GCE 2004
June Series

ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark Scheme

Philosophy
A2 Unit 4 – Philosophy of Mind, Political Philosophy or Philosophy of Science (PLY4)

Mark schemes are prepared by thePrincipal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from:

Publications Department, Aldon House, 39, Heald Grove, Rusholme, Manchester, M14 4NA
Tel: 0161 953 1170

or

download from the AQA website: www.aqa.org.uk

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales 3644723 and a registered charity number 1073334. Registered address AQA, Devas Street, Manchester. M15 6EX. *Dr Michael Cresswell Director General*

Theme: Philosophy of Mind

NB The following marking notes are not prescriptive and do not constitute 'model answers'; they are intended as an 'aide-memoire' for Examiners. Marks should be awarded in accordance with the levels-of-response marking criteria.

1 **Total for this question: *50 marks***

(a) Describe and illustrate **two** reasons for holding that mental states are brain states. *(18 marks)*

Knowledge and Understanding (9 marks)

Candidates will probably briefly identify this as the identity theory, and possibly as a type-type identity theory. There may also be general references to materialism or physicalism. Brief exposition may also discuss whether it is the case or whether it will turn out to be the case that mental states are identical to brain states. However, full marks can be obtained for a detailed and precise account of **two** reasons for holding this view without further identification or exposition of the view. These are likely to draw from:

- The explanatory success of the neuro-sciences.
- The neural dependence of mental phenomena. (N.B. two reasons may be drawn from this, e.g. the impact of drugs on mental states, the impact of brain damage on mental states).
- The physical origin and constitution of the individual and/or evolutionary explanations of the development of consciousness in relation to brain capacities.
- The ability to explain mental causation by bringing it into the physical domain and/or the need to rid the world of nomological danglers in the interests of unified science.

Other relevant reasons should also be rewarded.

7 – 9 Demonstrates detailed and precise knowledge and understanding of **two** reasons for holding that mental states are brain states.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of two reasons for holding that mental states are brain states, or narrow and detailed but partial knowledge and understanding, e.g. one reason is developed but a second is omitted, unclear or unconvincing.

1 – 3 Demonstrates some knowledge and limited understanding of reasons for holding that mental states are brain states.

0 No relevant philosophical knowledge and understanding.

Selection and Application (9 marks)

Illustrations, or a single illustration covering two reasons, might draw from:

- The difficulties faced by immaterialist theories in explaining the link between mind and body.
- The version of the identity theory advanced by anomalous monism together with an illustrative account of why conscious states, as causal states, have to be physical.
- Analogous examples of successful 'intertheoretic' reductions.
- The impact on consciousness of drug addition, dementia, etc. (This area provides the most likely source of illustrative examples).
- Inherited/genetic traits.
- Scientific explanations of various mental disorders or incapacities and/or compatibility with science more generally.

7 – 9 Selects, or constructs, at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of at least **two** reasons for holding that mental states are brain states.

4 – 6 Selects, or constructs, at least one relevant example to provide a partial explanation, lacking detail and precision, as an illustrative analysis of at least one reason for holding that mental states are brain states. Responses in this band may be characterised by detailed explanation rather than illustration.

1 – 3 Selects and applies at least one relevant point to provide a basic explanation and/or sketchy illustration of why mental states have been said to be brain states **or** some relevant points feature in a tangential approach to this issue.

0 No relevant philosophical points.

(b) Assess the view that materialist theories of the mind fail to account for consciousness and subjectivity. *(32 marks)*

Knowledge and Understanding (8 marks)

Candidates should address at least two materialist theories rather than, e.g. simply identify materialism with the identity theory.

- There may be references to behaviourism. Type and token identity theories, and anomalous monism; functionalism; eliminative materialism; biological naturalism.

It is likely that some account of why materialist theories developed in the first place will be given. This will involve either a brief critique of dualism and/or a brief statement of the mind-body problem. However, full marks can be obtained for a detailed and precise account of why (at least two versions of) materialist theories allegedly fail to account for certain aspects of consciousness. This is likely to involve a description of those properties of consciousness which cause problems for materialism. That is, it is inconsistent with the view that mental states are 'subjective' entities with a qualitative, private, incorrigible, 'touchy-feely', intentional and immaterial/non-physical nature.

7 – 8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to the view that materialist theories of the mind fail to account for consciousness and subjectivity.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and theories relating to the view that materialist theories of the mind fail to account for consciousness and subjectivity. Or narrow and detailed but partial knowledge and understanding of arguments and theories relating to the view that materialist theories of the mind fail to account for consciousness and subjectivity (e.g. one materialist position).

1 – 3 Demonstrates some knowledge and limited understanding of relevant arguments and theories relating to the view that materialist theories of the mind fail to account for consciousness and subjectivity.

0 No relevant philosophical knowledge and understanding.

Selection and Application (8 marks)

Discussion may involve some exposition of materialism (as indicated above) but this should be related to the question by raising some critical points. Depending on the materialist theories selected, some of the following, or equivalent, points should be discussed:

- The failure to give an adequate account of consciousness, the 'inner narrative' of a life.
- Failure to account for the intentionality of mental states.
- Failure to account for 'raw feels', absent qualia.
- The irreducibility of subjective features of mental events to objective physical processes.
- Whether mental events can be individually picked out and related to individual brain events or behaviour.
- Failure to explain behaviour.
- Whether mentality, or mental causation, falls under strict causal laws.
- Whether machines can think.

Or other relevant points.

