# BioMedical Admissions Test 

4500/11

Wednesday $2^{\text {nd }}$ November 2011
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 27 printed pages and 5 blank pages.

## BLANK PAGE

1 The weather forecast for a five day period is summarised in the table below:

|  | Monday | Tuesday | Wednesday | Thursday | Friday |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Maximum <br> temperature <br> ( ${ }^{\circ}$ C) | 5 | 6 | 8 | 4 | 6 |
| Average <br> wind speed <br> (mph) | 25 | 20 | 25 | 30 | 30 |
| Chance of <br> rain <br> (\%) | 30 | 50 | 50 | 20 | 40 |
| Cloud <br> cover <br> (\%) | 60 | 80 | 60 | 40 | 80 |

For each of the rows of the table one of the bar charts $\mathbf{A}$ to $\mathbf{E}$ could represent the data if it were suitably labelled.

Which one of the bar charts does not represent any of the rows in the table?
A

B


D

E


2 The seas around the UK have become so noisy that whales are having to sing louder to themselves heard above the din created by ships, wind farms and oil exploration. With wh numbers severely depleted, the ability to communicate over long distances could be key to th finding a mate. According to a study by marine biologists, around the coast of the UK whale so now ten times louder than it was fifty years ago, and also higher pitched. Whales are trying to adapt to increased man made noise either by emitting much louder noises or by calling at higher frequencies. Their messages are getting simpler and repeated more often, like a person being forced to shout.

Which of the following can be drawn as a conclusion from the passage above?
A The noise of modern human life will eventually cause whales to become extinct.
B Sea-based wind farms should not be built because of the danger to whales.
C Whales will be able to adapt their communication methods to overcome the problem of human noise.

D The depletion of whale numbers is caused by the growth of human noise.
E None of the above.

3 I am planning to visit a resort for my holiday this summer. There are three options for my accommodation: a single room which costs $\$ 70$ per night, a deluxe room which costs $\$ 80$ per night or a suite which costs $\$ 95$ per night. The prices include meals, but it is possible to opt out from the meals by paying $\$ 15$ less per night. The resort offers a taxi service from the airport at a cost of $\$ 10$. Alternatively, it is possible to hire a car at the airport which can be used for the whole stay. This option costs $\$ 5$, plus an additional $\$ 5$ per night.

I want to stay for six nights in a deluxe room, but I don't want my meals included in the price that I pay. I also want to hire a car for the duration of the stay.

What will be the total cost of my stay?
A $\quad \$ 365$
B $\quad \$ 390$
C $\quad \$ 425$
D $\quad \$ 435$
E $\quad \$ 480$

4 When children are young they often play games. These games are useful as they tec how to interact with each other. In recent years the growth of computer games has mea many children play most of their games on computers and across the internet. Thus the w which children interact with each other has changed. When these children grow up they will to work in jobs that require interaction with co-workers. The increased popularity of computer games is therefore going to mean that they are less likely to be able to function socially within the workplace.

Which one of the following is a flaw in the above argument?
A
It ignores the benefits that are brought by the internet, such as easy access to more information.
B It does not consider that games on a computer can teach many other skills as it is possible for their rules to be more complex.

C It does not consider the fact that adults also play computer games.
D It is restricted to just one negative aspect of computer games.
E
It does not establish that children who play computer games no longer interact with each other.

5 The diagram below shows two perpendicular mirrors with a reflected tile on the faces 0 mirrors.


1


2


3


4


The tiles shown above have a pattern printed on one side. Which two of the tiles if placed in position ' $X$ ' would be consistent with the image reflected in the mirrors? (Tiles can be rotated.)

A 1 and 2
B 1 and 3
C $\quad 1$ and 4
D 2 and 3
E 2 and 4
F 3 and 4

6 Becoming a London taxi driver isn't as easy as you may think. Unlike other London t choose to take the tube or bus, taxi drivers have to spend hours learning the city's road for a face-to-face exam at the Public Carriage Office to get a licence to start their careers brain scans on a group of taxi drivers revealed that areas of their brains associated with men were more developed than would be normal for the general population. So all that learning not only makes them money, but also increases their memory power.

Which one of the following is an assumption made in the above argument?
A People who have a poor memory do not become taxi drivers.
B Many people believe that it is easy to become a taxi driver.
C Brain scans on the same group before they became taxi drivers would not have shown the same results.
D People usually become taxi drivers in order to make money rather than to improve their memory.

