

SAMPLE QUESTIONS

Instructions

- The sample questions are taken from a set of **Practice Exam**, and there are **10** questions in total with **worked solutions** provided.
- The practice exams are intended to help you to **apply the skills and methods** that you have learned through **Drills Questions** and **Workbooks** while giving you a sense of what the actual exam will look like.
- There is **no time limit** in the Practice Exams (but try to finish it under 3 hours) and **fully worked solutions** are supplied after each question.
- Some of the worked solutions are written by us while others are not. So, there may be errors and if you have found one, please contact us so we will correct them as soon as possible.
- **ALL** of the questions in this document are **NOT** written by me. They are questions that Ryan and I personally **purchased** from other ISAT tutoring companies that we have attended or from external GAMSAT or UCAT resources that are **very similar** to the ISAT exam questions.
- We have personally completed the ISAT and have **handpicked** these questions from the **10000+** questions that we obtained during our preparation process.
- As important as doing practice question is, thinking about what you have done wrong and redoing your **mistake questions** is equally important!
- Sometimes when we convert the word document into a pdf, some **formatting issues** will occur. Most of the issues are **very small** and only make the document look a bit uglier; however, if the issue is significant, please contact us and we will get it fixed ASAP.

Questions 1 and 2 refer to the following information

By Lester Haines, The Register 30/04/2009.

South Korean scientists say they've cooked up a quartet of glow-in-the-dark beagles, boasting red nails and abdomens even under normal light and which emit a spooky red glow when subject to ultraviolet.

The four transgenic mutts - all dubbed "Ruppy" (Ruby + Puppy) - were produced by a team from Seoul National University led by Professor Lee Byeong-chun, AP reports. The scientists injected fluorescent genes from an unspecified source* into beagle skin cells, injected these into egg cells which were in turn implanted into a surrogate mum. The result was six puppies born in December last year, and although two subsequently died, the South Koreans are suitably chuffed with the results of their fluorescent beagle experiment.

Lee insisted to AP that the glow-in-the-dark pooch is not merely a novelty, but could shed light on developing future cures for human diseases. He told AP: "What's significant in this work is not the dogs expressing red colours but that we planted genes into them."

The scientist did, though, remain tight-lipped on exact details of the research, saying it was still "under way". Those of you who may be a tad skeptical and inclined to think Lee is simply trying to tap into press enthusiasm for self-illuminating animals should note that his claims have been backed by veterinary professor Kong Il-keun of South Korea's Gyeongsang National University, who brewed up a fluorescent cat himself in 2007.

He confirmed he'd seen Lee's puppies (whether under visible or ultraviolet light is not noted, and described them as "genuine clones".

1. The professor Lee Byeong-chun, who cooked up the quartet of glow-in-the-dark beagles, although his exact method is still secret, justifies his actions thus:

- A. That 'we successfully planted genes into them'.
- B. It could shed light on developing future cures for human diseases.
- C. His research is backed by professor Kong Il-keun.
- D. He is continuing the work of Professor Kong Il-keun.

Correct Answer: B

Explanation:

Option A → No. This is the result but not a justification; it is ‘what’s significant’.

Option B → Yes. “Lee insisted to AP that the glow-in-the-dark pooch is not merely a novelty, but could shed light on developing future cures for human diseases.”

Option C → Yes it is but this is not why he performed the therapy so this option is incorrect.

Option D → No. He has replicated a similar experiment with a different species and a different colour, but this is not a continuation of professor Kong Il-keun’s work.

2. Support gained for this project has been significantly weakened by claims Lee is not actually performing this gene therapy to help the human race but instead to sell the results to the ever-growing and ravenous pet market.

Which of the following best opposes this claim?

A. Claims have been backed by veterinary professor Kong Il-keun of South Korea’s Gyeongsang National University, who brewed up a fluorescent cat himself in 2007.

