

## My Revision Notes: AQA AS Religious Studies: Religion and Ethics and Philosophy of Religion

### AS Unit D Religion, Philosophy and Science

#### 4.1 Miracles

**(a) Explain the difficulties raised for religious believers by defining a miracle as ‘an amazing coincidence of religious significance’.**

For most religious believers, miracles are seen as an intervention by God, usually in answer to prayer, to bring about a positive happening that would not have occurred in the normal course of events. Therefore, miracles are seen as objective events. If God had not intervened, then the event would not have happened.

Defining miracles as ‘an amazing coincidence’ removes this concept of God intervening. The event is seen as a lucky coincidence. There is no direct indication that God is in any sense involved. Clearly, such a view removes miracles from the religious arena. The ‘amazing’ aspect of the event is merely its unexpected nature which makes no claims to God being the cause.

The ‘religious significance’ is subjective, in that it is dependent on the subject interpreting some religious significance to the event. The religious believer may see this as a problem since it is not clear that there is in fact any religious significance to the event described as a ‘coincidence’. If it is a coincidence the subject may be reading some significance into the event that is false. The coincidence did not involve God. Indeed, the event has no significance- it is merely a coincidence.

Therefore, the religious believer may be concerned that such an event is open to false interpretation. In contrast, the miracle that breaks a law of nature gives objective evidence for believing that the event is significant since it involves an intervention by God.

Hence, a miracle defined as an amazing coincidence of religious significance can be explained without recourse to a God, and any deeper meaning being read into the event may be unwarranted and purely subjective. It would seem that only if a person interprets the event as a miracle can the event be called a miracle. This definition makes miracles irrelevant for many religious believers.

In addition, many religions include miracles in sacred texts as evidence of a God. If miracles are seen as just coincidences, then those events in the sacred texts would need to be reinterpreted, and this would raise difficulties for many religious believers.

**(b) Assess the extent to which defining a miracle as 'violation of a law by a supernatural agent' overcomes these difficulties.**

The main difficulty raised by defining a miracle such that God is not involved (an 'amazing coincidence') is immediately overcome by the clear reference to 'a supernatural agent'. It is also consistent with God's nature and purposes (e.g. wanting to make himself known). The 'coincidences' are now seen as deliberately caused by God and so it is reasonable to think that there is a purpose in the events that has religious significance. No longer is a miracle seen as subjective -- there has been a violation of a law of nature. It is an objective event. In addition, this understanding of a miracle seems more consistent with events recorded in sacred texts.

However, there seems a weakness in this definition. Richard Swinburne used the example of God violating the laws of nature 'to make a feather land here rather than there for no deep ultimate purpose'. He argued that such an example may be a violation of a law of nature but it would seem inappropriate to call it a miracle. Hence, the definition requires more than just 'violation of a law by a supernatural agent'. It requires some reference to religious significance.

The definition referred to in part (a) may not actually raise any difficulties since in general a religious believer's understanding of the universe would be that God works through nature rather than intervenes by breaking laws. Indeed, some religious believers would reject the whole notion of violations of a law by God and so find more difficulties with this second definition than the one in part (a).

## 4.2 Creation

### (a) Explain the 'Big Bang' theory.

Although some scientists disagree about the exact details, the basic premise of the 'Big Bang' theory is that some 13.7 billion years ago nothing existed, not even space itself. Then a space-time singularity appeared. This was an infinitely small and infinitely dense ball of energy. It did not appear in space; rather space began inside the singularity.

After  $10^{-43}$  seconds of its initial appearance, the singularity started to expand. So there was no 'big bang' explosion of matter that moved outwards from a single point. A better analogy is that of a balloon: not a balloon popping and releasing its contents, but more like a balloon being blown up and continually growing.

There was a temporary, very rapid period of expansion. As the singularity expanded, it started to cool. Between  $10^{-12}$  and  $10^{-6}$  seconds, the fundamental particles (quarks) appeared. Then, between 1 and 10 seconds, electrons formed followed by photons (light).