7 – 8 Selects, or constructs, relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of the view that materialist theories of the mind fail to account for consciousness and subjectivity.

4 – 6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of the view that materialist theories of the mind fail to account for consciousness and subjectivity.

1 – 3 Selects and applies some relevant points to provide a basic analysis of the view that materialist theories of the mind fail to account for consciousness and subjectivity **or** some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

Interpretation and Evaluation (16 marks)

Evaluation should be present in consideration of points selected for discussion. Beyond this a number of responses are possible.

- A balanced argument: the view has some strengths and some weaknesses.

- An argument favouring materialism: the only plausible explanation of what the mind is and how it works. Support might be given for a particular materialist theory and/or for a general aim (such as to rid the world of nomological danglers in the interests of unified science). There may, for example, be some support for the view that consciousness can be replicated in numerous physical systems (AI and variable realisation), or for the view that the vocabulary of folk psychology is unnecessary (eliminative materialism), or that the features of consciousness are compatible with physicalism once the vocabulary is tidied up (biological naturalism and/or property dualism).

- An argument favouring dualism: insisting on the irreducible nature of mental properties and, following critical discussion, claiming that materialism cannot survive various criticisms.

13 – 16 Demonstrates the ability to interpret and integrate a range of points selected for discussion into a reasoned and coherent argument, sustaining relevance and directly addressing the question.

9 – 12 Demonstrates a critical appreciation of arguments and theories by evaluating some material and forming explicit judgements or summaries in relation to the question: responses in this band will advance a clear but inadequately supported position.

5 – 8 Evaluation is present within an exposition of arguments but is either implicit in a juxtaposition of theoretical approaches, briefly argued possibly with limited depth, scope and accuracy or poorly focused in relation to the specific question.

2 – 4 Demonstrates a simple and basic appreciation of a limited range of material, or of limited aspects of the issue. Discursive points may be listed, asserted with very little explanation, limited and poorly developed or may have limited relevance.

0 – 1 Little or no relevant philosophical insight.

NB The following marking notes are not prescriptive and do not constitute 'model answers'; they are intended as an 'aide-memoire' for Examiners. Marks should be awarded in accordance with the levels-of-response marking criteria.

2 **Total for this question: *50 marks***

(a) Describe and illustrate **two** criticisms of the view that personal identity depends upon psychological continuity through time. *(18 marks)*

Knowledge and Understanding (9 marks)

Some candidates may clarify the view in question prior to identifying criticisms: thus, a person is the same person at T1 and T2 if their mind/psyche (or mental history or memories) is continuous throughout T1…T2. There may be references to a Cartesian approach (mind as the 'essential' self) or to Locke (identity is determined by memory or the unity of conscious experience). Essentially, identity is given by "the same thinking thing in different times and places". However, this is not essential and it would be legitimate simply to identify and describe two critical points without first giving an exposition of the view. These are likely to draw from the difficulties of:

- Identifying and re-identifying an incorporeal substance as 'self' and/or whether it is possible to describe 'the same consciousness' as that which unites experiences without reference to body. The problem of 'ghostly' persons.

- Whether psychological continuity through time is a necessary condition of identity and/or whether it is a sufficient condition of identity.

- The implications of the memory criterion, forgetfulness and para-memory: whether a succession of different persons could inhabit the same body or whether the same consciousness could inhabit two bodies, etc.

- Whether 'survival' through time is a more useful concept than 'continuity' through time.

7 – 9 Demonstrates detailed and precise knowledge and understanding of two criticisms of the view that personal identity depends upon psychological continuity through time.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding, or narrow and detailed but partial knowledge and understanding of two criticisms of the view that personal identity depends upon psychological continuity through time, e.g. an account which is accurately stated but brief, lacking depth and detail, or an account in which only one criticism is described.

1 – 3 Demonstrates some knowledge and limited understanding of some aspect of personal identity relevant to criticisms of the view that personal identity depends upon psychological continuity through time.

0 No relevant philosophical knowledge and understanding.

Selection and Application (9 marks)

A wide range of potential illustrations are possible here and all well-focused (and hopefully imaginative) examples selected to illustrate understanding should be rewarded. Expect most illustrative points to focus on problem cases, including:

- Science fiction examples – such as examples of tele-transportation, disintegration and molecular reconstruction, etc. – all tend to focus on disruptions to bodily continuity in which psychological continuity is preserved *but* how much of a time-lag could there be in order for us to recognise the same self? Suppose the body was only partially reconstructed, or that mind was transferred to a different body, would we recognise the same self? Reincarnation raises the same issue as does downloading memories and characteristics onto machines or thought experiments about machine transference of minds.

- Individuals who lose and regain memories. False memories. Memories of past lives.

- Illustrative accounts of past and/or future selves in which survival is valued rather than continuity.

7 – 9 Selects, or constructs, relevant examples and applies these to provide a clear, detailed and precise illustrative analysis of two criticisms of the view that personal identity depends upon psychological continuity through time.

4 – 6 Selects, or constructs, at least one relevant example to provide a partial explanation either of only one point or lacking detail and precision as an illustrative analysis of two criticisms of the view that personal identity depends upon psychological continuity through time. Responses in this band may be characterised by detailed explanation rather than illustration.

1 – 3 Selects and applies some relevant points to provide basic explanation and/or sketchy illustration of two criticisms of the view that personal identity depends upon psychological continuity through time **or** some relevant points feature in a tangential approach to the question (e.g. one focused on bodily continuity).

