



GSOC.AL20 Religion, Science and Ideology as Competing Belief Systems

AQA 7192 · Calculators not allowed · about 80 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Write at least three full-sentence answers for the three extended questions (Q7, Q11, Q16). Use sociological terms where relevant. Spend about 80 minutes in total.

- 1** Which one of the following best describes Karl Popper's view of science as a belief system?
- ☐ A) Science is based on accumulating proofs that confirm theories
 - ☐ B) Science advances by falsifying theories that can be tested and found false
 - ☐ C) Science is identical to religious faith in its methods
 - ☐ D) Science progresses only when scientists agree on a single paradigm

(Total for Question 1 is 1 mark)

- 2** Define what sociologists mean by a 'paradigm' in the context of Thomas Kuhn's account of science as a belief system.

(Total for Question 2 is 2 marks)

- 3** Identify and explain one way Horton distinguishes between open and closed belief systems when comparing science and religion.

(Total for Question 3 is 4 marks)

- 4** Identify and explain two features of Kuhn's idea of paradigm shifts in scientific knowledge.

(Total for Question 4 is 4 marks)

- 5** Describe one practical implication for scientific research if Popper's falsificationism is accepted as the proper scientific method.

(Total for Question 5 is 3 marks)

- 6** Item A: A short extract describing two claims about belief systems. "Claim 1: Science uses systematic testing and can revise theories when evidence conflicts. Claim 2: Some political ideologies claim a single truth that must not be questioned." Using Item A and your own knowledge, explain one similarity between political ideology and religion as belief systems.

(Total for Question 6 is 4 marks)

7 Outline and explain two differences between science and religion as belief systems, using Popper, Kuhn or Horton where relevant.

(Total for Question 7 is 6 marks)

8 Describe two features of Kuhn's idea of 'normal science' that distinguish it from revolutionary science, in the context of comparing scientific belief systems with other belief systems.

(Total for Question 8 is 4 marks)

9 Define Popper's idea of falsification as it applies to scientific claims.

(Total for Question 9 is 2 marks)

10 Explain Horton's distinction between open and closed belief systems and give one example of each in the context of religion, science or ideology.

(Total for Question 10 is 4 marks)

11 Analyse two ways in which science can be seen as a belief system similar to religion, using Popper, Kuhn, Horton and other sociological ideas where appropriate.

Analyse two ways in which science can be seen as a belief system similar to religion.

(Total for Question 11 is 12 marks)

12 Outline and explain two ways political ideology can function like religion as a belief system, naming at least one relevant sociological perspective.

(Total for Question 12 is 6 marks)

13 State one common criticism of Popper's falsification as a complete account of scientific practice.

(Total for Question 13 is 2 marks)

14 Explain in two or three sentences Jean-Francois Lyotard's postmodern challenge to grand narratives and how this applies to claims of objective truth in both science and religion.

(Total for Question 14 is 4 marks)

15 Describe one way Marxist sociologists argue ideology supports the ruling class.

(Total for Question 15 is 3 marks)

16 Discuss how far sociologists would agree that religion can still be meaningfully distinguished from science and ideology as belief systems.

Discuss how far sociologists would agree that religion can still be meaningfully distinguished from science and ideology as belief systems.

(Total for Question 16 is 12 marks)

Mark scheme · GSOC.AL20 Religion, Science and Ideology as Competing Belief Systems

Question 1

- **B1** B (science advances by falsifying testable theories)
- **Answer: B**

Question 2

- **B1** identifies a paradigm as a shared set of theories, methods and assumptions used by a scientific community (oe)
- **B1** development, e.g. it guides what counts as valid questions and acceptable answers within a field
- **Answer: A paradigm is a shared set of theories, methods and assumptions used by a scientific community; it guides what counts as valid questions and acceptable answers within that field.**

Question 3

- **B1** identifies a correct difference, e.g. Horton says science is open while religion is closed
- **B1** explains what open means, e.g. open systems allow criticism and testing of beliefs
- **B1** explains what closed means, e.g. closed systems defend core beliefs from disproof
- **B1** links the distinction to comparing science and religion, e.g. science changes in response to evidence while closed religious belief resists contradictory evidence
- **Answer: Horton distinguishes that science is an open belief system and religion a closed one: open means beliefs can be criticised and tested, while closed means core beliefs are defended from disproof; thus science changes with evidence whereas closed religious belief resists contradictory evidence.**

Question 4

- **B1** identifies feature one, e.g. normal science works within a paradigm solving puzzles
- **B1** explains feature one, e.g. scientists use shared methods and assumptions to extend the paradigm rather than question it
- **B1** identifies feature two, e.g. anomalies build up leading to crisis
- **B1** explains feature two, e.g. when anomalies cannot be solved, a revolutionary shift replaces the old paradigm with a new one
- **Answer: One feature is that normal science operates within a paradigm solving puzzles using shared methods; another is that accumulating anomalies can cause a crisis, leading to a paradigm shift where a new framework replaces the old.**