B. Lee’s research has been given funding upon his discovery that the research could prevent skin cancer.

C. That two in six of his therapy recipients die, indicating his methodology is not sound.

D. Lee’s research has been given funding upon his discovery that they planted genes into the beagles.

Correct Answer: B

Explanation:

Option A → No this supports it.

Option B → Yes, if this were the case it would oppose the claim.

Option C → In-correct. Well this could oppose research continuing, but his methodology is outside the scope of the argument and this fact does nothing for either side of the claim.

Option D → No this could support it.

Question 3

The following table represents the results of a survey of people whose marriages had ended.

Would you have preferred to stay married?				
	Women		Men	
	Number	%	Number	%
Yes	41	28	65	51
No	99	69	52	41
Uncertain	1	1	6	5
Other	3	2	4	3
Total	144	100	127	100

(Sourced from *Human Societies* edited by Anthony Giddens)

3. Assuming that this table represent a perfectly random sample of British divorcees, we can infer that among the British:

- A. A higher proportion of divorced men than divorced women regret the divorce.
- B. A higher proportion of divorced women than divorced men regret the divorce.
- C. Women are more ambivalent about divorce than men.
- D. Both B and C.

Correct Answer: A

Explanation:

According to the table, 51% of divorced men answered "Yes" to the question "Would you have preferred to stay married?". And, only 28% of women answered "Yes" to the same question. That means a higher proportion of divorced men than women regret the divorce.

Question 4-6 refer to the following information

Study of 1624 cigarette smokers who tried to give up smoking showed that only 5% were not smoking eight years after they began their attempt to give up. Some tried to give up with the help of a nicotine patch, which is a small pad attached to the skin and is designed to reduce the desire to smoke cigarettes. It works by slowly releasing a chemical into the bloodstream.

Half of the smokers in the study wore a nicotine patch for the first 12 weeks of the study; the others wore a placebo (a similar but non-active patch). At the end of the first year, 11.2% of those in the patch group were not smoking, compared with 7.8% of those in the placebo group.

Less than half of those in each group who managed to stop smoking by the end of the first 12 months had started smoking again within the next seven years.

4. Which of the following would be the most important condition if the study were trying to show the effectiveness or otherwise of nicotine patches in helping to give up smoking permanently?

- A. Subjects don't know whether the patch they are wearing is a nicotine patch or a placebo patch.
- B. After six weeks, patches are swapped from nicotine to placebo, and vice versa.
- C. Patches are worn throughout the entire eight-year period.
- D. As soon as any subject no longer feels the need to smoke, the patch they are wearing is removed.

Correct Answer: A

Explanation:

Knowledge of basic scientific methodology is useful for this question.

Option A → If subjects know the type of patch they are wearing, it may influence – consciously or unconsciously – their likelihood of giving up smoking. This would affect any conclusions regarding the effectiveness of the patches.

Option B → If after six weeks the patches are swapped, both groups would be essentially the same with respect to examining the effectiveness of nicotine patches (i.e. there is no control).

Option C → The nicotine patches are designed to reduce the desire for cigarettes to aid in giving up smoking – it is implicit that 'giving up' means such aids are no longer needed. It is not possible to assess whether someone has given up permanently if they are still using the patches.

Option D → If subjects remove the patch as soon as they no longer feel the need to smoke then the comparability of the two groups is reduced. The aim of the study is also clearly to test the effectiveness of the patches when worn for the full 12 weeks.

5. Which of the following is best supported?

- A. If a smoker can refrain from smoking for 12 months, their chances of giving up permanently are better than 50 : 50.
- B. The first year is the most important in an attempt to permanently give up smoking.
- C. Resisting the temptation to smoke some years after giving up is easier than it is in the first year.
- D. If someone hasn't smoked for a year, then each year after that it becomes less likely they will take up smoking again.

Correct Answer: A

Explanation:

There is an assumption that if a person is not smoking after eight years it equates to permanently giving up.