0 No relevant philosophical points.

(b)	Assess the claim that only human beings can be persons.	*(32 marks)*

Knowledge and Understanding (8 marks)

A relevant knowledge-base will address some of the following issues:

- Because of the connection to personal identity this may be treated as a (legitimate) opportunity to discuss the psychological attributes of personhood. Thus, the concept of a person may be described in accordance with the classical approach as: a thinking thing, rational and reflective, self-aware and/or possessing awareness of oneself as a continuing subject of experience (or of having a past and a future), able to form goals and projects (possibly in accordance with a coherent 'inner' narrative), capable of higher order thought about the goals and motivations of others, a social being.

This may lead to a further discussion of familiar philosophical theories concerning the relationship between these 'essential' attributes of personhood and body – and particularly human bodies:

- A person is a Cartesian compound of body and soul. A person's rationality, emotions, desires and projects, etc. are reducible to statements about their behaviour. A person is identical to what underpins these attributes – the human brain. Being a person is functionally equivalent to possessing the above psychological attributes – some (all?) human beings possess them but so do some other beings (some animals, some machines). The concept of a person is logically primitive – it is that to which both psychological and physical predicates apply.

Alternatively, it would be legitimate for candidates to start by questioning whether the possession of such attributes is a matter of *kind* (or species) or a matter of *degree*. This might involve a discussion of human, animal and machine attributes without wider reference to positions on the mind-body problem.

7 – 8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to the claim that only human beings can be persons.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and theories relating to the claim that only human beings can be persons. Or narrow and detailed but partial knowledge and understanding of arguments and theories relating to the claim that only human beings can be persons (e.g. a treatment of one account of the relationship between mind and body).

1 – 3 Demonstrates some knowledge and limited understanding of aspects of relevant arguments and theories relating to the claim that only human beings can be persons.

0 No relevant philosophical knowledge and understanding.

Selection and Application (8 marks)

Depending on the approach taken, some of the following, or equivalent, points could feature in discussions:

- Certain psychological attributes may be both necessary and sufficient for personhood but this does not require reference to 'ghostly' human minds or souls.

- Anything exhibiting behaviour of a suitably complex variety might satisfy the criteria of personhood. This might lead to a discussion of animal or machine 'behaviour'.

- Identity theorists presumably have to link personhood to human beings if there is a strict identity between certain mental states and brain processes – but is there? How would we regard no-brain aliens who nevertheless exhibit attributes of personhood?

- The functionalist view that, in principle, artificially intelligent systems could (do?) satisfy the criteria of personhood.

- Personhood requires self-ascription and this requires other-ascription. Is this process necessarily linked to human behaviour or could we learn to self-ascribe in a community of robots or animals? If personal experience, and identity, includes awareness of others, could non-humans fill the role of the generalised other?

- If being a person is a matter of degree, then some human beings will not qualify and some non-humans will qualify as persons – personhood is dependent upon the biological/physical capacity to realise/enjoy certain psychological attributes, but the list of attributes is open-ended and personhood is contingent upon whichever biological/physical systems qualify as possessing these attributes (a mixture of functionalism and the animal attribute approach).

7 – 8 Selects, or constructs, relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of arguments and theories related to the claim that only human beings can be persons.

4 – 6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused (e.g. on the identity between necessary psychological attributes and human brain states) or lacking detail and precision, of arguments and theories related to the claim that only human beings can be persons.

1 – 3 Selects and applies some relevant points to provide a basic analysis of at least one theoretical approach to the claim that only human beings can be persons **or** some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

Interpretation and Evaluation (16 marks)

A range of argumentation, e.g. with the following points selected for discussion, is possible:

- all humans are persons no non-humans are persons;
- all humans are persons but so too are some non-humans;
- some humans are not persons and no non-humans are persons;
- some humans are persons and so are some animals, aliens and machines.

13 – 16 Demonstrates the ability to interpret and integrate a range of points selected for discussion into a reasoned and coherent argument, sustaining relevance and directly addressing the question.

9 – 12 Demonstrates a critical appreciation of arguments and theories by evaluating material and forming explicit judgements or summaries in relation to the question: responses in this band will advance a clear but inadequately supported position.

5 – 8 Evaluation is present within an exposition of arguments but is either implicit in a juxtaposition of theoretical approaches, briefly argued with limited scope, depth and accuracy or poorly focused in relation to the specific question (e.g. only one solution is assessed).

2 – 4 Demonstrates a simple and basic appreciation of a limited range of material, or of limited aspects of the issue. Discursive points may be listed, asserted without explanation, limited and poorly developed or may have limited relevance.

0 – 1 Little or no relevant philosophical insight.

Theme: Political Philosophy

NB The following marking notes are not prescriptive and do not constitute 'model answers'; they are intended as an 'aide-memoire' for Examiners. Marks should be awarded in accordance with the levels-of-response marking criteria.

3 **Total for this question: *50 marks***

(a) Describe and illustrate **two** criticisms of the view that freedom is the absence of constraint. *(18 marks)*

Knowledge and Understanding (9 marks)

The view will probably be recognised as the concept of negative freedom stressing freedom from, for example:

- Freedom from coercion and restraint;
- Freedom from interference in one's private life (providing one is not harming others) connected to the classical liberal concern to mark out a sphere of private life and/or define and limit the legitimate activities of the state.

