Reading Comprehension passage

Passage 1

While his professional work is primarily in elementary particle physics, Steven Weinberg became widely known to the general public with the publication of a book on cosmology, The First Three Minutes (1977), which presented a lucid and fascinating story of the early development of the universe with style and elegance. His new book, Facing Up: Science and Its Cultural Adversaries, which consists of a collection of twenty-three equally well-written essays, documents the personal commitment of the author to promoting and defending his scientific views. Weinberg captures the interest of his readers by combining balanced judgments and modest claims about current scientific theory with a passionate defense of reductionism.

While Weinberg defends reductionism, he is careful to distinguish it both from what he calls "positivism," which he under- stands to be a narrow empiricism, and from "petty reductionism," which seeks to reduce everything to elementary particles. The reductionism Weinberg advocates is the program of reductive explanation of physical phenomena by recourse to even more fundamental and simple laws that are supposed to account for the unity of the universe. He shows that this was already Newton's vision and continued to be the driving force behind the great theories of the last century, those of General Relativity and the standard quantum field theory. Going further, he predicts that such reductionism will one day produce a "final" theory that can account for the unity of the universe.

Up to this point, Weinberg's defense of reductionism makes considerable sense. Yet the question remains as to whether explanation by laws provides the only or the ultimate explanation for the unity of the universe. The concept of law involves abstraction from particularities, but those particularities have to be taken into consideration when those laws are applied to the course of natural events. With regard to the history of the universe, Weinberg himself speaks of "historical contingencies" in the history of the solar system and in the development of life. He also acknowledges the idea of an "emergence" of forms of higher organization from increasingly complicated systems. But doesn't that suggest that the unity of the universe is finally a unity of history, which is different from the generality of laws? And history is always a sequence of contingent events, regardless of the laws that may prevail within the flow of those events. Perhaps, then, the modesty of the scientist might properly be applied to his larger project of subsuming the universe as a whole under a universal concept of law. Such a modest approach might have to give up the quest for the ultimate and most comprehensive description of the nature of the universe. But it would make room for some additional, philosophical reflection on the reality of nature.

One of the most important contributions of Weinberg's book is his ongoing argument against the "social constructionists" who question the truth claims of science. This is an issue of very general importance, far beyond the philosophy of science. With every assertive sentence, we raise truth claims that cannot be reduced to social conventions. Science is only a particularly obvious case. Weinberg acknowledges the influence of social and cultural conditions in the history of science. But these influences do not weaken the truth claims of scientific theories. The same is true of any other truth claims we raise in everyday life or in

other fields of culture. The "realism" of science, which Weinberg advocates, might serve as an example and antidote against the excesses of postmodernism.

The "cultural adversaries" of science to whom Weinberg refers in his title are those social constructionists who tend to relativize the truth claims of scientific theories. But even worse than these academic theorists would be an alliance between the "antiscientific intelligentsia inside the universities" and "the enormous force of religious belief." Here, apparently, he has in mind the religious fundamentalism of the creationists. But could such an alliance pose a real threat to the cultural acceptance of science? Is not science pampered by the political establishment in Western societies like no other intellectual discipline? Among the general public, scientists are highly regarded, and most religious people share in that positive appreciation of science, since they do not believe that science and religion are opposed to one another.

While in the course of modern history there have been occasions when science has opposed religious teaching as well as other traditional ways of looking at the world, the most creative scientists have far more often been motivated by religious inspiration. Moreover, Christian theologians and churchmen have frequently and gratefully received the new perspectives offered by scientific discoveries. This is true even in the case of Darwinism, which was one of a number of evolutionary theories proposed in the nineteenth century, many of which arose from religious reflection. At the present moment, when the number of institutions that seek to foster dialogue between religion and science continues to grow, most religious people view science as a positive pursuit that at the deepest level harmonizes with their faith.

In fact, such a positive attitude is arguably easier to maintain at the present moment than it was in earlier centuries, since Big Bang cosmology removes the apparent contradiction between the biblical doctrine of creation and the belief in a temporal and spatial infinity of the world that had been taken for granted during two centuries of scientific exploration. Of course, the assumption of an origin of the universe at some finite point in the past does not "prove" the biblical doctrine of creation, but it is "consonant" with it, to invoke the useful term of Ernan McMullin.