Question 5

- **B1** identifies a practical implication, e.g. researchers design tests that could refute a hypothesis
- **B1** development, e.g. emphasis on risky predictions that could show the theory false
- **B1** further development or example, e.g. peer review focuses on attempts to disprove rather than confirm results
- **Answer: If Popper is accepted, researchers design tests that could refute hypotheses, emphasise risky predictions likely to show a theory false, and peer review focuses on attempts to disprove results rather than only confirm them.**

Question 6

- **B1** identifies a similarity, e.g. both can be totalising systems that demand conformity and discourage questioning
- **B1** develops similarity with reference to Item A, e.g. Item A's Claim 2 shows some ideologies claim a single truth similar to certain religious doctrines
- **B1** further development, e.g. both can provide moral frameworks and rituals that bind followers
- **B1** applies sociological terminology or example, e.g. Marxist critique of ideology as 'false consciousness' or examples like nationalism acting like a secular religion
- **Answer: Both political ideology and religion can be totalising belief systems that demand conformity and discourage questioning, as Item A's Claim 2 suggests; both provide moral frameworks and rituals that bind followers, a point used by Marxists who describe ideology as creating false consciousness or by commentators who compare nationalism to secular religion.**

Question 7

- **B1** identifies difference one, e.g. science is open to falsification while religion is often closed
- **B1** explains difference one with reference, e.g. Popper's falsificationism says scientific claims must be refutable, Horton says open systems allow testing, whereas religious doctrines are frequently protected from refutation
- **B1** identifies difference two, e.g. science uses paradigms and communal agreement within research communities while religion relies on faith and revelation
- **B1** explains difference two with reference, e.g. Kuhn shows science operates under paradigms that can change after debate and evidence, whereas religion often bases belief on sacred texts or revelation not empirical paradigm testing
- **B1** additional development for either difference, e.g. science changes through empirical crisis and paradigm shifts, whereas religion may change slowly or reinterpret doctrine
- **B1** further illustration or example, e.g. examples of a scientific paradigm shift and a religious doctrinal continuity
- **Answer: One difference is openness to refutation: Popper argues science requires falsifiability and Horton calls science an open system, while religion often protects core doctrines from refutation. A second is method and authority: Kuhn shows science works within changing paradigms and debates within communities, whereas religion often depends on faith, revelation or sacred texts rather than empirical testing; science therefore changes via crisis and paradigm shifts, while religious change tends to be slower or via reinterpretation.**

Question 8

- **B1** identifies feature one, e.g. normal science focuses on puzzle-solving within an accepted paradigm
- **B1** develops feature one, e.g. scientists accept core assumptions and extend them rather than challenge them
- **B1** identifies feature two, e.g. revolutionary science occurs when anomalies accumulate and a paradigm shift happens
- **B1** develops feature two, e.g. revolutionary science replaces the existing framework with a new set of assumptions and methods
- **Answer: Normal science focuses on puzzle-solving within an accepted paradigm, with scientists working to extend assumptions rather than challenge them. Revolutionary science happens when anomalies accumulate and the paradigm undergoes a shift, replacing the old framework with new assumptions and methods.**

Question 9

- **B1** identifies falsification as the requirement that scientific theories must be testable and capable of being proven false
- **B1** development, e.g. a good scientific hypothesis makes risky predictions that could show it false
- **Answer: Falsification is the idea that scientific theories must be testable and capable of being proven false; a strong scientific hypothesis makes risky predictions that could refute it if they fail.**

Question 10

- **B1** explains open belief systems, e.g. open systems allow criticism and testing of beliefs
- **B1** gives an example of an open system, e.g. modern empirical science
- **B1** explains closed belief systems, e.g. closed systems defend core beliefs and reject contradictory evidence
- **B1** gives an example of a closed system, e.g. certain religious doctrines or totalising political ideologies
- **Answer: Horton says open belief systems allow criticism and testing of beliefs, for example empirical science; closed systems defend core beliefs and reject contradictory evidence, for example many religious doctrines or totalising political ideologies.**

Question 11

- **Level 1** (1-3): Simple, limited analysis identifying basic similarities with little or no sociological explanation or examples.
- **Level 2** (4-6): Some analysis of two similarities with basic use of sociological ideas, but development is limited or one similarity is stronger than the other.
- **Level 3** (7-9): Clear analysis of two similarities with relevant sociological ideas and some evidence or example, showing awareness of nuance or limits.
- **Level 4** (10-12): Detailed, well-developed analysis of two similarities, using Popper, Kuhn, Horton and other relevant ideas, with good examples and consideration of counter-arguments or limits.
- **Indicative content:**
 - Similarity 1: both can create strong communities with shared commitments and rituals, for example scientific conferences and peer review compared with religious worship; reference to Durkheimian function of social cohesion as relevant background if used cautiously
 - Similarity 2: both rely on core beliefs or assumptions that guide practice, e.g. Kuhn's paradigms create presuppositions in science similar to doctrines in religion
 - Use of Popper: science claims to be open via falsifiability but in practice some scientific routines resist falsification, making it appear faith-like to outsiders
 - Use of Horton: closed characteristics can appear in scientific communities, for example protection of core theories until anomalies force change; thus science can show closed system features similar to religion
 - Social processes: authority and social hierarchy shape what counts as legitimate knowledge in both systems, for example senior scientists or religious leaders
 - Counter-arguments: stress the genuine methodological differences, such as empirical testing, institutional mechanisms for criticism and self-correction in science; Kuhn's paradigm shifts show scientific change unlike religious revelation
 - Examples: historical episodes such as resistance to plate tectonics or to early heliocentric ideas as cases where science behaved like a belief system before eventual shift
 - Balance and evaluation: students should weigh similarities against real differences and conclude with a supported judgement