It is not essential for candidates to provide any background as a platform for criticisms, therefore a legitimate approach would be to simply identify, describe and illustrate two appropriate criticisms. These may be drawn from:

- The view that freedom is merely the absence of constraint is compatible with determinism – does this provide an adequate sense of 'could have acted otherwise'?
- Similarly, within the framework that freedom and determinism are compatible, does some notion of positive freedom provide a more coherent account of rational action/motives for action?
- This view of freedom is bourgeois/ideological – freedom for the rich man and the tramp to sleep on the same park bench.
- It doesn't take into account what is necessary for individuals to be able to choose freely, acquire values, pursue goals, develop rational self-interest, etc.
- Situations in which the lack of constraint on one impacts upon another and/or the difficulties of distinguishing between what does and what does not cause harm to others.
- Whether this view is compatible with the political stability or functioning of society – does this require various constraints on the range of choices/values/goals that can be pursued?

Or any other reasonable point.

7 – 9 Demonstrates detailed and precise knowledge and understanding of **two** criticisms of the view that freedom is the absence of constraint.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** criticisms of the view that freedom is the absence of constraint. Or narrow and detailed but partial knowledge and understanding of the view that freedom is the absence of constraint (e.g. an account narrowly focused on Mill's one simple principle).

1 – 3 Demonstrates some knowledge and limited understanding of criticisms of the view that freedom is the absence of constraint.

0 No relevant philosophical knowledge and understanding.

Selection and Application (9 marks)

Examples, which may be constructed or selected from various sources, should illustrate **two** criticisms. Illustrations may draw from:

- The literature (e.g. the examples discussed in chapter 5 of *On Liberty*).
- Social issues (e.g. drug use, pornography).
- Social roles (e.g. parenting).
- Descriptions of conflicting individual tastes and behaviours.
- Political issues (e.g. compulsory education to 16, widening opportunities and more university places for under-represented groups, the impact of tuition fees and loans, strike action, pacifism, protest, etc).

These and/or other relevant illustrative points should be clearly related to the two criticisms selected.

7 – 8 Selects, or constructs, a relevant example or examples and applies these to provide a clear, detailed and precise illustrative analysis of **two** criticisms of the view that freedom is the absence of constraint.

4 – 6 Selects, or constructs, at least one relevant example to provide a partial illustration, either narrowly focused on one criticism or only illustrative of one criticism or lacking detail and precision as an illustrative analysis of two criticisms. Generalised accounts blurring a number of criticisms together should be placed in this band as should responses characterised by detailed explanations rather than illustrations of the selected criticisms.

1 – 3 Selects and applies some relevant points to provide a basic explanation and/or sketchy illustration of at least one criticism or some relevant points feature in a tangential approach to the question (e.g. there is a failure to focus the illustration on this notion of freedom).

0 No relevant philosophical points.

(b) Assess the view that we possess certain rights which cannot be taken away from us.
(32 marks)

Knowledge and Understanding (8 marks)

The view will probably be clarified as the view that:

- There are certain fundamental human or natural rights.
- These rights stem from our essential nature as human beings – they cannot be denied or surrendered.
- The basis of human or natural rights is that they are moral rights – they are inalienable, and binding regardless of particular legislation, customs or political institutions.
- They are rooted in natural law and/or God-given and/or apprehended through reason and connected to the flourishing of individuals (and communities).

It is also probable that candidates will indicate, at least briefly, what might be encompassed by this concept. For example: the right to life, liberty and property; the right to pursue happiness; the right to equality before (actual) law; various freedoms of thought and action, e.g. freedom of expression, freedom of worship, etc.

7 – 8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to the view that we possess certain rights which cannot be taken away from us.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and theories relating to the view that we possess certain rights which cannot be taken away from us. Or narrow and detailed but partial knowledge and understanding of arguments and theories relating to the view that we possess certain rights which cannot be taken away from us.

1 – 3 Demonstrates some knowledge and limited understanding of relevant arguments and theories relating to rights.

0 No relevant philosophical knowledge and understanding.

Selection and Application (8 marks)

Some of the following or equivalent points will be raised and discussed:

- References to historical attempts to define and legally enshrine human rights – e.g. the Declaration of the Rights of Man – and accompanying arguments that natural law informs actual law. To specify rights that everyone ought to have is to affirm human rights as moral rights which ought to inform actual law.
- There is no is-ought gap here: knowledge of human goods which ought to be instantiated is presupposed in an understanding of what contributes to human flourishing.
- Unfortunately, perhaps, clearly there is a gap between what ought to be the case/the rights that people ought to have and the rights that, as a matter of fact, are denied to some people or peoples. This might lead to a discussion of the status of natural law/moral rights and, ultimately, to the view that rights, to the extent that they are possessed, are historically and culturally specific. They are positive rights stemming from positive law and backed by sanctions. Anything else is 'nonsense upon stilts'.

- A discussion of morality involving the issue of whether rights always outweigh other potential goods – such as notions of the general welfare or common good, or the extent of social integration and moral regulation necessary for social harmony.
- Various difficulties inherent in the concept of rights: e.g. the problem of conflicting rights, the status of God-given rights in secular societies, the point that we are not at liberty to surrender our liberty, etc.

7 – 8 Selects, or constructs, relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of the view that we possess certain rights which cannot be taken away from us.

4 – 6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of the view that we possess certain rights which cannot be taken away from us.

1 – 3 Selects and applies some relevant points to provide a basic analysis of the view that we possess certain rights which cannot be taken away from us or some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

Interpretation and Evaluation (16 marks)

A range of argumentation is possible including an evaluation of positions taken in arguments selected for discussion. Beyond this it should be clear whether candidates:

- Accept the view that we have certain inalienable rights or, perhaps the view that human rights inform or ought to inform the creation of actual law.
- Reject this view in favour of positive rights stemming from positive law.
- Or hold a middle ground position along the lines that the concept of human or natural rights has, as a matter of fact, informed the historical creation of actual law in certain nation states – so that it is difficult to separate positive law from natural law.
- There may be a discussion of just laws. For example, there may be moral reasons for disobedience to positive law which does not enshrine natural rights but there can be no moral reasons for disobedience to positive law which does enshrine natural rights.