Option A → Less than half of smokers who refrained from smoking for 12 months (regardless of whether they used nicotine patches or not) were smoking eight years after the study began.

Option B → In order to evaluate which year is the most important, data is needed for each year on the success rate of those attempting to stop smoking permanently: the number making it through each year as a proportion of the total number making it to eight years. The only information provided is that of those who were not smoking at the end of the first year, around half had resumed smoking in the next seven years – there is no information on when in that period they resumed. If, for example, all those who relapsed after the first year did so in the second year, the second year is more important than the first year in an attempt to give up permanently, i.e. stopping smoking for one year would only give a 50% chance of permanently giving up, but making it to two years would all but guarantee success.

Option C → Although a smaller proportion of people resumed smoking later in the study compared to the first year, it is not known whether this was due to 'resisting temptation' or other factors – perhaps the desire to smoke no longer existed for many. Thus, C is supported as a possibility, but A is clearly true based on the data given, i.e. is 'best supported'.

Option D → As for D, no data is given on the relapse rate for each of the years after the first year.

6. Which of the following could be the number of people in the study who had worn nicotine patches and were no longer smoking after eight years?

A. 10

B. 30

C. 50

D. 90

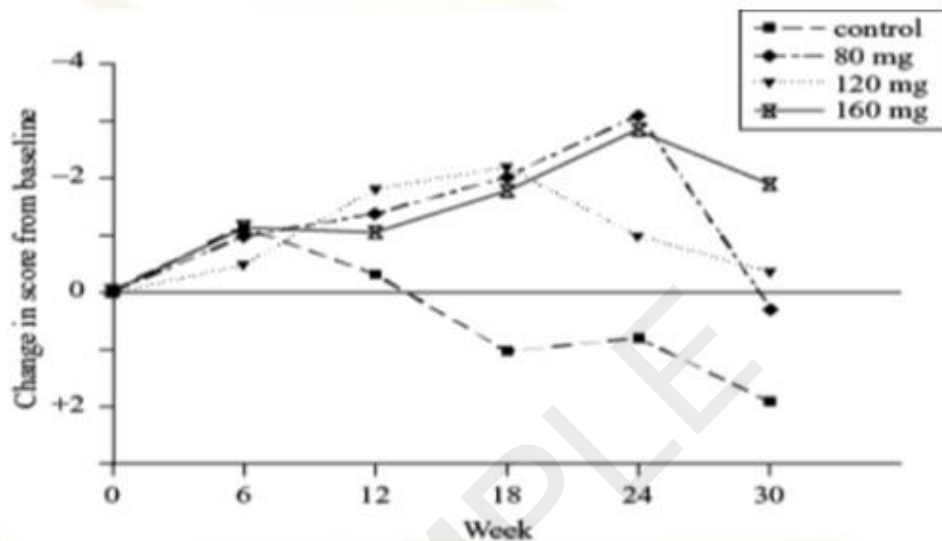
Correct Answer: C

Explanation:

A total of 1624 smokers were in the study. Half (812) of them wore a nicotine patch for the first 12 weeks. After one year 11.2% (91) of the patch group were not smoking; of these, less than half had resumed smoking after eight years: so more than 46 individuals were still not smoking. This excludes A and B as possible answers. As well, because only 5% (81) of all 1624 smokers were not smoking at this stage, D is excluded. This leaves C as the only possible answer.

Question 7

In a study, patients known to have mild Alzheimer's disease were treated for a number of weeks with 80 mg, 120 mg or 160 mg of a drug. Prior to treatment, a test measuring the extent of cognitive impairment was given to each patient to determine their baseline score. The higher the score, the worse the impairment. The same test was repeated every six weeks.



7. The data for which week **least** support the drug's effectiveness?

- A. Week 6
- B. Week 18
- C. Week 24
- D. Week 30

Correct Answer: A

Explanation:

The data that least supports the drug's effectiveness is that for which there is the least difference between the scores of the drug groups and the control group. At six weeks, there are no apparent differences. The data for weeks 24 and 30 indicate a lessening of the drug's effect, but the effect is still evident.

