CAMBRIDGE ASSESSME

# BioMedical Admissions Test 4500/11

Wednesday 7<sup>th</sup> November 2012                                    One hour

## SECTION 1                Aptitude and Skills

**Instructions to Candidates**

**Please read this page carefully, but do not open the 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:

- BMAT candidate number
- centre number
- date of birth
- 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 35 questions.  All questions are worth one mark.

Answer on the sheet provided.  Most questions ask you to show your choice between options by shading a circle.  If questions ask you to write in words or numbers, be sure to write clearly in the spaces provided.  If you make a mistake, erase thoroughly and try again.

Any rough work should be done on this question paper.

Calculators are NOT permitted.

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

*This paper consists of 28 printed pages and 4 blank pages.*

BLANK PAGE

1   Six islands make up the Republic of Bondia.

| Island | Area (km²) | Population |
|--------|-----------|-----------|
| Brosnan | 5079 | 716,184 |
| Connery | 5816 | 931,896 |
| Craig | 2474 | 1,786,140 |
| Dalton | 5448 | 793,845 |
| Lazenby | 1735 | 1,458,253 |
| Moore | 5763 | 2,942,391 |
| **Total** | **26315** | **8,628,709** |

Which island contains less than 10% of the population of Bondia, despite accounting for more than 20% of its area?

A   Brosnan

B   Connery

C   Craig

D   Dalton

E   Lazenby

F   Moore

**2**   People with pale skin may be lacking in vitamin D, which is important for healthy bone and teeth.  Most people get enough vitamin D with short exposures to the sun (10 to 15 minutes a day). A small amount also comes from the diet, in foods like oily fish and dairy products.  But people with pale skin do not seem to be able to get enough.  Part of the reason might be that people who burn easily are more likely to cover up and avoid the sun.  But some pale-skinned individuals are less able to make and process vitamin D in the body, regardless of how long they sit in the sun.
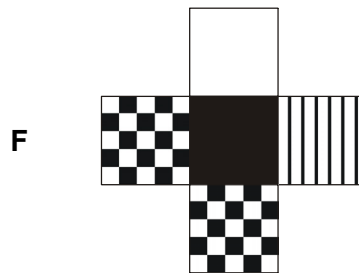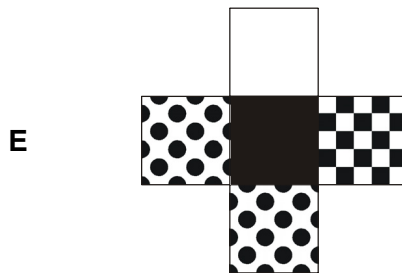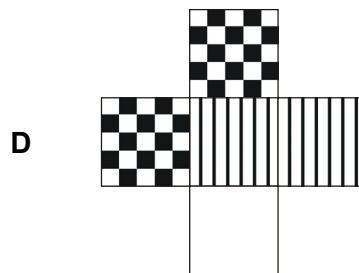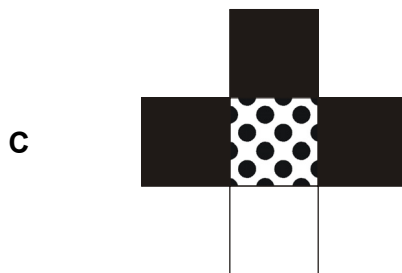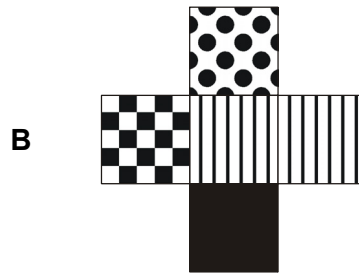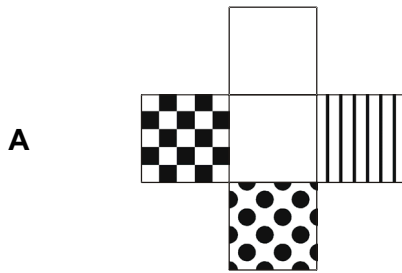
Based on these findings, pale-skinned people should be added to the list of those for whom vitamin D supplements are recommended by the government.  Certain groups are already identified as at higher risk of deficiency and needing supplements.  This includes people with very dark skin, such as people of African-Caribbean and South Asian origin, and people who wear full-body coverings, as well as pregnant and breastfeeding women, the elderly and people who avoid the sun.

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

**A**      Pale-skinned people need more exposure to sunlight.

**B**      Vitamin D can best be obtained by exposure to sunlight.

**C**      Pale-skinned people should be recommended to take vitamin D supplements.

**D**      Longer exposure to sunlight increases the risk of skin cancer.

**E**      People with very dark skin have a higher need of vitamin D supplements than pale-skinned people.

**3** I wish to tile part of my wall with a mixture of five patterned, cross-shaped tiles. I wa~~nt~~ same number of each tile, but end up with the same area of each pattern.