13 – 16 Demonstrates the ability to interpret and integrate a range of points selected for discussion into a reasoned and coherent argument, sustaining relevance and directly addressing the question.

9 – 12 Demonstrates a critical appreciation of arguments and theories by evaluating some material and forming explicit judgements or summaries in relation to the question: responses in this band will advance a clear but inadequately supported position.

5 – 8 Evaluation is present within an exposition of arguments but is either implicit in a juxtaposition of theoretical approaches, briefly argued possibly with limited depth, scope and accuracy or poorly focused in relation to the specific question.

2 – 4 Demonstrates a simple and basic appreciation of a limited range of material, or of limited aspects of the issue. Discursive points may be listed or asserted with very little explanation, limited and poorly developed or may have limited relevance.

0 – 1 Little or no relevant philosophical insights.

NB The following marking notes are not prescriptive and do not constitute 'model answers'; they are intended as an 'aide-memoire' for Examiners. Marks should be awarded in accordance with the levels-of-response marking criteria.

4 **Total for this question: *50 marks***

(a) Describe and illustrate **two** features of conservatism. *(18 marks)*

Knowledge and Understanding (9 marks)

There could be references to:

- The tendency towards cautious preservation of the status quo (providing that other conservative principles are endorsed) rather than radical upheaval. Whatever the status quo is, it will have evolved over a period of time – providing a strong basis for individual and cultural identity.

- The adoption of a sceptical approach and/or the mistrust of dogma *or* cautious empiricism is favoured over rationalism. Societies, and social institutions, have evolved over time and shaped gradually. Any reshaping (reform) which is necessary should similarly be gradual.

- Radical blueprints for social change should neither be necessary nor desirable – given that their consequences are unpredictable – social institutions reflect the embodied wisdom of the people who know (and have known) best how things should be.

- Conservative thinkers have traditionally been suspicious of egoism and individualism – they recognise the darker side of human nature – and are wary of abuses which might follow from the unchecked power and freedom of individuals. Similarly, the individual is seen as too small – relations with others, community and society is stressed as a basis for identity and social roles, and the duties and obligations associated with them, matter (e.g. noblesse oblige). Conservatives seek to combine individual freedom and social cohesion.

- Thus conservatives accord priority to social cohesion, moral regulation and the enforcement of order – "the decent drapery of life". They recognise the need for socio-political institutions to limit or channel those who are powerful and, at the same time, provide grounds for the allegiance of the powerless.

- Limited government – working alongside relatively autonomous institutions (the church, universities, etc.) – is favoured as being most consistent with individual freedom. Government should limit itself to basic political functions, e.g. providing security, a legal framework (linked to a moral consensus).

Or any other reasonable point associated with conservatism. N.B. Candidates who simply illustrate features of conservatism, e.g. through reference to specific policies, without making the principles on which conservatism stands explicit should be placed in the middle (4 – 6) band.

7 – 9 Demonstrates detailed and precise knowledge and understanding of **two** features of conservatism.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** features of conservatism, e.g. understanding is implicit in the illustrations selected. Or narrow and detailed but partial knowledge and understanding, e.g. one feature of conservatism is developed, but the second is omitted, blurred with the first, unclear or unconvincing.

1 – 3 Demonstrates some knowledge and limited understanding of aspects of at least one feature of conservatism.

0 No relevant philosophical knowledge and understanding.

Selection and Application (9 marks)

Illustrations of two features could draw from numerous factual (political, legal) examples which convey conservative thinking. There may be references to:

- Examples offered by certain key philosophers, e.g. Hobbes (to an extent), Burke, Oakeshott (hostility to rationalism, examples of developed 'practices'), Scruton (e.g. defence of hunting).
- Examples of political policies favoured by conservatives (de-regulation, law and order, the party of the family, etc.)
- Examples of state activity not favoured by conservatives, e.g. hostility to centralisation, a federalist European super-state, etc.
- Accounts of one-nation conservatism and/or the compatibility with market liberalism.

7 – 9 Selects, or constructs, a relevant example or examples and applies these to provide a clear, detailed and precise illustrative analysis of **two** features of conservatism.

4 – 6 Selects, or constructs, relevant points or examples to provide a partial illustration, either narrowly focused on one feature or lacking detail and precision as an illustrative analysis of two features of conservatism. Responses in this band may be characterised by detailed explanation rather than illustration.

1 – 3 Selects and applies some relevant points to provide a basic explanation and/or sketchy illustration of at least one feature of conservatism or some relevant points feature in a tangential approach to conservatism (e.g. references are indistinguishable from liberalism).

0 No relevant philosophical points.

(b) Assess how far, if at all, social contract theories account for our political obligations. *(32 marks)*

Knowledge and Understanding (8 marks)

This may be largely implicit in the positions outlined. However the notion of a social contract should be clarified, for example as:

- A philosophical concept employed to explain/justify the relationship between the individual and the state.
- A concept attempting to ground the legitimacy of the state, the justness of its actions, etc. in the consent of the governed.
- A concept attempting to show that the legitimate social and political obligations of individuals are grounded in a voluntary act of consent.
- A concept used to explain the obligations rational individuals would consent to were they to experience a 'society' free from social and political obligation.