Questions 8-10 refer to the following information:

Vegetable oils in the modern diet

Vegetable oils other than olive oil were not introduced in significant amounts into the human diet until the early part of the 20th century. Some people believe that, as we are the genetic product of a hunter–gatherer culture, these are not natural to us as they do not match certain balances of nutrients humans had when they fed mainly on such things as grain, berries and animals and most of our fat came from animal carcasses. They go on to argue that there has not been enough time since those days for evolution to have changed the nutritional requirements of humans.

Vegetable oils used in cooking, salad oils, margarine and processed foods can supply around 15% of the total daily energy intake in a western diet. This has had the result of raising the dietary ratio of omega-6 to omega-3 fatty acids to its current value of more than fifteen to one. In hunter–gatherer diets, the omega-6/omega-3 ratio was closer to two to one.

However, recent research has indicated that there are benefits to the heart from eating fats which have a high polyunsaturated content, as many vegetable oils do. One study has suggested that for every 5% increase in polyunsaturated fat consumption there was a 10% fall in heart disease.

Some key factors which are thought by some to lead to a healthier diet are as follows:

1. the ratio of omega-6 to omega-3 fatty acids.
2. the erucic acid content: in 2003, Food Standards Australia set a Provisional Tolerable Daily Intake (PTDI) of about 500 mg/day of erucic acid.
3. the percentage of polyunsaturates: it is recommended that adults get no more than 11% of their energy from saturated fats. Vegetable oils have an energy content of about 3700 kJ/100g.

(More information on next page)

The typical fat consumption of an adult in the EU was estimated in the year 2015 to be 143 grams per day total fat of which 30% was vegetable oils.

The table below shows the fatty acid composition of a number of common oils.

Table of Vegetable Oils Units: grams fatty acids per 100 grams oil							
	Fatty Acids	Canola	Coconut	Flaxseed	Mustard	Olive	Sunflower
Saturated	Palmitic Acid	4.0	8.2	5.3	3.8	10.9	5.9
	Stearic Acid	1.8	2.8	4.1	1.1	2.0	4.5
	Other acids	1.3	75.5		1.4	0.6	
	Total Saturated	7.1	86.5	9.4	6.3	13.5	10.4
Monounsaturated	Oleic Acid	56.1	5.8	20.2	11.6	72.3	19.5
	Erucic Acid	0.6			41.2		
	Other acids	1.9			6.4	1.6	
	Total Monounsaturated	58.6	5.8	20.2	59.2	73.9	19.5
Polyunsaturated Omega-6		20.3	1.8	12.7	15.3	9.2	65.7
Polyunsaturated Omega-3		9.3	0.0	53.3	5.9	0.8	0.0
	Total Polyunsaturated	29.6	1.8	66.0	21.2	10.0	65.7
	Ratio Omega-6: Omega-3	2.2:1	no Omega-3	0.2:1	2.6:1	11.5:1	no Omega-3
TOTAL		95.3	94.1	95.6	86.7	97.4	95.6

8. What is the polyunsaturate content of a 50:50 mixture of olive and sunflower oils as a percentage of the mass of the mixture?

- A. 37.9%
- B. 46.7%
- C. 74.9%
- D. 75.7%
- E. 84.6%

Correct Answer: A

Explanation:

The answer can be found from the table in the column giving the total amount of polyunsaturated fat. For olive oil this is 10% and for sunflower oil this is 65.7%. Since they both occur in a 50:50 mix, the easiest way to find the solution is to add half of the content of each, meaning 5% from the olive oil and 32.85% from the sunflower oil, this leads to 37.85%, which can be rounded up to 37.9%

9. Which one of the following is an assumption made in thinking that the optimal omega-6/omega-3 ratio is approximately two to one?