7 An airline has decided to introduce a flight from London, England to St. John's, Antigua. The airline owns a range of aeroplanes as shown in the table below. It needs to decide which one would be best suited to do this flight. The distance travelled between London and St John's is a maximum of 5600 miles; variability is due to different flight paths. A weekly flight would have between 163 and 177 passengers.

Which plane ( $\mathbf{A}-\mathbf{H}$ ) is the most fuel efficient plane per passenger per mile that would be suitable for this flight?

|  | Aeroplane | Number of <br> engines | Maximum <br> Passenger <br> Capacity | Range of <br> miles per <br> journey | Takeoff <br> weight <br> (lbs) | Fuel consumption per <br> mile (gallons) |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| A | Boeing <br> 737 | 2 | 189 | 6500 | 130,000 | 3.0 | 0.01 |
| plane | additional <br> per <br> passenger |  |  |  |  |  |  |
| B | Boeing <br> 747 | 4 | 569 | 6500 | 875,000 | 5.6 | 0.01 |
| C | Boeing <br> 757 | 2 | 239 | 5500 | 220,000 | 4.4 | 0.08 |
| D | Boeing <br> 777 | 2 | 440 | 8270 | 545,000 | 4.8 | 0.01 |
| E | Boeing <br> 787 | 2 | 330 | 3050 | 364,000 | 4.5 | 0.01 |
| F | Saab <br> 2000 | 2 | 58 | 1380 | 50,265 | 2.4 | 0.09 |
| G | Airbus <br> A-380 | 4 | 853 | 8000 | $1,400,000$ | 9.2 | 0.05 |
| H | Airbus <br> A-320 | 2 | 179 | 6305 | 77,000 | 3.0 | 0.07 |

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

The difference between men's and women's pay is still at unacceptable levels, according to TUC research. It found that from the age of 18 - and throughout the rest of their working lives women earn less than men.

In their 20s, the pay gap for full-timers is a modest $3.3 \%$, but in their 30 s women take home $11.2 \%$ less than men. And in their 40s - the peak age for discrimination - the gap rises to $22.8 \%$

$$
\begin{aligned}
& \text { Full time gender pay gap, } \% \\
& 100 \times\left(\frac{\text { male pay - female pay }}{\text { male pay }}\right)
\end{aligned}
$$



The TUC said the undervaluing of women in the workplace was partly due to a "motherhood penalty". The long hours and intensity of senior positions deterred mothers from seeking promotions for which they were qualified. The TUC said there was direct discrimination against mothers and their choice became limited to jobs that could be combined with looking after children.

The "motherhood penalty" became even more severe for women who switched to part-time work. They were more likely to change employer or occupation, often taking jobs with lower hourly earnings. The hourly earnings of women working part-time were $23.4 \%$ less than the equivalent male rate in their 30s, and $41.2 \%$ in their 40s.

8 On the basis of the above data which one of the following is a reliable conclusion to draw?

A On average, men's earnings peak before they reach 50.
B Employers are less willing to employ women over 30 than they are to employ women under 30.
C The percentage difference between men's and women's pay more than trebles between the ages of 22 and 30 .
D On average, a woman in her 40 s or 50 s earns less than $£ 0.80$ for every $£ 1$ earned by a man in that age range.

9 Suppose the average pay for women in full-time work aged $40-49$ was $£ 16,000$. Which following is the best approximation of the average pay for a man in the same age-range, time, based on the above figures?

A $£ 19,700$
B $£ 20,300$
C $£ 20,700$
D $£ 21,300$

10 Which one of the following is an assumption behind the TUC's reasoning, as reported in the third paragraph?

A It is mainly men who are responsible for recruiting and promoting staff.
B Women are less well qualified than men for senior positions which attract higher pay.
C Mothers would choose to take up higher positions for which they are qualified after they have started a family.

D Motherhood is the only reason for the pay discrimination against women.

11 Assuming that the figures in paragraph 4 for part-time pay are correct, and that they follow the same general trend as the full-time pay gap, which one of the following is most strongly supported by the data provided?

A A woman over 60 , working part-time, will earn $£ 8.57$ for every $£ 10$ earned by a man over 60 working part-time.
B On average, a man in his 40 s working part-time earns $80 \%$ more than a man working
C A woman working part-time in her 20 s will earn more than a woman working part-time in her 30s.
D If the average part-time pay for men in their 40 s is $£ 15$ per hour, women of the same age, on average, will earn $£ 8.82$ per hour.

