

LOGICAL REASONING QUESTIONS – SAMPLE SET FOR MAY 24, 2020

Each set of questions in this section is based on a single passage. Please answer each question on the basis of what is stated or implied in the corresponding passage. In some instances, more than one option may be the answer to the question; in such a case, please choose the option that most accurately and comprehensively answers the question.

1.

People have always wanted answers to the big questions. Where did we come from? How did the universe begin? What is the meaning and design behind it all? Is there anyone out there? The creation accounts of the past now seem less relevant and credible. They have been replaced by a variety of what can only be called superstitions, ranging from science fiction books to futuristic television series. But real science can be far stranger than science fiction, and much more satisfying.

I am a scientist. And a scientist with a deep fascination with physics, cosmology, the universe and the future of humanity. I was brought up by my parents to have an unwavering curiosity and, like my father, to research and try to answer the many questions that science asks us. I have spent my life travelling across the universe, inside my mind. Through theoretical physics, I have sought to answer some of the great questions. At one point, I thought I would see the end of physics as we know it, but now I think the wonder of discovery will continue long after I am gone. We are close to some of these answers, but we are not there yet.

The problem is, most people believe that real science is too difficult and complicated for them to understand. But I don't think this is the case. To do research on the fundamental laws that govern the universe would require a commitment of time that most people don't have; the world would soon grind to a halt if we all tried to do theoretical physics. But most people can understand and appreciate the basic ideas if they are presented in a clear way without equations, which I believe is possible and which is something I have enjoyed trying to do throughout my life.

It has been a glorious time to be alive and doing research in theoretical physics. Our picture of the universe has changed a great deal in the last fifty years, and I'm happy if I have made a contribution. One of the great revelations of the space age has been the perspective it has given humanity on ourselves. When we see the Earth from space, we see ourselves as a whole. We see the unity, and not the divisions. It is such a simple image with a compelling message; one planet, one human race.

[Extracted, with edits and revisions, from *Brief Answers to the Big Questions*, by Stephen Hawking, John Murray, 2018]

1.1 Which of the following is the author most likely to agree with?

- (a) The world would run more efficiently if all us tried to do theoretical physics.
- (b) If some scientific theories were presented in a simpler manner, more people would understand them.
- (c) Most people are not interested in knowing answers to big questions.
- (d) Most scientists do not understand physics.

1.2 Which among the following most accurately reflects the author's views on science fiction books and futuristic television series, as set out in the passage above?

- (a) They are extremely entertaining, and all of us should read such books and watch such television series.
- (b) They are very educational, and can act as a substitute for serious scientific research.
- (c) They are based on irrational or supernatural ideas, and have replaced old myths about how the world came to be.
- (d) They are often expensive, and the government should make efforts to subsidise them and make them more widely available.

- 1.3 A scientist has just made a breakthrough discovery in theoretical physics, and thinks that everyone should know about it. She has prepared a technical essay, which explains the theory using complicated mathematical equations and difficult scientific terms. Which among the following would the author be most likely to suggest to her in order to get more people to understand her discovery?
- (a) She should simplify the language in the essay, and avoid using equations.
 - (b) She should present the paper as it is, and let people try and figure it out for themselves.
 - (c) She should add some illustrations to the essay.
 - (d) She should remove some key pieces of information from the essay, so that people have to try and figure out the answers for themselves.
- 1.4 Which of the following, if true, would most weaken the author's argument in the passage above about whether most people would be interested in understanding scientific ideas?
- (a) Most people are only interested in things of immediate concern to them; they do not care about larger issues.
 - (b) Most people would be willing to try and understand scientific ideas if they were presented in a manner that is easier to understand.
 - (c) Both, (a) and (b).
 - (d) Neither (a) nor (b).
- 1.5 The author says that "One of the great revelations of the space age has been the perspective it has given humanity on ourselves." Which of the following, if true, would most strongly support this statement?
- (a) Humanity has always regarded ourselves as a whole.
 - (b) Before we saw the Earth from space, humanity had never seen itself as a whole.
 - (c) Historically, people have never noticed the differences between themselves, but these became apparent once we saw the Earth from space.
 - (d) Humans cannot comprehend the meaning behind the image of the Earth seen from space.