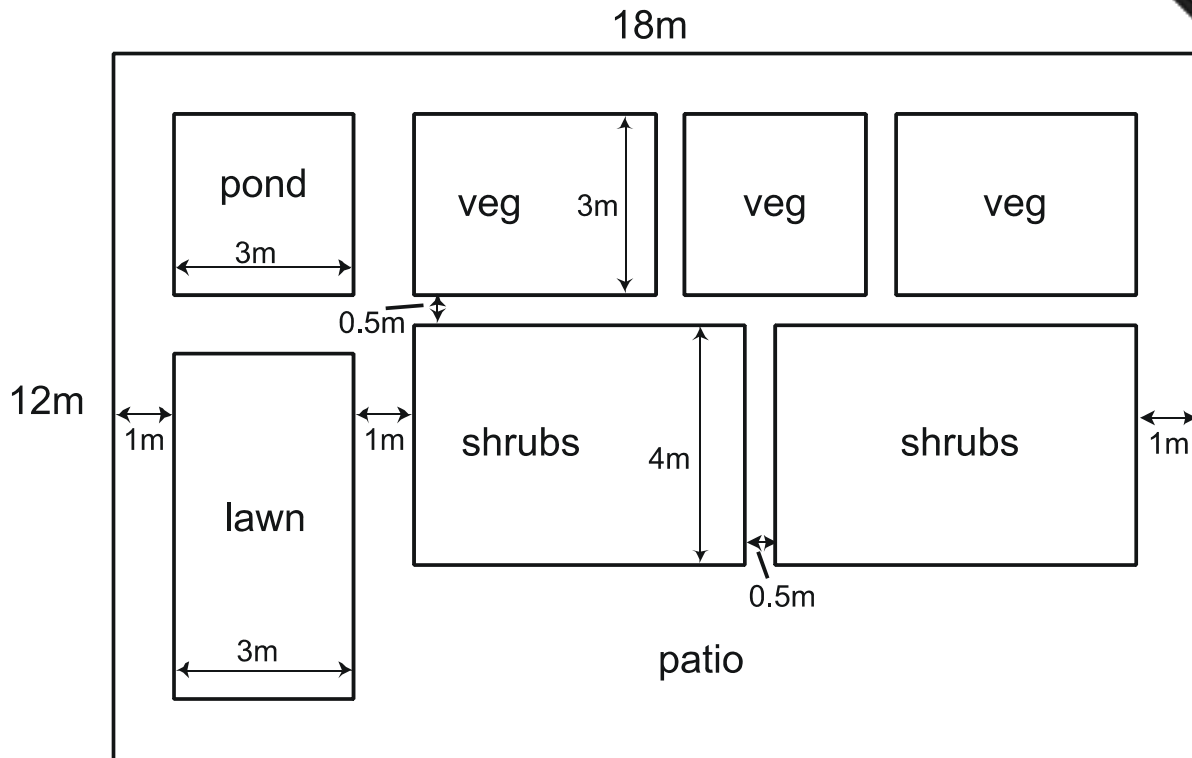Which of the following six tiles can I **not** include?

A

B

C

D

E

F

**4** Electric engines are more efficient than petrol engines in converting fuel into mechan... thus they are more economical in fuel use. But their electricity has to come from some... The UK electricity grid is powered by a mix of sources: coal, gas and nuclear with a few renewables thrown in. If you make extra demand in order to fuel electric cars, only fossil fue... which produce emissions of $CO_2$, can provide the extra capacity. Wind turbines cannot turn an... faster than wind speed allows, and extra capacity from nuclear power will be possible only when new nuclear power plants are built.

Which one of the following can be drawn as a conclusion from the above passage?

**A** The electricity needed to power electric cars cannot be provided by the UK electricity grid.

**B** Electric cars cannot yet be fuelled without increasing emissions of $CO_2$ from electricity production.

**C** Wind power will never be able to provide more electricity than it does at present.

**D** The use of electric engines in place of petrol engines will increase emissions of $CO_2$.

**5** My brother and I have commissioned a landscape gardener to redesign the back gar[...] house into which our parents have recently moved. The diagram below shows the new [...]

18m

pond
3m

veg 3m

veg

veg

0.5m

12m

1m

lawn
3m

1m

shrubs 4m

shrubs

1m

0.5m

patio

The paths are 1m wide, apart from those which run between the veg areas and the shrub areas, which are 0.5m in width.

How many 0.5m square paving slabs will be needed to make the patio and all the paths?
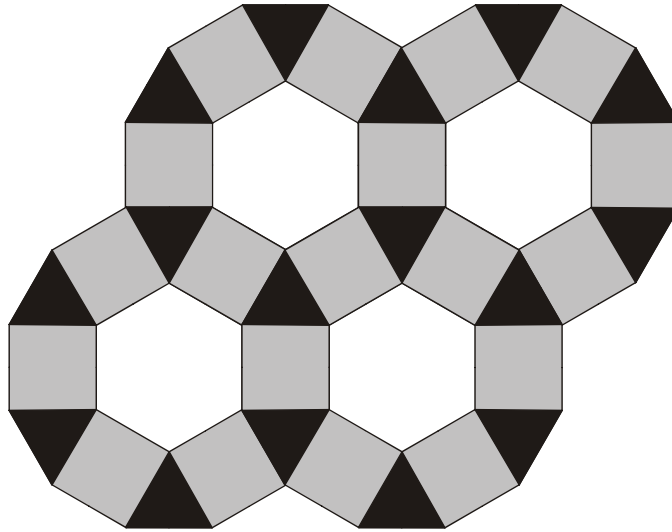
**A** 424

**B** 430

**C** 432

**D** 434

**E** 440

**6** The Organisation for Economic Co-operation and Development (OECD) has released a study of 15 year olds in the principal industrialised countries. It shows unequivocally teenage students whose parents discuss political or social issues with them, either weekly daily, score 28 points higher at reading (on average) than those whose parents discuss these issues less often or not at all. Other factors were also associated with better reading ability: discussing books or television programmes, eating main meals together at a table and spending time talking to children. Discussing news and serious issues showed the strongest association, so if parents spend time discussing these issues with their children they will help their children read well.

Which of the following best expresses the flaw in the argument above?

**A** It implies that discussing serious issues with parents is more influential than discussion with a peer group.

**B** It assumes that eating meals together at a table is practical in all households.

**C** It fails to consider teenagers in rural countries.

**D** It does not show why reading ability is so important in a teenager's development.

**E** It suggests a causal relationship between discussion and reading.

**7**   The pattern below is to be used to tile a very large floor.  It consists of hexagonal, sq[u]
triangular shaped tiles.



If tiling a sufficiently large area, what ratio of the three shapes of tile is needed?