12 This is the floor of a room in my house, which is tiled with 81 tiles of the same size.


How many different types of individual tile are there on this floor? (Tiles may be rotated.)
A
3

B $\quad 4$
C $\quad 5$
D $\quad 6$
E $\quad 7$
F 8

13 The ability to use language (to communicate using symbols and words to represent obj feelings and thoughts) separates humans from all other animals on earth. By the age of 1 humans know more than 60,000 words, which is a surprising figure when you consider the monosyllabic vocabulary used by most teenagers. From the age of six months babies begin to recognise their own language. There are genetic reasons why this form of communication is unique to humans. Humans and chimps actually share $99 \%$ of their DNA, but in 2006 researchers comparing the two species found a gene, HAR1, that makes us dramatically different. It is expressed in the human cerebral cortex, a part of the brain that is particularly associated with language.

Which one of the following pieces of evidence would strengthen the hypothesis that HAR1 explains the human language ability?

A A chimpanzee gene is found to be $98 \%$ identical to HAR1.
B A human genetic disorder (of specific language impairment) is found to be caused by a mutation in HAR1.
C HAR1 is found to be expressed in parts of the human brain that are not related to communication.

D HAR1 is expressed in the brain before birth.
E Some chimps can be taught to communicate with symbols.

14 The final league table for the inter-regional cribbage competition is shown below (in alphabetical order). Five teams took part and all played each other once. The points system is 3 for a win, 1 for a draw and 0 for a loss. Unfortunately, the points for the Eastern Region team have been obliterated.

| Team | Points |
| :--- | :---: |
| Central | 2 |
| Eastern | $\square$ |
| Northern | 8 |
| Southern | 5 |
| Western | 1 |

How many points did the Eastern team score?
A 4
B $\quad 5$
C $\quad 10$
D $\quad 12$
E $\quad 15$

15 The UK should not comply with the ruling by the European Court of Human Rights ( prisoners should be allowed to vote in general and local elections. European member bound to respect human rights, and the ECHR is the organisation that defines those rights However, although freedom and democracy are human rights, voting is not. It is a constitutio right, because it is conferred by nations that practise democracy. It is a fundamental aspect of relationship between individuals and the state. Obedience to the law is also an aspect of this relationship. Thus it is entirely proper that the state should be free to decide that those who are imprisoned because they have broken the law should temporarily be deprived of their right to vote.

Which of the following could be a weakness of the above argument?
1 It assumes that individual states should define human rights.
2 It assumes that a constitutional right cannot be a human right.
3 It assumes that prisoners want to be allowed to vote in general elections.
A $\quad 1$ only
B 2 only
C $\quad 3$ only
D 1 and 2 only
E $\quad 1$ and 3 only
F 2 and 3 only
G $\quad 1,2$ and 3

16 Data for the world's largest 10 lakes are shown below:

| Name and Location | Area sq km | Length km | Volume cu km |
| :--- | :---: | :---: | :---: |
| Caspian Sea, Asia | 394,299 | 1,199 | 78,200 |
| Michigan - Huron, US - Canada | 117,612 | 397 | 8,458 |
| Superior, US - Canada | 82,414 | 616 | 12,100 |
| Victoria, Tanzania - Uganda | 69,485 | 322 | 2,750 |
| Tanganyika, Tanzania - Congo | 32,893 | 676 | 18,900 |
| Baikal, Russia | 31,500 | 636 | 23,600 |
| Great Bear, Canada | 31,080 | 373 | 2,236 |
| Great Slave, Canada | 28,930 | 480 | 2,090 |
| Erie, US - Canada | 25,719 | 388 | 489 |
| Winnipeg, Canada | 23,553 | 425 | 283 |

Which has the greatest average depth?
A Caspian Sea
B Victoria
C Tanganyika
D Baikal
E Winnipeg

17 The brain disease vCJD was caused by eating beef from cattle infected with BSE. Susc this type of disease amongst humans is associated with a particular gene. There are two of this gene $-M$ and $V$, so there are three possible combinations that we can inherit $-M-M$, and $\mathrm{V}-\mathrm{V}$. All infections so far in the UK have been in young people with the M-M combination. Most victims of a similar disease in Papua New Guinea also had the M-M combination and were also young, but a group who developed it later in life all had the $\mathrm{M}-\mathrm{V}$ combination. Therefore the gene variants one inherits determine the incubation period for such diseases. So there will be two further outbreaks of vCJD, as those who consumed infected beef grow older.