Between 300,000 and 500,000 years after the initial appearance of the singularity, atoms formed. This is usually regarded as marking the end of the Big Bang. After about 100 million years, as the cooling continued, galaxies and stars started to form. In recent years, there has been evidence that supports the Big Bang creation model. For instance, cosmic microwave background radiation has been discovered. This is thought to be some remnant of heat from the Big Bang and is consistent with the theory's suggestion that the universe in its initial stages was extremely hot.

The Big Bang creation model predicts the relative occurrence of hydrogen and helium in the universe. The predictions match what we actually find in the universe. Edwin Hubble found evidence that every galaxy is moving away from every other one. Again, this is consistent with the idea of an expanding universe and the Big Bang creation model.

### (b) To what extent do scientific views of the origin of the universe leave no room for God?

For many, the Big Bang theory is seen as being consistent with the claim that there is a God. The universe had a beginning and time and space came from nothing. Natural explanations of the appearance of the singularity are rejected and God is seen as the explanation of the singularity and the Big Bang, so without God there would have been no universe. Indeed, in 1951 Pope Pius XII declared approval for the Big Bang theory based on this understanding. Hence, the scientific view of the origin of the universe can be seen to embrace the need for a God as the ultimate explanation of something from nothing.

However, others regard the introduction of God as an explanation as unconvincing. They argue that there are more convincing explanations and there is no need to resort to God as the explanation. Indeed, this "God of the gaps" approach

(i.e. where gaps in scientific knowledge are taken to be evidence or proof of God's existence) leads to belief in God diminishing as science explains more and more. The alternative natural explanations include the view that string theory may provide an answer together with the theory that there are possibly an infinite number of universes. Others look for explanation in quantum physics and the uncertainty principle as they support the theory of a spontaneous creation of particles. In response, religious believers challenge the view that scientific method is the only valid source of knowledge. Many religious believers think God is always at work in the natural world. God is not hiding in the recesses of the unknown or excluded from the rest of nature. Indeed, the more they understand the workings of the universe, then the more they see evidence of God. Therefore, scientific views of the origin of the universe still leave room for God. God can be the cause of what are deemed 'natural explanations'. For many, the deciding factor will be whether natural explanations are accepted as complete explanations. Perhaps only God gives a complete explanation that requires no further explanation; in which case the scientific views of the origin of the universe do leave room for God.

### 4.3 The design argument

#### (a) Explain Paley's design argument for the existence of God. (30 marks)

Paley's design arguments reflect the seventeenth-century thinking that viewed the universe as a man-made machine. Using an analogy of a watch, he argued that the features of the watch rule out that its existence it happened by chance; it must be the product of an intelligent mind, that designed it to do what it does. For instance, all the parts of a watch fit together and achieve the purpose of telling the time. The watch demands a watchmaker and no naturalistic explanation would be acceptable. Paley then argued that in a similar way the universe fits together, for a purpose and so demands an intelligent designer. Because of the nature of the universe, the designer would have to be God.

The argument rests on the premise that objects in nature (such as the eye) are analogous to manufactured machines; and analogous effects have analogous causes. Therefore, objects in nature are the result of something analogous to an intelligent designer. The only agent that could be responsible for the design of the universe must be God.

Paley also argued that the regularity observed in the universe demanded an intelligent mind as explanation. He used scientific findings from his own time as evidence. For instance, he referred to the way planets obey laws in their movement. The whole universe, and all its parts, seem ordered and act in a regular and predictable way. According to Paley, the agent responsible for such order and regularity must be God.

#### (b) 'Paley's design argument for the existence of God has more weaknesses than strengths.'

##### To what extent do you agree? (15 marks)

Although Hume lived prior to Paley, Hume had already attacked a similar form of Paley's design argument. Hume had highlighted a number of criticisms of the argument that many regard as persuasive. Therefore, the argument is seen as weak. In particular, Hume had seen the analogy of a machine as flawed. He did not think the world was like a machine since it was more organic than mechanical. Hume suggested a carrot would be a better analogy as it is organic.

Another criticism argued that the closer the analogy is drawn between the universe and man-made machines, the more God becomes like a human being. Indeed, the basic premise that similar effects imply similar causes can be questioned (e.g. different medicines can produce the same healing).