**A**          1 hexagon : 2 triangles : 3 squares

**B**          1 hexagon : 3 triangles : 2 squares

**C**          1 hexagon : 6 triangles : 6 squares

**D**          2 hexagons : 7 triangles : 7 squares

**E**          4 hexagon : 16 triangles : 19 squares

**Questions 8 - 11 refer to the following information:**

The following table shows the infection statistics of *Clostridium difficile* infection (CdI) for a [?] organisations for 2009 and 2010.

| Organ-isation | Types of hospital | 2009 | | | | 2010 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number of hospitals | Patient days | Cases | Rate of infection* | Number of hospitals | Patient days | Cases | Rate of infection* |
| 1 | L,S | 3 | 56,867 | 0 | 0 | 3 | 53,967 | 1 | 1.85 |
| 2 | S | 1 | 16,330 | 1 | 6.12 | 1 | 16,163 | 0 | 0 |
| 3 | L,S | 56 | 540,891 | 26 | 4.81 | 59 | 543,042 | 25 | 4.60 |
| 4 | L | 1 | 11,549 | 0 | 0 | 1 | 30,432 | 3 | 9.86 |
| 5 | DC,TC | 9 | 70,009 | 4 | 5.71 | 9 | 69,397 | 2 | 2.88 |
| 6 | L | 4 | 178,556 | 3 | 1.68 | 7 | 180,805 | 6 | 3.32 |
| 7 | L | 1 | 18,155 | 0 | 0 | 1 | 18,931 | 1 | 5.28 |
| 8 | L,S | 29 | 320,009 | 2 | 0.62 | 29 | 317,876 | 5 | 1.57 |
| 9 | L,S,TC | 32 | 110,925 | 3 | 2.70 | 31 | 136,586 | 2 | 1.46 |
| 10 | L | 1 | 82,293 | 1 | 1.22 | 1 | 80,456 | 3 | 3.73 |
| 11 | L,S | 33 | 409,574 | 12 | 2.93 | 33 | 394,693 | 12 | 3.04 |
| 12 | L | 1 | 18,278 | 5 | 27.36 | 1 | 16,792 | 6 | 35.73 |
| 13 | L | 1 | 29,202 | 12 | 41.09 | 1 | 30,308 | 11 | 36.29 |

* rate of infection is calculated as number of cases per 100,000 patient days.

The codes for the different types of hospital are L (large), S (small), DC (diagnosis centre) and TC (treatment centre). The number of patient days is calculated from the number of days that patients were in hospital. For example, a day case (a patient who was not in hospital overnight) would count as 1 patient day and a patient staying in the hospital over 3 consecutive nights would count as 4 patient days. The rate given is the rate per 100,000 patient days.

8   What is the overall rate (over both years) per 100,000 patient days for organisation 4 in the table?

A     4.93

B     6.57

C     7.15

D     9.86

E     14.0

9   What is the largest proportion of cases in 2009 that came from a single organisation?

A     17%

B     26%

C     33%

D     38%

E     44%

**10** Not all organisations had reported all data for 2010 by the time that the table was co...
2010 figures only include data to the end of November).

If the number of patient days per month is constant and organisation 2 did have one case in...
December 2010, what would the rate of infection for that organisation in that year have been?

    **A**        5.28

    **B**        5.67

    **C**        6.19

    **D**        6.51

    **E**        6.75

**11** Which of the following statements can be reliably concluded from the data in the table?

    **A**        CdI is more likely for patients in large hospitals.

    **B**        CdI is more likely for patients in small hospitals.

    **C**        There were more cases of CdI in large hospitals than small ones in 2010.

    **D**        CdI occurs in all four types of hospital.

    **E**        None of the above statements.

**12** A bus service runs between Pafaka Airport and the centre of Pafaka. The journey [in each] direction takes 50 minutes.

The timetable for the service is compiled in conjunction with flight timetables, and at prese[nt is] as follows:

| Departure times from Pafaka Airport | | | | | | |
|---|---|---|---|---|---|---|
| Mon | Tues | Wed | Thur | Fri | Sat | Sun |
| 11:30 | 09:30 | 09:15 | 09:15 | 06:15 | 08:00 | 08:45 |
| 14:25 | 11:30 | 11:10 | 11:30 | 09:15 | 11:30 | 11:30 |
| 17:45 | 14:20 | 14:00 | 14:20 | 11:30 | 14:30 | 14:30 |
| 19:40 | 19:00 | 19:00 | 17:20 | 14:40 | 17:00 | 17:30 |
|  |  |  | 18:30 | 15:25 | 19:00 | 19:30 |
|  |  |  | 19:20 | 17:00 |  |  |
|  |  |  |  | 19:00 |  |  |
|  |  |  |  |  |  |  |

| Departure times from Pafaka Centre | | | | | | |
|---|---|---|---|---|---|---|
| Mon | Tues | Wed | Thur | Fri | Sat | Sun |
| 14:30 | 14:30 | 12:00 | 14:30 | 07:05 | 14:30 | 11:45 |
| 15:25 | 15:25 | 14:30 | 15:20 | 11:40 | 15:30 | 14:30 |
| 16:35 | 16:35 | 16:45 | 16:30 | 12:30 | 16:30 | 15:30 |
| 22:15 | 20:00 | 22:15 | 19:45 | 14:30 | 22:20 | 16:30 |
|  | 22:15 |  | 20:20 | 15:30 |  | 20:30 |
|  |  |  | 21:25 | 16:30 |  | 22:15 |
|  |  |  | 22:40 | 20:00 |  |  |
|  |  |  |  | 22:15 |  |  |

Nicola lives within walking distance of the Airport bus stop, and uses the service when she wants to go shopping in Pafaka.  She intends to do this next Thursday.  She will take the first bus of the day from the Airport, and stay in Pafaka for as long as possible, but she wants to be back at the Airport before 17:00.