Which of the following is an assumption underlying the above argument?
1 Most of the population have eaten beef infected with BSE.
2 Inheriting the $V$ variant prevents infection with vCJD.
3 Inheriting the $M$ variant is not necessary for susceptibility to vCJD.
A $\quad 1$ only
B $\quad 2$ only
C $\quad 3$ only
D 1 and 2 only
E $\quad 1$ and 3 only
F $\quad 2$ and 3 only
G None of the statements

18 Employees at Grindstone Ltd are paid a weekly wage according to the following formula
$£ 240+£ 5$ for every year of their age above 21 (where appropriate) $+£ 20$ for every full year service with the company.

Jasper is 43 years old and has worked for Grindstone for 6 years. Although Ruby is 8 years younger, she earns $£ 40$ per week more than Jasper.

For how much longer than Jasper has Ruby been employed by Grindstone Ltd?
A 2 years
B 4 years
C $\quad 6$ years
D 8 years
E $\quad 10$ years

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

Tree diagrams are used in decision making by predicting the various possible outcomes and th likelihood. The diagram below represents the choices facing an oil company - call it 'X-Oil' - who have discovered a possible oil deposit and are deciding whether or not to drill at the site. They will make the decision on purely financial terms - i.e. likely profits or losses.

The key factors are the known drilling costs $(\$ 800,000)$ and the unknown returns, which depend on how big the oil strike is. A 'small' oil strike, worth only $\$ 80,000$, would mean a net loss of $\$ 720,000$ when drilling costs are factored in. But there is only a small chance of this, 0.1 or $10 \%$. There is an equally small ( $10 \%$ ) chance of a big and very profitable strike, approaching $\$ 5$ million. The most likely outcome is a medium strike.

If the company decides not to drill, there is a $20 \%$ chance of finding a buyer for the drilling rights at $\$ 1$ million, and a $60 \%$ chance of a buyer at $\$ 500,000$.

To assist the decision whether to drill or not, each of the possible outcomes is assessed by multiplying the chance (probability) of each outcome by the potential profit or loss. If the sum of the possible outcomes (profit $x$ chance) of a decision to drill is greater than the sum of outcomes of a decision not to drill, statistically the better option is to drill.


19 On the basis of the data shown in the diagram, which one of the following conclusions can most reliably be drawn?

A Drilling represents a more favourable option than not drilling.
B $\quad$ Not drilling represents a more favourable option than drilling.
C $\quad$ Neither option is financially more favourable than the other.
D A decision to try and sell the drilling rights will guarantee the best profit.
E Either decision, to drill or not to drill, could make a loss.

20 Which one of the following can correctly be inferred from the data in the decision tree

A Drilling for oil is unlikely to make X -Oil a profit unless there is a 'big' strike.
B A 'medium' strike would be a better outcome for X-Oil than a sale of drilling rights.
C $\quad$ The risk for X-Oil of making a loss by drilling at the site is greater than the probability of making a profit.

D
The probability of a 'medium' strike is the same as the probability of selling the drilling rights at $\$ 500,000$ or more.

21 For a company (Y-Oil) that bought the drilling rights for $\$ 500,000$ and proceeded to drill for oil, which of the following statements are true?

1 Given the estimated costs, Y-Oil would not make a profit if there was only a 'medium' strike.
2 Given the estimated costs, the chances of Y-Oil making a profit are less than $80 \%$.
$3 \quad$ Y-Oil could make a profit from a 'medium' strike if they could reduce drilling costs by $25 \%$.

A $\quad 1$ only
B $\quad 2$ only
C $\quad 3$ only
D $\quad 1$ and 3 only
E $\quad 2$ and 3 only
F $\quad 1,2$ and 3

22 Health and Safety advisors have warned that an accidental oil-spill at the site during dn resulting in compensation of up to $\$ 10,000,000$, has a probability of 0.03 of occurring duri of the kind proposed. Insurance premiums against such an incident would cost the company $\$ 200,000$.

Using the above information and assuming the data given in the tree diagram remains the same, place the following options in the most favourable order:

X-Oil should:
1 pay the insurance and proceed with the drilling.
2 proceed with the drilling without insurance.
3 decide against drilling.
A 123
B $\quad 132$
C $\quad 213$
D $\quad 231$
E $\quad 312$
F 321


There are ten houses on Horseshoe Road, situated as shown above. They are numbered from 1 to 10 , but not conventionally, and the numbers are missing on five of them. However, it is known that wherever four houses lie along a straight line, the four house numbers add up to 21.