However, many do not find these criticisms persuasive. For instance, they argue that vegetables do indeed show features of design. Also analogies, by their very nature, usually make one telling point. The pictures they use cannot be interpreted rigidly in every detail.

So, perhaps the criticisms do not substantially weaken Paley's argument. Many feel that Paley's argument has more strengths than weaknesses.

They note that science shows how finely tuned the universe is. It is conducive to our survival. This seems deliberate rather than accidental. However, others point to evolution as providing non-supernatural explanations.

Strength is added to the design argument when it is considered as part of a cumulative argument for God. However, the argument is inductive so at best can only lead to degrees of probability rather than actual proof.

Overall, the design argument for the existence of God does provide a complete explanation and providing the replies to the criticisms to Paley's argument are convincing, the strengths can be seen to outweigh the weaknesses.

## 4.4 Quantum mechanics and a religious world view

### (a) Explain key ideas in the world view of quantum mechanics.

Quantum mechanics has changed the way that scientists view the behaviour of matter in the universe. The atom is no longer regarded as the smallest bit of reality. Quanta are packets of energy at the subatomic level and energy can come in the form of little packets rather than just in waves.

The two-slit experiment by Thomas Young had demonstrated that light was not composed of particles but was in fact a wave. But in 1905, Albert Einstein showed that light could behave as if it were a particle. Some years later in the 1920s, Louis de Broglie developed the theory that all quantum entities share a wave-particle duality. It wasn't until years later that with suitable technology his theory was demonstrated to be correct. Matter (electrons) and energy (photons) both exhibit wave-particle duality, but they cannot be both wave and particle at the same time.

Further experiments showed that observing the electrons influences the outcome as to whether it acts as a wave or a particle. The observer is not a mere spectator but becomes an actor, affecting what is happening. This suggests that science cannot have a 'real' picture of the electron and this lack of certainty undermines the Newtonian principle of determinism. Heisenberg calculated that it is possible to measure the position of an electron and its momentum, but you cannot measure precisely both at the same time.

Quantum mechanics has led to a division in scientists' thinking about the nature of reality. Some think it is just a lack of knowledge rather than matter being unpredictable. Others argue that there will always be some uncertainty about these particles. Niels Bohr argues that the very act of measurement affects what we observe. The scientist must accept that his or her involvement will shape the outcome of the experiment itself. It is no longer clear what is objectively real. In reply, Schrodinger challenged Bohr's view by means of his illustration of the cat in a box. His aim was to point out how absurd Bohr's views were. Another view interpreting quantum theory is the many-worlds view. Instead of reality being viewed as a single unfolding history, the many-worlds interpretation views reality as a many-branched tree, wherein every possible quantum outcome is realised.

### (b) 'Quantum mechanics shows that science and religion are not at war with each other.' Assess this claim.

This depends on how literally a religious believer interprets their religious texts. Some may regard religious texts as non-literal and therefore see no conflict with scientific findings. Others may interpret religious texts more literally in terms of the way the world is and this could lead to conflict.

Quantum mechanics has raised the question of the nature of reality and whether it can ever be known. Some scientists do not consider their uncertainty objectively real: it is just lack of present knowledge and, given time, science will explain everything. This naturalistic view of the universe excludes a supernatural God and so is in conflict with religion. However, many scientists do not think science can explain everything. In a quantum world there seems no exact fit for reality. Therefore, the possibility of God is not ruled out.

Indeed, quantum mechanics supports the religious view. For instance, in the mystical notion of unity where there is no subjective/objective divide. Quantum mechanics reveals a more mysterious world, a world that is difficult to describe. Mystical traditions also refer to the ineffability of religious experience. This suggests that science and religion are not at war.

The unpredictability of nature indicated by quantum mechanics allows for the idea of God controlling the world at a subatomic level. This could indicate the involvement of God within creation at all levels.

However, the idea that quanta appear without causation is in conflict with the religious notion of an ordered, purposeful creation.

So, quantum mechanics in some ways is at war with religion in that it contradicts it and denies it. However, in other instances, it supports a religious understanding and so there is no conflict.