How long after arriving in the centre of Pafaka will Nicola have to catch the bus to the Airport?
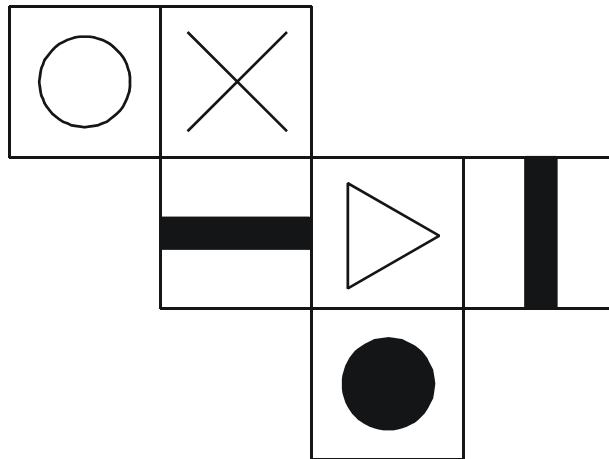
**A**        5 hours 05 minutes

**B**        5 hours 15 minutes

**C**        6 hours 05 minutes

**D**        6 hours 25 minutes

**E**        6 hours 55 minutes

**13** The unusual weather the UK has experienced over the past few years - very dry warm springs and very cold winters - is what one would expect if the melting of Arctic ice were influencing our weather.  And indeed, over the same period the Arctic has undergone its most dramatic shrinkage of sea ice.  This means that the Arctic Ocean is warming, which can upset the global balance between cold Arctic air and warm tropical air.
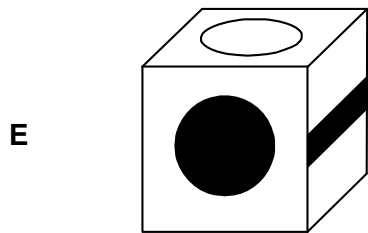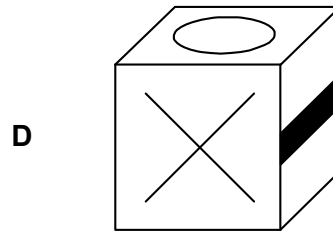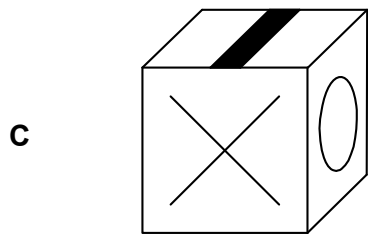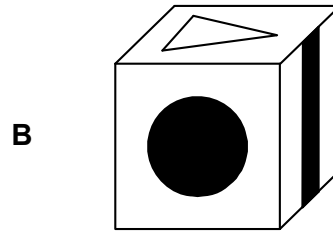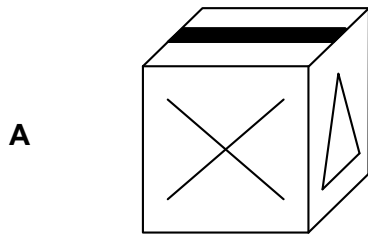
Which one of the following can be drawn as a conclusion from the above passage?

**A**        The melting of the Arctic ice is the only explanation for the UK's unusual weather

**B**        If the Arctic ice were not melting the UK would not have experienced this unusual weather.

**C**        The melting of the Arctic ice must have caused the unusual weather in the UK.

**D**        The unusual weather in the UK could have been caused by the melting of the Arctic ice.

**14** The net shown below was cut out and folded to make a cube.

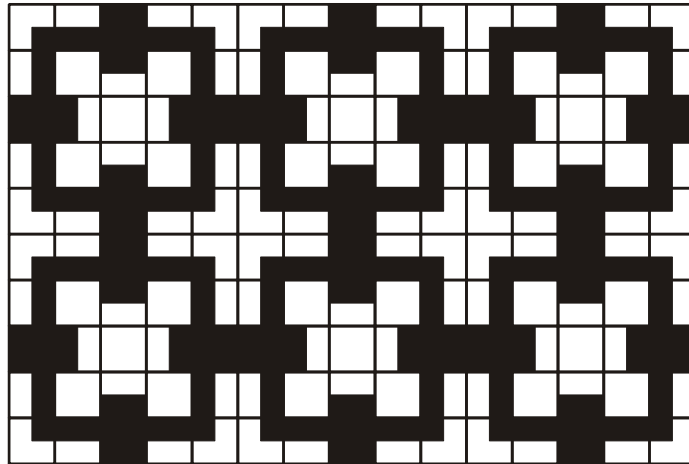Which one of the following cubes was formed from this net?

A

B

C

D

E

**15** Oxytocin, known as the 'love hormone', is a hormone that is released in mothers' bo~~~ childbirth. Research has shown that when people are exposed to it by means of a nas~~~ they can become better at recognising the emotions of others, and are more likely to perc~~~ others as trustworthy and approachable. As a result of its apparently positive influence on ~~~ sociability, there is optimism that it could help to treat conditions such as autism and schizophrenia. Oxytocin sprays are readily available online, and are being used by parents to treat children with autism. Although clinical trials are now under way, the use of oxytocin as a treatment has not yet been approved. So parents of children with autism are damaging their children's health by using the sprays.

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

A       Some studies reveal that oxytocin can stimulate feelings of envy.

B       The scientific studies of oxytocin have never used children as subjects.

C       The amount of oxytocin in the sprays sold online is too low to have any effect in children.

D       The effects of oxytocin on individuals vary depending on the type of culture they live in.

E       Oxytocin reduces trust and co-operation in people who are anxious and sensitive to rejection

**16**   This is the floor of my conservatory:

It contains the following four individual tile patterns:

What percentage of the floor of my conservatory is black?

**A**        36%

**B**        40%

**C**        44%

**D**        48%

**E**        52%

**F**        56%

**17** Patients admitted to hospital as an emergency at the weekend have a higher chance
than those who are brought in during the week, according to a study which showed that
death rate among emergency admissions increased by 7% at the weekend.

Staffing levels are often lower at weekends, with fewer senior medical staff around, and some
specialist services are less available.  This may be contributing to the increase in mortality rates
on Saturdays and Sundays.  As well as lower staffing levels in hospitals, there may be a
reduced service in specialist community and primary care services at the weekend, which may
result in some terminally ill patients being admitted to hospital and dying there (instead of at
home) at the weekends.