What is the number of the house between numbers 3 and 5 ?
A 2
B $\quad 4$
C $\quad 6$
D $\quad 7$
E 8

24 Asked at a press conference whether the new signing, Petermass, would be playing in match on Saturday, the Manager replied: "Only if Fredericks isn't fit."

Three of the journalists present noted the announcement as follows:
Jed wrote: "If Fredericks is fit Petermass won't be playing."
Ned wrote: "If Fredericks isn't fit, Petermass will be playing."
Ted wrote: "If Petermass doesn't play it'll mean Fredericks is fit."
Which of them got the facts right?
A Jed only
B $\quad$ Ned only
C Ted only
D Jed and Ned only
E Jed and Ted only
F $\quad$ Ned and Ted only
G Jed, Ned and Ted

25 Raymond has made up two vinaigrettes for his restaurant. One has half oil and half vinegar, the other has $2 / 3$ oil and $1 / 3$ vinegar. He has 180 ml of each.

He wants to use them to make $2 \times 180 \mathrm{ml}$, each containing the same proportions, so he removes 90 ml from the one with equal proportions and adds it to the other. He mixes well and takes 90 ml from the new larger mix and adds it to the small one, so he once again has $2 \times 180 \mathrm{ml}$.

What is the result - does one vinaigrette have a higher proportion of oil than the other or are they equal?

A One mix has 70 ml oil, the other has 80 ml oil.
B One mix has 90 ml oil, the other has 120 ml oil.
C One mix has 100 ml oil, the other has 110 ml oil.
D Both mixes have 105 ml oil.

26 A rocky planet, whose mass is three times that of Earth's, could be the first ever to be outside our solar system with the potential to support human life. Lying in the 'Goldilocks the Milky Way, twenty light years away, the planet is said to have gravity similar to Earth ano could well be capable of supporting life. The 'Goldilocks Zone' is a region in space where surfac temperatures are neither too hot nor too cold for liquid water to form oceans, lakes and rivers. The fact that we were able to detect this planet so quickly and so nearby tells us that planets like this must be really common. The number of systems with potentially habitable planets is probably in the order of 10 or 20 per cent, and when you multiply that by the hundreds of billions of stars in the Milky Way, that's a large number. There could be tens of billions of these systems in our galaxy.

Which one of the following is the best statement of the conclusion of the above argument?
A Planets with gravity similar to Earth could well be capable of supporting life.
B For planets to be capable of supporting life, liquid water must be able to form oceans, lakes and rivers.

C Planets with the potential to support human life are really common.
D $\quad 10$ or 20 per cent of systems have potentially habitable planets.
E There are tens of billions of systems with habitable planets in our galaxy.

27 I want to create a simple jigsaw puzzle. I have five pieces as shown below. Each piece from four identical squares. I want to choose three of the pieces to make up either a $4 \times 3$ or a $6 \times 2$ rectangle.


How many choices do I have for the three different pieces?
A
0
B $\quad 1$
C $\quad 4$
D $\quad 9$
E $\quad 10$

28 It has been celebrated recently that hydrogen fuelled buses are being introduced into This is because the use of hydrogen as a fuel is better for the environment as there are no emissions of carbon dioxide. The new buses carry the same number of passengers and will travelling exactly the same routes as the ones that they are replacing. However, commercially sold hydrogen is produced from natural gas. The process to produce one tonne of hydrogen from natural gas puts, on average, eight tonnes of carbon dioxide into the atmosphere, whereas the production of fuel for the existing buses does not emit any carbon dioxide. The further costs of transporting the fuel to the bus depot also need to be considered. We should therefore not welcome the introduction of these buses.

Given that the following extra information is available:
1 The distance that each type of bus can travel using one tonne of fuel.
2 The distance that each bus needs to travel every week.
3 The amount of carbon dioxide emitted when the existing buses use one tonne of fuel.
4 For each type of fuel, the amount of carbon dioxide emitted in transporting one tonne of fuel to the bus depot.

Which of the pieces of information would we need to know in order to determine whether or not the argument is flawed?

A $\quad 1,2$ and 3 only
B $\quad 1,2$ and 4 only
C $\quad 1,3$ and 4 only
D $\quad 2,3$ and 4 only
E $\quad 1,2,3$ and 4

29 Claire walks to work at $6 \mathrm{~km} / \mathrm{hr}$ and Charles cycles along the same route. Normally Charles overtakes Claire outside the public library. One day Claire leaves 20 minutes late and Charles overtakes her outside the swimming pool, 3 km before she gets to the library.