The question is plural and requires reference to (at least two) different theories. Thus references should refer to (at least two of) Hobbes, Rousseau, Locke and Rawls. This should involve candidates in providing (at least two) accounts of:

- The condition of mankind in a 'state of nature'. For example, in a state of nature there is a war of all against all in which life is 'nasty, brutish and short' (Hobbes); in a state of nature men live together according to reason, in perfect freedom and equality without superiors (on earth) to judge them (Locke).
- The nature and extent of the obligations following the contract. For example: as we owe our being to the state due to the contract we have made, our obligation to obey sovereign power is virtually unconditional (Hobbes); recourse to government is only necessary to remedy certain inconveniences that occur in the state of nature and obligation to authority (power) - it never extends beyond its function of protecting or maintaining the common good (Locke).

7 – 8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to how far social contract theories account for our political obligations.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and theories relating to how far social contract theories account for our political obligations. Or narrow and detailed but partial knowledge and understanding of arguments and theories relating to how far social contract theories account for our political obligations.

1 – 3 Demonstrates some knowledge and limited understanding of relevant arguments and theories relating to how far social contract theories account for our political obligations.

0 No relevant philosophical knowledge and understanding.

Selection and Application (8 marks)

It is likely that considerable space will be devoted to expositions of (at least two) versions of the social contract. This will probably involve clarification of the differences, comparisons and contrasts between explanations of political obligation offered by different social contract theorists. For example:

- The account offered by Hobbes has atheist roots; the contract we make is with each other and requires us to accept the sovereign power chosen by the majority. Generally the interests of a sovereign power coincide with our interests but if they do not, and if we feel that a law is unjust, we still have a duty to comply (anarchy is worse than despotism).

- The account offered by Rousseau is rooted in a more positive view of humanity, man is essentially good but may have been corrupted by (corrupt) society. We can envisage a better society, in which individuals are able to flourish, based on the general will. This stems from, and encourages, a spirit of fraternity and will tend to promote liberty and equality.

- The account offered by Locke is rooted in natural law: the contract we make is with a ruling power to provide civil society, legality and authority so enabling us to enjoy our natural rights to life, liberty and property. These rights are God-given and revealed (even in a state of nature) by moral law; the power of the sovereign is limited by moral law and natural rights. Rebellion is legitimate to remove an executive no longer governing by consent and interfering with the legislature. Man surrenders the right to be judge in his own cause to the community or to neutral authority but, in order to be neutral, there must be checks and balances on authority, e.g. a separation between legislature and executive.

- Modern versions tend to locate the recognition of obligation in tacit, rather than actual, consent. That is, the contract is hypothetical and concerns what we would consent to if we were to imagine ourselves starting from a position of equality in which we are ignorant of our social position in relation to social divisions (class, sex, race, etc.). Rawls argues that we would prioritise personal and political liberty and seek to minimise socio-economic inequality.

- Obligation is grounded in the act of voting.

7 – 8 Selects, or constructs, relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of how far social contract theories account for our political obligations.

4 – 6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of how far social contract theories account for our political obligations.

1 – 3 Selects and applies some relevant points to provide a basic analysis of how far social contract theories account for our political obligations or some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

Interpretation and Evaluation (16 marks)

A range of argumentation is possible:

- An internal critique might be directed at different versions of contract theory. Hobbes: is political obligation mere expedience – an unwillingness to risk sanctions – and how can total compliance be derived from a voluntary act of consent? Locke: is the account coherent? Pre-contractual natural rights cannot also be a product of a contract. There is also a tendency to suggest the contract is historical fact, one which future generations need to revisit. This suggestion is neither convincing nor pragmatic (nor is it consistently held). Certain groups (those without property or liberty) are excluded. What obligations do they have to the body politic? Rousseau: this version would seem literally to countenance a tyranny of the majority, a totalitarian regime with populist support. Rawls: to what extent does a hypothetical contract describe the obligations we actually do have? (Both conservative and Marxist objections could be directed at this.) Would a community of rational agents, in a veil of ignorance concerning self-interest, opt for Rawls' principles and/or (even as a hypothesis) is this what a community is? The notion of obligations grounded in voting and a promise of obedience to whichever government is elected raises numerous issues: whether such a weak act obliges us to obey; whether non-voters are similarly obligated; whether (if so) we can ever justify dissent; whether (logically) such a free act of consent implies the continual possibility of dissent; whether, if consent is supplemented by prudence, obedience is always prudent, etc.
- An external critique might include the conservative view that social and political obligations precede, rather than follow from, self-interest (that is, man is social and relations with and obligations to others form part of his being, he is who he is in virtue of these relations); or Marxist views that consent is ideological, manufactured hegemony (domination by consent), a stronger form of power than force *and/or* the anarchist denial of political obligation.
- Some may question the concept itself, i.e. all versions of contract theory. Whether contracts are historical facts or philosophical fictions. The former is surely mythical and would scarcely be binding on those not involved. The latter may be a useful device for considering the nature and extent of political obligation, legitimacy and justice, etc., as well as offering a rationale for rebellion, dissent and disobedience. But, even here, it is difficult to see how a socio-legal, political concept like 'contract' can itself be used to explain the existence of contracts. The notion of tacit consent is neither pragmatic (we must consent given that we have not left the country) and does not provide any moral basis for political obligation. Nevertheless, it may be argued that the concept has been a useful philosophical fiction – useful for determining the extent of obligation and grounding the right to dissent from authority.