Which of the following could be drawn as a conclusion from the passage above?

> **1** Improved staffing levels in hospitals at weekends would reduce death rates.
>
> **2** Weekend provision of community and primary care services should be enhanced.
>
> **3** Fewer patients should be admitted to hospital at times when staffing levels are
> low.

**A** 1 only

**B** 2 only

**C** 3 only

**D** 1 and 2 only

**E** 1 and 3 only

**F** 2 and 3 only

**G** none of the above statements

**18** A survey of households in a town showed that (allowing for sampling errors) between
85% owned a dishwasher, between 35% and 40% owned a tumble dryer and less than
owned neither.

How many people own both a tumble dryer and a dishwasher?

**A**        Between 10% and 30%.

**B**        Between 15% and 25%.

**C**        Between 20% and 30%.

**D**        Between 25% and 35%.

**E**        Between 30% and 45%.

**Questions 19 - 22 refer to the following information:**

**NHS Information Centre Report on Ambulance services in England 2011:**

**Executive summary**

- The total number of emergency calls was 8.08 million, a 209,608 (2.7%) increase over 2010 when there were 7.87 million.
- Of these, 6.61 million calls (81.8%) resulted in an emergency response arriving at the scene of the incident, a 191,310 (3.0%) increase over 2010 when there were 6.42 million.
- Of the incidents attended the number classed as category A was 2.23 million equal to 33.7%, the figure in 2010 was 2.08 million (32.4%). The number of incidents attended as class B was 2.63 million (39.8%), this is compared with 2.61 million (40.7%) in 2010.
- The percentage of category A incidents that resulted in an emergency response arriving at the scene of the incident within 8 minutes in 2011 was 74.9% compared to 74.3% in 2010.
- The percentage of category A incidents that resulted in an ambulance vehicle capable of transporting the patient arriving at the scene within 19 minutes was 96.7% compared to 96.8% in 2010. For category B incidents this was 91.2%.[1]
- The number of emergency patient journeys was 4.87 million, over 172,000 (3.7%) more than in 2010 when there were 4.70 million.
- 1.76 million patients were treated at the scene and did not need onward transportation. This is an increase of 164,224 (10.3%) since 2010.
- There were 239,446 category C calls resolved with telephone advice, equating to 8.7% of all category C calls, an increase of 18,436 (8.3%) since 2010.

[1]Due to changes in the category B 19 minute definitions for 2011 this data is not fully comparable with previous years.

**Definitions**

**Category A:** Presenting conditions, which may be immediately life threatening and should receive an emergency response within 8 minutes irrespective of location in 75% of cases. Presenting conditions, which require a fully equipped ambulance vehicle to attend the incident, must have an ambulance vehicle arrive within 19 minutes of the request for transport being made in 95% of cases, unless the control room decides that an ambulance is not required.

**Category B:** Presenting conditions, which though serious are not immediately life threatening and must receive a response within 19 minutes in 95% of cases.
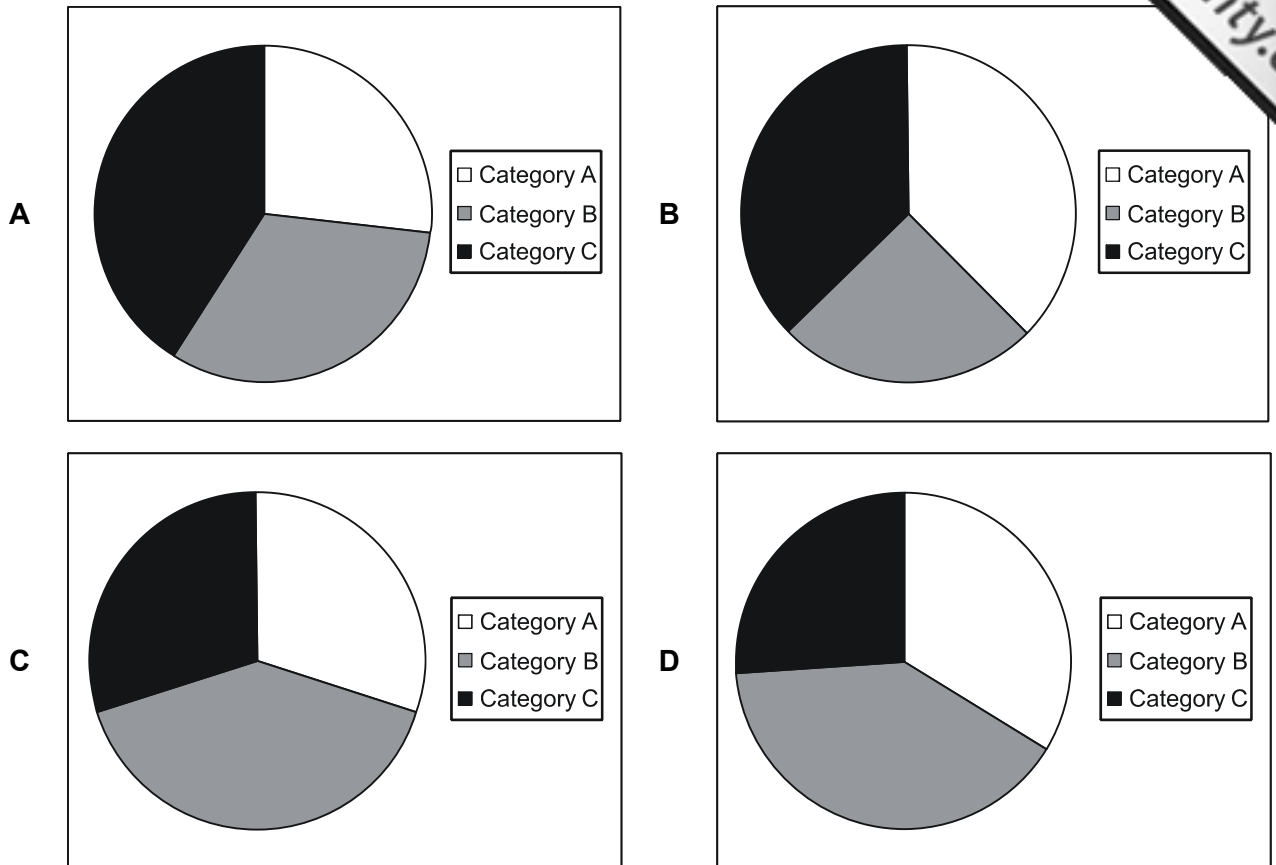
**Category C:** Presenting conditions which are not immediately serious or life threatening. For these calls the response time standards are not set nationally but are locally determined.