At what speed does Charles cycle?
A $\quad 9 \mathrm{~km} / \mathrm{hr}$
B $\quad 12 \mathrm{~km} / \mathrm{hr}$
C $\quad 15 \mathrm{~km} / \mathrm{hr}$
D $\quad 18 \mathrm{~km} / \mathrm{hr}$
E $\quad 24 \mathrm{~km} / \mathrm{hr}$

30 A neutrino is an elementary particle that is able to pass through ordinary matter, but detect. Physicists have hypothesised that there is a particular type of neutrino - a sterit neutrino - that cannot be detected at all by their instruments. Relevant evidence comes f supernovae, i.e. exploding stars. If sterile neutrinos did exist, supernovae would shoot them and the recoil from this blast would send pulsars (rotating stars that emit a beam of electromagnetic radiation) travelling at high speed through the universe. It turns out that astronomers observe precisely that: pulsars whizzing through the universe at speeds of thousands of kilometres per second.

Which one of the following is a conclusion that can be drawn from the above passage?
A Sterile neutrinos must be the cause of the phenomenon of pulsars travelling at high speed through the universe.
B The phenomenon of pulsars travelling at high speed through the universe could be caused by the existence of sterile neutrinos.
C The sterile neutrino hypothesis is the best explanation of the phenomenon of pulsars travelling at high speed through the universe.
D If sterile neutrinos did not exist, pulsars would not be observed travelling at high speed through the universe.

31 An exhibition of the work of a modern artist is currently on display at an art gallery for a 30 days. One of the exhibits, entitled "Countdown", started off as 30 individual identical cy arranged in 10 stacks of 3 , with the following appearance when viewed from above.


Each day since the exhibition began, one cylinder has been removed, and this will continue until there is just one left on day 30 .

Today is day 11, so 20 cylinders remain. The view from above is still the same as it was on day 1 , but the side view today from the direction marked X is:


Which one of the following could not be the side view today of "Countdown" from the direction marked $Y$ ?
A

B

C

D

E

F


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

The graph below shows the results of surveys of local medical practices on number of patient consultations in 1995 and 2006. Consultations include face-to-face meetings with both doctors and nurses, telephone consultations and home visits.


The overall mean consultation rate (per patient per year) was 3.90 in 1995 and 5.26 in 2006. Findings for all years in the survey are shown below:

| Year | 1995 | 1996 | $\mathbf{1 9 9 7}$ | $\mathbf{1 9 9 8}$ | $\mathbf{1 9 9 9}$ | $\mathbf{2 0 0 0}$ | $\mathbf{2 0 0 1}$ | $\mathbf{2 0 0 2}$ | $\mathbf{2 0 0 3}$ | $\mathbf{2 0 0 4}$ | $\mathbf{2 0 0 5}$ | $\mathbf{2 0 0 6}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Consultation <br> rate per <br> person-year | 3.90 | 4.02 | 4.09 | 4.04 | 4.18 | 4.29 | 4.52 | 4.63 | 4.75 | 5.02 | 5.19 | 5.26 |

The consultation rate for doctors remained almost constant over the study period with 3.0 consultations per patient-year in 1995 and 3.3 in 2006. The consultation rate for nurses increased from 0.8 consultations per patient-year in 1995 to 1.8 in 2006. The consultation rate for other clinicians increased from 0.1 consultations per patient-year in 1995 to 0.2 in 2006.

32 If the average doctor has 1500 patients, and consultations are available on 250 days per year, approximately how many consultations per doctor (include consultations with all clinicians) per day were there on average in 2006 ?
A
16

B
C 32
D

33 What is the percentage increase in the proportion of patients seen by nurses from 15 2006?

A $14 \%$
B $\quad 26 \%$
C $32 \%$
D $67 \%$
E $125 \%$

34 Which line on the following graph best shows the female/male consultation ratio in 2006?


35 There has been a percentage increase in consultations between 1995 and 2006 for bo and all age groups.

Which one of the following would be least satisfactory as a potential explanation for this?
A There has been an increased awareness of health issues among the general public.
B People of all ages have become equally less healthy.
C All the people surveyed have become 11 years older.
D GPs have increased the amount of preventative medicine they do.

## END OF TEST

## BLANK PAGE