The same applies to the idea of God as creator. Weinberg takes a skeptical position on this matter, and some of his arguments are not without plausibility. He dealt with this issue more extensively in his earlier book Dreams of a Final Theory (1993), in which he devoted an entire chapter to "the question of God." Even a Christian theologian can share Weinberg's reservations concerning the stronger versions of the anthropic principle and the related idea of a "designer God." The idea of a designer sounds rather anthropomorphic, and it is often presented in forms that are hardly consonant with God's infinity and eternity. In the Bible, the contingency of finite reality of each event and even of the world as a whole, including the element of order within it, is far more important in expressing its dependence upon God the creator.

Weinberg has little to say on this issue, which is decisive for those who maintain the rationality of belief in a creator God. The element of design enters the picture only as an implication that follows from the act of creation and God's ongoing relation to the universe as a whole—a whole within which every part has its proper place. Of course, such a view culminates in the problems of theodicy, and here the Christian has to join Weinberg in affirming

that all of our knowledge is approximation, even our theology. Not until the eschatological consummation of history will we know even as we are known by God.

1. **How does Weinberg bolster the truth claims being advocated by the emerging scientific theories?**

(1) By making balanced judgements about current scientific theory.

(2) By countering the arguments of the group that raises questions on the truth claims of science.

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(3) By proposing a few radical theories that would silence critics of the truth claims of science.

(4) By doing all of the above.

2. **Which of the following is true of Weinberg's concept of reductionism?**

(1) It is akin to narrow empiricism.

(2) It reduces everything to elementary particles.

(3) It uses fundamentally complex laws to illustrate the unity of our universe.

(4) It uses laws that explain the unity of the universe.

3. **Which of the following is true regarding Weinberg?**

I. Weinberg is sceptical of the existence of God and deals with this issue in his book "Dreams of a Final Theory"

II. Weinberg has little to say regarding the issue which is critical to those who believe in a "creator" God.

III. Weinberg believes that the alliance of the anti-science group from the universities and groups with strong

religious moorings would be potentially less destructive than the 'Social constructionists'.

(1) Only I (2) Only II (3) Only I and II (4) Only II and III

4. **The slackening of the belief by scientists of the existence of a law which governs the universe would lead to**

(1) philosophical cogitation on the reality of nature.

(2) abandonment of the holy grail of reductionism, which could one day produce a final theory that would account

for the unity of the universe.

(3) a moral victory for the social constructionists and disgrace for the scientific community.

(4) Both (1) and (2)

5. **Which of the following could be responsible for most religious people viewing science positively?**

(1) The partial resolution of the dichotomous and convergent views held by scientists and religious groups.

(2) The proposing of the Big Bang theory.

(3) The influence of the advances of modern science which has led to a significant improvement in the quality of life.

(4) At least two of the above.

6. **Which of the following is definitely true in the context of the passage?**

(1) None of the truly creative scientists have been motivated by religious beliefs.

(2) Darwinism, though apparently conflicting with religious beliefs, has been accepted by many Christian theologians.

(3) Most religious people are opposed to science as they feel that it has negatively affected the spiritual evolution of humans.

(4) The final theory that can account for the unity of the universe has its base in religion.

Passage 2

"Mother Nature is taking over. An extraordinary feminisation process has begun to affect Britain's wildlife–and scientists warn it could ultimately dismantle the evolutionary process that has existed for 3.5 billion years. A trend first noted in whelks is starting to spread rapidly among other wildlife species in the food chain. The first national survey of 42 rivers by the UK Environment Agency has just been completed and it found that a third of male fish are growing female reproductive tissues and organs. Effects were most pronounced in younger fish, raising grave implications for future stocks.