© 2011, The Health and Social Care Information Centre

**19** How many category A calls were responded to but not within 8 minutes in 2011?

**A**      0.07 million

**B**      0.56 million

**C**      0.66 million

**D**      1.66 million

**20** Which one of the following pie charts correctly represents the number of accidents ~~~~ 2011 by category?



**A**



**B**

**C**



**D**



**21** The total number of calls in 2011 was 8.08 million, but there were only 6.61 million transported or treated at the scene.

Which of the following is the correct explanation for this difference?
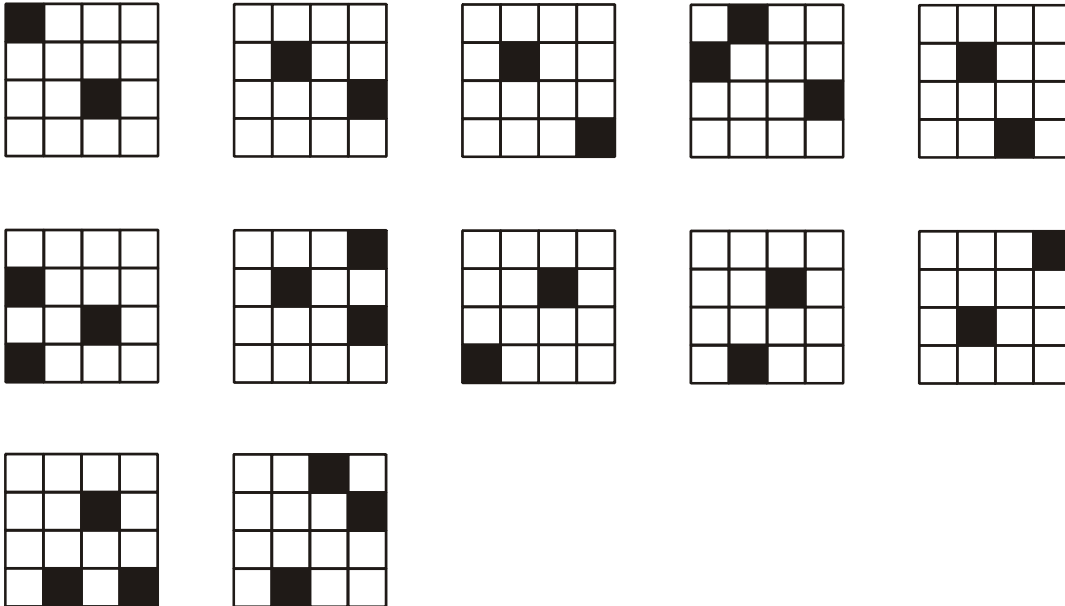
**A**          1.47 million calls were not responded to within either 8 or 19 minutes.

**B**          1.47 million calls did not result in an emergency response.

**C**          1.47 million calls were not genuine emergencies.

**D**          1.47 million calls were category C, not requiring a response.

**22** What was the actual change in the number of category A responses within 8 minutes ~~~~ 2010 and 2011?

    **A**            0.12 million

    **B**            0.15 million

    **C**            0.21 million

    **D**            0.41 million

    **E**            0.60 million

**23** A student has been carrying out tests to see how well young children can follow inst[...]

A group of children have been colouring in squares on a 4x4 grid. They had been given [...] of which ones to colour. The student forgot to mark the grids to show the top and bottom an[...] so when the grids were collected for evaluation they needed to be rotated in order to find out [...] which ones were identical to others in the batch. The diagrams below show cards collected from children with 100% success in following their instructions.
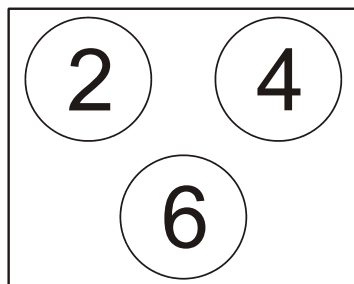
How many different patterns were created?

**A**       4

**B**       5

**C**       6

**D**       7

**E**       8

**24** Police should be given clear permission to use water cannons against rioters and ru~~~ when it is appropriate.  Police see water cannons as an effective means of dispersal in~~~ scenarios, incurring fewer injuries to the public than either uncontrolled rioting or other me~~~ of control.  In dealing with street riots in major cities last year, police wasted valuable time waiting for overall direction from politicians who fear that inappropriate use of water cannons might antagonise the general public.  Clear guidelines could be agreed about using water cannons, for example to deal with rioters who throw missiles and petrol bombs and also where fire and ambulance crews are under threat.

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

**A**      Using water cannons would negatively affect the innocent as well as the guilty.

**B**      Using water cannons does not require special training and resources.

**C**      Water cannons are no more effective at dispersing rioters than tear gas or rubber bullets.

**D**      Water cannons cost more than £1m each and need to be deployed in pairs.

**E**      A survey of 2000 people carried out recently indicated strong public support for water cannons.

**25** In a variation of the game of darts, players throw their darts at a board which has three overlapping circles on it. The circular regions have values of 2 points, 4 points and 6 points as shown in the diagram below:



On each turn a player throws three darts and once all three darts have been thrown their score is added to the player's overall score. If a dart lands in a circle then the player scores the value of that circle, but if the dart lands outside all of the circles then the player's score for the turn so far is halved. If two or more darts land outside the circles then the player scores zero. The first player to score 101 points wins the game.