13 – 16 Demonstrates the ability to interpret and integrate a range of points selected for discussion into a reasoned and coherent argument, sustaining relevance and directly addressing the question.

9 – 12 Demonstrates a critical appreciation of arguments and theories by evaluating some material and forming explicit judgements or summaries in relation to the question: responses in this band will advance a clear but inadequately supported position.

5 – 8 Evaluation is present within an exposition of arguments but is either implicit in a juxtaposition of theoretical approaches, briefly argued possibly with limited depth, scope and accuracy or poorly focused in relation to the specific question.

2 – 4 Demonstrates a simple and basic appreciation of a limited range of material, or of limited aspects of the issue. Discursive points may be listed or asserted with very little explanation, limited and poorly developed or may have limited relevance.

0 – 1 Little or no relevant philosophical insights.

Theme: Philosophy of Science

NB The following marking notes are not prescriptive and do not constitute 'model answers'; they are intended as an 'aide-memoire' for Examiners. Marks should be awarded in accordance with the levels-of-response marking criteria.

5 **Total for this question: *50 marks***

(a) Describe and illustrate **two** criticisms of the view that observation has a key role in the formation of scientific theories. *(18 marks)*

Knowledge and Understanding (9 marks)

Candidates may identify 'the view' as an idealised and common-sense approach to scientific theorising in which the scientist begins with 'raw facts', or 'basic statements', which are reports of empirical observations/perceptual evidence only. Theory formation is then achieved via the systematic movement from observation to hypothesis, testing/experimentation and, eventually, confirmation (or, perhaps, the temporary ability to withstand refutation). However, 'the view' may be seen as given by the question and candidates may legitimately limit their responses to identifying and describing two criticisms of it. These are likely to be drawn from:

- Are there any pre-theoretical raw facts or basic statements?
- How do we get from a finite number of observations to universal theory (the problem of induction)?
- Conjectures are bold and imaginative rather than reflections of raw facts and/or conjectures are contaminated by experience and by conceptual frameworks.
- Observations are constrained by commitments to paradigms (or, during periods of upheaval, attempts to replace paradigms). There is no theory-neutral body of observational data.
- Observations are constrained by the interests of the scientist and/or the social, economic and political climate in which science takes place.
- Scientific theory involves using unobservable things/concepts in explaining 'reality'.
- Scientific theories are merely instruments for saving data and are underdetermined by observational data (which will be compatible with a number of theories about unobservable data) and/or the data may be true but theories may (will?) be false.
- Scientists may sometimes theorise from analogous arguments rather than from observational data.
- Some theories theorise about the impact of a specific observation on a theoretical system or on what might be observed by an observer (quantum mechanics).

Any other reasonable point.

7 – 9 Demonstrates detailed and precise knowledge and understanding of **two** criticisms of the view that observation has a key role in the formation of scientific theories.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** criticisms of the view that observation has a key role in the formation of scientific theories, or narrow and detailed but partial knowledge and understanding of **one** relevant critical point.

1 – 3 Demonstrates some knowledge and limited understanding of **two** criticisms of the view that observation has a key role in the formation of scientific theories. Critical points are likely to be vague and/or spurious.

0 No relevant philosophical knowledge and understanding.

Selection and Application (9 marks)

Both critical points should be illustrated although *one* illustration may be sufficient to illustrate two criticisms. Hopefully, illustrations will draw from developments and/or disputes in science or from the use of certain concepts and/or thought experiments in some scientific theory, e.g. Schrödinger's cat. However, ducks and rabbits are more likely to feature together with other illustrations of perceptual sets and concept-laden ways of seeing. Candidates should take care to illustrate two criticisms.

7 – 9 Selects, or constructs, relevant examples or issues and applies these to provide a clear, detailed and precise illustrative analysis of **two** criticisms of the view that observation has a key role in the formation of scientific theories.

4 – 6 Selects, or constructs, a relevant example or examples to provide a partial explanation, lacking detail and precision or narrowly focused, as an illustrative analysis of **two** criticisms of the view that observation has a key role in the formation of scientific theories. Responses in this band may deal with only one valid critical point or may be characterised by detailed explanation rather than illustration.

1 – 3 Selects and applies some relevant points to provide a basic explanation and/or sketchy illustration of **two** criticisms of the view that observation has a key role in the formation of scientific theories **or** some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

(b) Assess whether proof is essential for scientific knowledge. *(32 marks)*

Knowledge and Understanding (8 marks)

Some account of what exactly constitutes scientific knowledge may be offered:

- Scientific knowledge is most successful when forming a unified theory – Newtonian mechanics, quantum mechanics.

- The unified theory covers theory formation, law-like predictions and/or explanations in specific sciences.
- These are universal, general and hypothetical (extending beyond past instances) accounts of invariance within the natural world (or, possibly, accounts of the 'dappled' nature of the natural world).

Some account of what 'proof' is required for should be offered:

- Proof is required to demonstrate that science describes and explains the way the world really is (realism).
- Proof is required to demonstrate that scientific explanations form a body of coherent instruments which are consistent with each other (instrumentalism).
- Proof is required to show that explanations and predictions made on the basis of scientific knowledge are pragmatic or useful.

It is also likely that many candidates will go straight into an evaluative discussion of whether or not we can have proof in science in which knowledge and understanding of the issues involved will probably be implicit in theories selected for discussion.

7 – 8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to the extent to which proof is essential for scientific knowledge.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and theories relating to the extent to which proof is essential for scientific knowledge. Or narrow and detailed but partial knowledge and understanding of arguments and theories relating to the extent to which proof is essential for scientific knowledge.