Question 12

- **B1** identifies way one, e.g. ideology can provide totalising moral frameworks and sacred symbols
- **B1** explains way one with example, e.g. nationalism uses flags, ceremonies and myths similar to religious rituals
- **B1** identifies relevant perspective, e.g. functionalist view that ideology integrates society or Marxist view that ideology legitimises power
- **B1** identifies way two, e.g. ideology can demand unquestioning loyalty and suppress dissent like religion
- **B1** explains way two with example and perspective, e.g. fascist regimes created cults of leadership and used propaganda to enforce belief, a point emphasised by Marxist critiques of false consciousness
- **B1** additional development linking example to perspective, e.g. how ideology fulfils social needs or maintains class domination
- **Answer: Political ideology can act like religion by providing totalising moral frameworks and sacred symbols, for example nationalism uses flags and ceremonies similar to religious rituals, a point functionalists note about social integration or Marxists use to show legitimisation. It can also demand unquestioning loyalty and suppress dissent, for example fascist cults of leadership enforced by propaganda, which Marxists analyse as producing false consciousness that maintains class power.**

Question 13

- **B1** identifies a criticism, e.g. that scientists rarely discard theories immediately when an apparent falsifying result appears
- **B1** brief development, e.g. Kuhn and others argue science is social and complex so anomalies are often set aside or explained away until a paradigm shift
- **Answer: A common criticism is that scientists rarely discard theories immediately after an apparent falsifying result; Kuhn and others argue science is socially complex so anomalies are often set aside or explained until a paradigm shift occurs.**

Question 14

- **B1** identifies Lyotard's rejection of grand metanarratives, e.g. scepticism about single, overarching explanations
- **B1** explains application to science, e.g. science's claim to universal objective truth can be treated as one grand narrative among others
- **B1** explains application to religion, e.g. religious grand narratives are similarly seen as contested and culturally situated
- **B1** brief development or example, e.g. postmodernists emphasise local, plural knowledges rather than universal claims
- **Answer: Lyotard rejects grand metanarratives, arguing we should be sceptical of single overarching explanations. Applied to science, this means questioning science's claim to universal objective truth as only one narrative among many; applied to religion, religious grand narratives are likewise contested and culturally situated, with postmodernists favouring plural, local knowledges.**

Question 15

- **B1** identifies a Marxist claim, e.g. ideology legitimises existing inequalities
- **B1** develops with example, e.g. media or education present capitalist values as natural
- **B1** further development, e.g. this creates false consciousness among working classes
- **Answer: Marxists argue ideology legitimises existing inequalities by presenting ruling-class values as natural; for example media or education can promote capitalist values as common sense, creating false consciousness that prevents workers from recognising their exploitation.**

Question 16

- **Level 1** (1-3): Limited comment with few sociological ideas, little or no argument, assertions unsupported.
- **Level 2** (4-6): Some relevant sociological points and a basic attempt to weigh agreement and disagreement, but limited development and weak conclusion.
- **Level 3** (7-9): Clear argument with several sociological perspectives used to weigh similarities and differences, some evaluation and a supported conclusion.
- **Level 4** (10-12): Detailed, balanced discussion using multiple sociological perspectives and theorists, strong evaluation of the extent of agreement, and a clear, justified conclusion.
- **Indicative content:**
 - Arguments that religion is meaningfully distinct: Horton on closed belief systems vs science open systems; religion based on faith, revelation and sacred texts rather than empirical testing; functionalist points about religion offering collective conscience and rituals not matched by science
 - Arguments that religion overlaps with science or ideology: Kuhn shows science has paradigmatic commitments and communal authority similar to religious doctrine; Popperian ideal of falsification is not always followed, so science displays belief-like features; political ideologies can be totalising and ritualised like religion, as Marxists and critics note
 - Postmodernist critique: Lyotard argues grand narratives, including science and religion, are contestable, reducing sharp divides between them
 - Marxist perspective: ideology and religion both serve to legitimise social arrangements, so distinction is analytical but functionally similar
 - Examples and evidence: historical resistance to scientific ideas (e.g. Galileo, heliocentrism) where religious and scientific boundaries overlapped; examples of ideology using sacred language and rituals, e.g. fascist cults and national myths
 - Evaluation points: consider methodological differences and institutional mechanisms for testing in science, but also note social processes that make belief systems similar; assess the degree of distinction rather than a binary yes/no
 - Possible conclusion: a qualified position that some meaningful distinctions remain, especially in method and institutional testing, but sociologists emphasise important overlaps and social similarities, so the divide is not absolute