How many different scores in a full turn, apart from 0, are possible?

A       11

B       12

C       13

D       15

E       16

F       17

26  Is forgery 'art'?  Received opinion says not, despite it unquestionably being a craft.  nothing to do with it being illegal or immoral, though it may be both.  The standard obje that it is copying, and therefore not creative.  But how is that an objection when all art is ultimately a copy of something?  Is a picture of a ship or a hay-wagon or a bowl of fruit not a If all art is copying, then forgery, by definition, is art.

Which one of the following makes the same reasoning error as the above argument?

A       Water is liquid and liquid is fluid, so water is a fluid.

B       Petrol is flammable and volatile, so everything volatile is flammable.

C       Being overweight is unhealthy so maintaining the right weight is healthy.

D       The French are European and Spaniards are European, so the French are Spaniards.

27  When customers buy any furniture from Ben's shop they pay half the price of the furniture immediately, one quarter of the price in the next month and the remainder in the month after that.

The table shows the money that Ben has been paid for the first half of this year.

| January | February | March | April | May | June |
|---------|----------|-------|-------|------|------|
| $9000   | $3000    | $4000 | $5000 | $3000 | $2000 |

Ben closed the store for the whole of May and June, so the $5000 in those two months all came from sales in the earlier months.

What is the total value of the furniture that Ben sold between January and June?

A       $10,000

B       $15,000

C       $20,000

D       $25,000

E       $26,000

**28** The ski holiday industry has been accused of damaging the environment. But this is
If you say that we should stop people skiing, you would have to conclude that we shou
everyone going on holiday. What causes the glaciers to melt is not skiing, it's everyone w
energy by travelling when they don't need to. It has been calculated that tourist transport to
from a ski resort accounts for 74% of the resort's energy consumption, so the amount of energy
used in the resorts themselves is relatively small. Because many ski lifts are run on renewable
energy, people may actually be responsible for the production of less $CO_2$ when they are on the
ski slopes than in their daily lives back home.

Which of the following identifies a weakness in the above argument?

    **1**     The fact that all travel damages the environment does not prove that the ski
        holiday industry does not damage the environment.

    **2**     26% of a ski resort's energy consumption may be a high amount of energy
        compared with other types of resort.

    **3**     The ski holiday industry may damage the environment in ways unrelated to the
        level of energy consumption.

**A**       1 only

**B**       2 only

**C**       3 only

**D**       1 and 2 only

**E**       1 and 3 only

**F**       2 and 3 only

**G**       1, 2 and 3

**29** Tickets for a "Sounds of the Seventies" concert held last week cost £20 and had to be
purchased in advance. However, on the night, anyone who arrived in 1970s costume was given
a £5 refund at the door.

Exactly 40% of those who bought a ticket wore 1970s clothes, and the income from ticket sales
after refunds was £12,240.

What was the total amount refunded to those wearing 1970s clothes?

**A**       £1020

**B**       £1224

**C**       £1360

**D**       £1530

**E**       £2040

**30** Authors of articles on health and medical treatments may be sponsored by pharma[...] companies, by receiving a fee or financial support for their research. The public nee[...] what weight they should put on these articles when they are assessing evidence from [...] sources. In the USA, newspapers and broadcasting companies are legally obliged to dec[...] potential conflicts of interest of authors or contributors. We should introduce the same law i[...] the UK.

Which of the following are assumptions underlying the above argument?

**1** Authors who receive fees from pharmaceutical companies give a one-sided view of the effectiveness and safety of new medical treatments.

**2** Companies that sponsor authors of articles on medical treatments aim to influence the content of the articles.

**3** The reliability of articles on medical treatments cannot be fairly judged without information about sponsorship by pharmaceutical companies.

**A** 1 only

**B** 2 only

**C** 3 only

**D** 1 and 2 only

**E** 1 and 3 only

**F** 2 and 3 only

**G** 1, 2 and 3

**31** In each round of a competition the competitor who performed best in that round is aw[...] points. The next best competitor gets 3 points and the third gets 1 point. There are fou[...] competitors, so the last player does not score any points. After 10 rounds the scores are [...] totalled. After nine rounds had been completed, Jill knew that, regardless of the outcome of [...] final round there would be no ties and she would finish in third place. She also knew that whoever finished ahead out of Karen and Gemma would be the overall winner.

What is the highest score that the last placed player could finish with after all ten rounds are played?

A  13

B  15

C  19

D  21

E  23

**Questions 32 - 35 refer to the following information:**

**Are Britain's roads getting safer?  By Lucy Wilkins, BBC News**
The first recorded road death in a motor accident in Britain was in London over 100 years ago.
More than a century on, roads may be busier than ever - but are they any safer?

On 17 August, 1896, a South London housewife entered the history books by being run over.
Bridget Driscoll, 44, became the first person recorded to have died in a motor accident in
Britain.  The 20-year-old driver was a car company worker, and there were reports he had
adjusted the engine to increase its maximum speed to 8mph.  Ever since that first death - and
the first recorded death of a driver 18 months later - the number of vehicles on the roads has
multiplied.

**Increasing number of vehicles**
According to the Department for Transport (DfT), in 1930 there were only 2.3 million motor
vehicles in Great Britain, but more than 7,000 people were killed in road accidents.  In contrast
nowadays there are more vehicles but fewer deaths - there are 27 million vehicles and 3,180
people were killed in the 12 months to March this year, provisional results show.

The DfT is meeting its 10-year safety target of cutting the number of road accident deaths and
injuries to 40% of the 1994-98 average - 319,928 casualties.  Five years into the policy, the
statistics show casualties are 33% below the earlier average.  In actual numbers, 268,900
people were either injured or killed in the 12 months to this March.

**But are Britain's roads really becoming safer? The statistics paint a confusing picture**
Many road accidents, where there are slight injuries or even more severe ones, bypass police
records.  This could be because some of the people involved in accidents do not want to tell the
police because they are uninsured, unlicensed, or drunk, says head of road safety at the AA
Motoring Trust, Andrew Howard.  But even if injuries are reported, it does not mean the police
will record them.  The severity of the injury will also be under-estimated, research in the 1990s
suggested.