Scientists now fear that seals, dolphins, otters, birds such as asperegrine falcons and even honeybees are heading towards a unisex existence that would lead to extinction. Blame has fallen on the increasing prevalence of a group of chemicals known as endocrine disruptors. These are found in plastics, food packaging, shampoos and pesticides and accumulate in the environment. They can mimic the female hormone oestrogen when ingested. A reduction in the size of male genitals and parts of the testes turning into ovary tissue are among the symptoms. As the effect of the chemicals starts to creep up the food chain, concern will mount over the potential effect on human health amid increasing evidence of falling sperm count and infertility among men.

Charles Tyler, Professor of environmental and molecular fish biology at the University of Exeter in south-west England, who is leading an international team studying the impact of so-called gender-bending chemicals, warns that a point where a species can no longer reproduce is a very real concern. Others studying the phenomenon say the

feminisation process is a warning from nature that a nightmare is about to unfold. Pressure will soon resume on politicians, to curb the use of 'gender-bending' chemicals.

Environmentalists will point to research revealing that honeybees, so vital for the pollination of plants, were found to display a lower sex drive with fewer eggs laid by the queen after exposure to endocrine disruptors. They also point to recent studies involving bottlenose dolphins in the North Sea. Again, the presence of chemicals has been linked to an increase in birth defects, most notable among male specimens, along with more infant deaths, which has resulted in an ageing of the population. So far, the UK government has agreed to fund studies into suspicions that the otter's comeback after decades of decline will be hampered by the feminising effects of the chemicals.

A separate study has just been funded into the dipper, a bird, which feeds on invertebrates taken from the rivers. Tyler is among those who have complained that the huge gap in scientific knowledge over gender-bending pollutants has so far prevented any action in the outlawing of chemicals. Toxicology expert Andreas Kortenkamp of the University of London's school of pharmacy, believes that the government has 'grossly underestimated' the chemicals' effects. He believes that current safeguards to protect wildlife are grossly inadequate. In particular, he warns that nothing is being done to calculate how cocktails of chemicals react in the environment. More than 100,000 synthetic chemicals remain authorised for use, with the European Union holding a list of 550 potential endocrine disruptors.

It is not yet known precisely which ones have altered the male reproductive organs of bream, carp, roach and gudgeon or caused hormone disruption among grey seal pups in the North Sea. Bees were found to be affected by chemicals used commonly on crops in the UK countryside. The findings coincide with renewed concern over fertility levels among men. Sperm counts have fallen by a third between 1989 and 2002, according to some studies, while one in six British couples now experience difficulty in conceiving. Contaminated drinking water caused by the by-products of the contraceptive pill flowing back into the system is one of the explanations put forward. Justin Woolford, a spokesman for the WWF (formerly the World Wide Fund for Nature), said: "What we do to wildlife we ultimately do to ourselves." Yet almost two years have passed since the WHO urged governments to investigate the effects of gender-bending chemicals.

7. **The evidence of gender-bending is seen in**

A. birth defects among male dolphins in the North Sea.

B. fewer eggs laid by honeybees after exposure to endocrine disruptors.

C. young male fish developing female reproductive tissue.

D. the feminisation displayed by wildlife in Britain.

(1) Only (A) and (B) (2) Only (B) and (D) (3) Only (A) and (C)

(4) All four statements

8. **According to Charles Tyler, the gender-bending chemicals have not been outlawed so far because**

(1) scientific knowledge about gender-bending pollutants is not comprehensive enough.

(2) the government has grossly underestimated the effects of these chemicals.

(3) we are helpless in the face of a cocktail of chemicals.

(4) there are more than 100,000 synthetic chemicals in use of which at least 550 are endocrine disruptors.

9. **We can infer from the passage that the opening sentence refers to**

(1) the process of feminisation that has been witnessed in whelks.

(2) the warning from nature that a nightmare is about to be unleashed.

(3) the reaction of environmentalists to the potential hazards of gender-bending chemicals.

(4) nature asserting herself against infringement on her territory.

10. **According to the passage, plastics are the culprits in 'feminisation', in so far as**

(1) they are non-biodegradable.

(2) their production and use is not restricted.

(3) they contain a mixture of chemicals.

(4) they violate nature's harmony.