- A. The balance of nutrients that humans had when they fed on hunter-gatherer diets was more appropriate than the balance they get from modern diets.
- B. There were no significant differences between the diets of various hunter-gatherer groups around the world.
- C. The recent 10% fall in heart disease was related more to the ratio of omega-6/omega-3 than to the overall fat consumption.
- D. The increasing incidence of heart disease has been in line with the increased use of vegetable oils in cooking.
- E. Imbalances in the ratio of omega-6 to omega-3 caused by increased consumption of vegetable oils can be offset by other components of a diet.

Correct Answer: A

Explanation:

This answer choice is correct since it specifically says so in the text in the second paragraph in the last 2 lines.

Option B → incorrect, since the constituents of diets in hunter-gatherer societies around the world vary according to the climate.

Option D → incorrect, since the text specifically contradicts this by pointing out the cardio protective nature of high polyunsaturated fat oils.

Option C → incorrect, since the third paragraph specifically mentions that the fall in heart disease is associated with the consumption of polyunsaturated fats.

Option E → incorrect, since the heart protective effect has improved by a higher ratio.

10. If the only vegetable oil used by a typical European consumer is canola oil, what is his or her intake of erucic acid as a percentage of the PTDI?

A. 26%

B. 52%

C. 120%

D. 172%

E. 280%

Correct Answer: B

Explanation:

As per the text, the average adult ingests 143 grams of fat, of which 30% is vegetable oil, which equates to 43g. Since 100 g of canola oil contains 0.6g of erucic acid, this equates to roughly 0.26g i.e., 250mg of erucic acid, which equates to just over 50% of the suggested daily intake.

Author's note

Hello future med students! I am the compiler and main author of the ISAT question bank – Alex, a medical student at Monash University. I am very happy and honoured that you have put your trust in us. You are probably more familiar with my friend and partner – Ryan, who is author for the quantitative practice questions and our ISAT tutor/youtuber.

Both Ryan and I have completed the ISAT. I got 91st and he achieved 98th percentile. So, we thought it would be nice to share our experience with other pre-med students who struggle to find good ISAT resources that are reasonably priced.

Compared to other tutoring companies that charge \$2000+ USD for a few hours of tutoring, our goal is never to make a large amount of profit. Because we all have been in the same position where there are no readily available resources to prepare for the ISAT, and it is also such a difficult and crucial exam for us pre-meds.

Having attended lessons at various tutoring companies, both Ryan and I found them to be not so helpful (the instructors do not specialise in ISAT, most of them are just UCAT tutors) and extremely expensive at the same time. Particularly, there was one company that was a total SCAM!

So that's why we are creating this platform and these resources by handpicking the questions that are the most reflective of the actual ISAT from the 10000+ questions we personally bought.

It doesn't matter how many mistakes that you have made when you did these practice questions. All that matters is to learn from your mistakes. If you truly find yourself to be struggling and cannot make sense of the questions, we are here to help as well – and you can contact Ryan regarding the tutoring sessions that he runs.

As I have said, we do not think it is acceptable to take the advantage of pre-med students in order to make tremendous profits. But I hope you could appreciate our time and effort invested and understand why we have put a price tag on our services. We altogether spent at least \$3000 USD on tutoring and purchasing all sorts of prep materials. In addition, it took us a solid month to get everything organised while making YT vids and coping with school/uni studies.

If you would like to sign up for a tutoring session where we go through every mistake question with you, share our personal experience and teach you the key strategies to help you to ace the ISAT; please message Ryan on Instagram.

Finally, to provide evidence for our claims, here are Ryan's and my ISAT results (on next page).

CRITICAL REASONING		QUANTITATIVE REASONING		OVERALL	
Score	Percentile	Score	Percentile	Score	Percentile
176	79	200	100	188	98

CRITICAL REASONING		QUANTITATIVE REASONING		OVERALL	
Score	Percentile	Score	Percentile	Score	Percentile
184	96	181	77	183	91

SAMPLE