"The combined effect of under-reporting, under-recording and misclassification suggests that
there may be 2.76 times as many killed or seriously injured casualties than are recorded in the
national casualty figures and 1.70 times as many slight casualties," the DfT says.
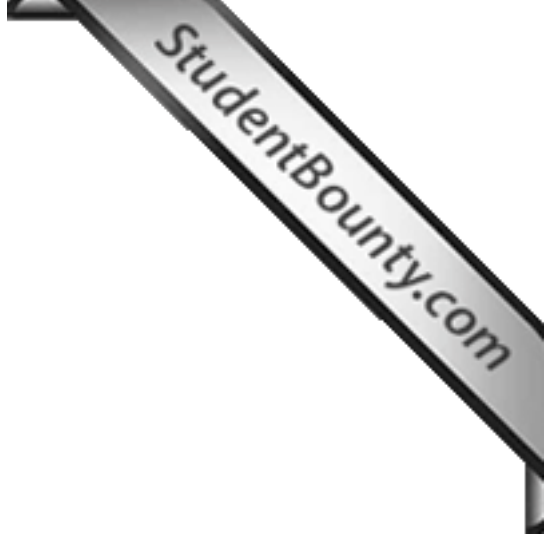
In June, three Oxford University researchers queried the figures after comparing them to
hospital admissions from road accidents.  The DfT statistics, from the police and including all
hospital admissions, showed a fall from 85.9 people killed or seriously injured per 100,000 in
1996 to 59.4 per 100,000 in 2004.  However, hospital admissions were almost unchanged at 90
per 100,000 in 1996 and 91.1 in 2004.  They said the disparity was probably due to under-
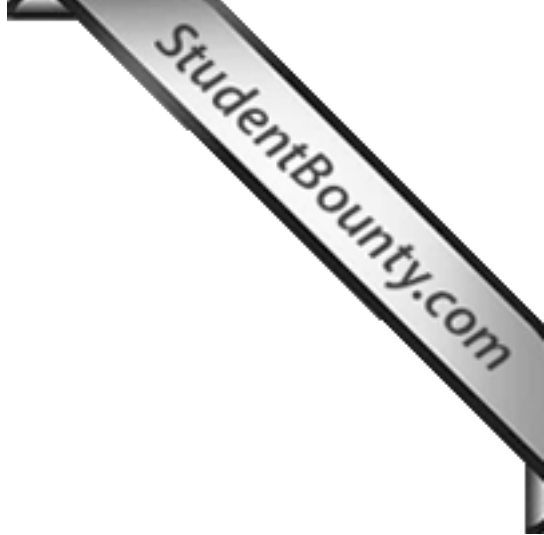reporting and/or fewer minor injuries.

**Statistical 'utopia'**
Paul Smith, from Safe Speed, said: "For every 100 accidents reported, there's 180 that aren't
reported."  Cars are safer, paramedics better trained, there are more air ambulances and roads
have improved, said Mr Smith.  The only factor that has not changed is drivers who "are getting
worse" in his opinion.  He urged the department to focus on educating drivers about their
responsibilities, rather than just getting them to drive slower.

But Mr Howard, from the AA Motoring Trust, is encouraged by the statistics: "My view, and I
would say this is true of most of those involved in road safety, is that the statistics do show the
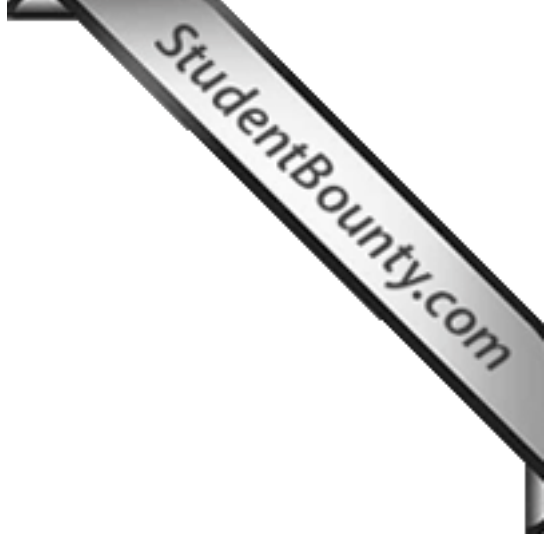roads are getting safer."

**32** By what factor is the reported annual number of deaths per vehicle on the road hig̲ ̲ ̲ ̲ ̲
at the time of the above report than it was in 1930?

**A**        0.04 times as much

**B**        0.4 times as much

**C**        1.2 times as much

**D**        2.2 times as much

**E**        25 times as much

**33** There is disagreement in the article about whether roads are becoming more or less safe.  In
addition to the reasons given in the text, which one of the following, if true, would strengthen the
case for roads becoming safer?

**A**        The police do not record accidents where no injuries are sustained.

**B**        Cars have become stronger, reducing the chances of injury in an accident.

**C**        The proportion of accidents reported has fallen.

**D**        Hospital reporting of road accidents has become more accurate.

**E**        Hospitals have become better at saving the lives of severe trauma victims.

**34** The second section refers to a DfT 10 year target.  To the nearest 1000, what is the DfT's target?

**A**        102,000

**B**        108,000

**C**        128,000

**D**        161,000

**E**        192,000

**35** Which one of the following could explain the discrepancy between the DfT statistics and hospital
admissions for deaths and serious injuries on the road?

**A**        The DfT collection method must underestimate the number of deaths and serious
injuries.

**B**        The roads are not getting safer.

**C**        Fewer people are being admitted to hospital for minor injuries.

**D**        There has been a decrease in less serious injuries.

**E**        The police include accident injuries which do not involve hospitalisation.

**BLANK PAGE**

**BLANK PAGE**

**BLANK PAGE**