windows facing north and a stained glass window facing east. The only doors are one in the westernmost end and one in a north-facing wall.

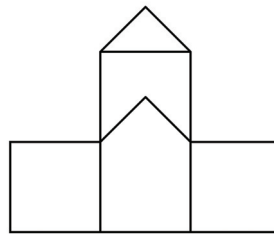
Which one of the following gives a possible view of the church?

A



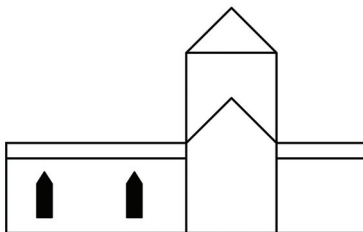
View from East

B



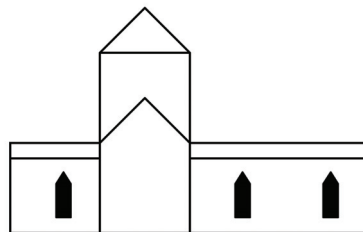
View from West

C



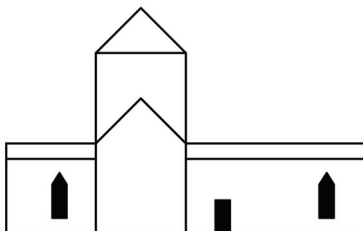
View from South

D



View from South

E



View from North

- 45** The criminal law, armed only with punishment, is only ever capable of controlling a tiny minority of criminals. Communities can exert control over the behaviour of most people in much more positive ways: through the disapproval of one's neighbours and fellow citizens and through a whole host of accepted social attitudes. Mass unemployment creates a large class of people who reject these attitudes and who are prepared to encourage, or at least tolerate, illegal ways of making a living, and hence has a profoundly subversive effect on society.

Which one of the following best expresses the main conclusion of the argument?

- A** Large-scale unemployment subverts society.
- B** The criminal law controls the behaviour of only a tiny minority.
- C** Large-scale unemployment makes crime more acceptable.
- D** Controlling anti-social behaviour is best done by the community.
- E** Mass unemployment causes a rejection of accepted social attitudes.

- 46** Our football team always loses the match if it's raining. They won last Saturday, so it can't have been raining.

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

- A** If you work part-time, you earn less than people who work full-time. I work full-time; therefore, I earn more than people who work part-time.
- B** My aunt is always happy if she's bought a new hat. She was happy today, so she must have bought a new hat.
- C** John always stays at home if there is snooker on TV. There is snooker on TV tonight, so John will stay at home.
- D** David always enjoys films if they have a big star in them. David didn't enjoy that film, so it can't have had a big star in it.
- E** My cat has gone missing because I forgot to feed her. My cat always goes missing if I forget to feed her.

- 47** When you have finished your meal at a restaurant and you get the bill, there is often a note at the bottom pointing out that the service charge is not included. This can easily lead to one of two reactions – leaving a tip because you feel it is what is expected, or not leaving a tip out of annoyance at the unsubtle request for more money. Neither of these is an appropriate response. The tip is a reward for providing good service. We should be rewarding those waiters who perform well and not just issuing tips as a matter of course.

Which one of the following illustrates the principle used in the above argument?

- A** The company has made record profits this year, so all of the employees will be getting a bonus when they next receive their pay.
 - B** When redundancies needed to be decided, Fred was laid off as his work had been particularly poor for the last few weeks.
 - C** Tim got B grades in his exams rather than the C grades that he was predicted, so his parents bought him the bicycle that he had been asking for.
 - D** The syndicate won the lottery last week and split the money equally between all of the members.
 - E** As companies perform well their value on the stock exchange will increase.
- 48** When travelling in Kromistan and not understanding the currency, I offered a red note for an item marked '135K'. I was given, in change, three green coins and one blue coin. Later, for a newspaper marked '33K', I offered a handful of coins and the vendor took four green and one blue. There are only these three denominations of money available; the smallest is marked '1K' and each higher denomination is a whole number multiple of the lower denominations.

How many green coins are worth one red note?

- A** 8
- B** 20
- C** 29
- D** 160
- E** 167

- 49** At committee meetings of the Massing Social Club motions are carried or defeated by a simple majority, abstentions being ignored.

At the last meeting a proposal to install a satellite dish was defeated by 8 votes to 5 with 10 committee members abstaining. However, because of the large number of abstentions it was decided that the matter should be discussed further at the next meeting and a vote taken again.

What is the minimum number of committee members who must change the way they voted if the result is to be reversed at the next meeting?

- A** 2
- B** 4
- C** 7
- D** 8
- E** 12

- 50** The housing estate on which Andrew lives has streets of variable length. In each street the houses are directly opposite each other, with the same number of houses on each side. However, the numbering of the houses is inconsistent.

Some streets are numbered consecutively on each side, starting at one end of the street, going up to the end and then back down the other side.

Other streets have the odd numbers on one side, starting from 1, and the evens on the other side, starting with 2 at the same end.

Andrew's friend Amy lives on the same estate at 25 Acacia Avenue, which is not the end house in the street.

If Andrew knows the number of the house opposite Amy's, which one of the following statements is definitely true?

- A** He knows the exact number of houses in the street.
- B** He knows that the number of houses in the street is one of two numbers.
- C** If the house opposite Amy's is 26, he knows the number of houses in the street.
- D** If he knows the number of the house next door to Amy, he can work out the number of houses in the street.
- E** He knows the numbers of the houses immediately adjoining Amy's.

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