1 – 3 Demonstrates some knowledge and limited understanding of relevant arguments and theories relating to the extent to which proof is essential for scientific knowledge.

0 No relevant philosophical knowledge and understanding.

Selection and Application (8 marks)

Some of the following, or equivalent, points should be selected for discussion:

- The problem of induction – the difficulty of confirming a scientific theory through inductive argument, how we can move from 'all observed A's have led to B's' to a law-like statement concerning non-observed or future A's and B's. The difficulty of confirming a principle concerning the uniformity of nature.
- Whatever approach to science is taken, some ampliative inferences have to be made. If these are not certain then perhaps we can adopt an alternative meaning for 'proof' (is probable that, rather than is certain that).
- Perhaps experimentation and testing will *confirm* or *corroborate* a claim about the relationship between A and B rather than prove it.
- There may be discussions of whether we are attempting to verify a claim or attempting to refute it. If the latter, then similarly, one counter-instance of an A which does not lead to B will (allegedly) conclusively refute a theory concerning the causal connection between A and B but the failure to find a counter-instance will corroborate the claim.

- But is it the case that specific hypotheses can be confirmed or corroborated?
- Moreover, is this view of science consistent with a more pragmatic approach to scientific endeavour or with the activity of scientists during 'normal science'?
- Within a given paradigm (during 'normal science') the concern is with simplicity, consistency, coherence, scope, accuracy, fertility, etc. rather than proof (as certainty).
- On the other hand, can we have 'normal science' taking place in a vacuum without proven (in some sense) objective knowledge?
- Perhaps the accumulation of data is more significant than the notion of a proven scientific theory.

7 – 8 Selects, or constructs, relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of the extent to which proof is essential for scientific knowledge.

4 – 6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of the extent to which proof is essential for scientific knowledge.

1 – 3 Selects and applies some relevant points to provide a basic analysis of the extent to which proof is essential for scientific knowledge **or** some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

Interpretation and Evaluation (16 marks)

Candidates may argue:

- That science cannot proceed unless some acceptable meaning of 'proof' is offered.
- Scientific theory rests on procedures which are the conditions of objective, rational enquiry and *not* the object of rational enquiry – they are not subject to proof in any formal philosophical sense of the word.
- Efficacy matters more than proof – successful prediction, coherent explanation, etc.
- While high-level theoretical frameworks are unproven, they are relatively immune from disproof as well. They are abandoned (for the sake of simplicity, coherence, fertility, etc.).
- Given the problem of induction, we should give up on proof.
- Some popular(?) theories of science do not attach significance to a view of scientific knowledge as a static set of proven facts or laws – rather, science is a critical activity, science is paradigmatic, etc.

13 – 16 Demonstrates the ability to interpret and integrate a range of points selected for discussion into a reasoned and coherent argument, sustaining relevance and directly addressing the question.

9 – 12 Demonstrates a critical appreciation of arguments and theories by evaluating some material and forming explicit judgements or summaries in relation to the question: responses in this band will advance a clear but inadequately supported position.

5 – 8 Evaluation is present within an exposition of arguments but is either implicit in a juxtaposition of theoretical approaches, briefly argued possibly with limited depth, scope and accuracy or poorly focused in relation to the specific question.

2 – 4 Demonstrates a simple and basic appreciation of a limited range of material, or of limited aspects of the issue. Discursive points may be listed or asserted with very little explanation, limited and poorly developed or may have limited relevance.

0 – 1 Little or no relevant philosophical insights.

NB The following marking notes are not prescriptive and do not constitute 'model answers'; they are intended as an 'aide-memoire' for Examiners. Marks should be awarded in accordance with the levels-of-response marking criteria.

6 **Total for this question: *50 marks***

(a) Describe and illustrate **two** reasons for holding a realist view of scientific theory. *(18 marks)*

Knowledge and Understanding (9 marks)

The realist holds that scientific theories aim to describe reality and may be judged to be true or false with reference to whether they actually do describe reality. This may be stated progressively, i.e. the realist holds that scientific theories are getting better at describing reality – this is what 'advances in science' means.

Reasons for holding the view may be drawn from:

- Conformity with the belief that an 'external' world of physical objects exists; it exists independently of human action and consciousness; it can be known through sense-perception. Thus, in scientific realism, unobservable entities like protons and electrons exist, and they exist independently of our knowledge of them.

- Indeed it is through their existence that scientific errors and scientific ignorance, in relation to the way the world really is, are both possible.

- The activity of gaining scientific knowledge involves discovery not invention.

- The main alternative – instrumentalism – is 'a philosophical theory': science, not philosophy, determines the truth about reality. This may extend into a second point based on a critique of alternatives to realism, e.g. various versions of idealism.

- Popper's view that non-realism in science is inconsistent with the scientist's concern for truth and falsity – instrumentalism is more concerned with whether a theory is able to make successful predictions than it is with truth and falsity (theoretical concepts are seen as useful fictions rather than posits which can themselves be true or false).

- Scientific realism might be argued to be compatible with idealism – if it is accepted that the scientific knowledge that we have is *not* an adequate account of the real *but* that an ideal or perfect science could/will adequately describe the real, then we have ideal-realism. Alternatively, many of those who argue that while it is the case that at any given historical point scientific theories capture (have captured) only part of the truth about reality, as history progresses so science progresses towards absolute truth. Either way, there is a clear view of the possibility of scientific progress.

- The success of science would be 'miraculous' if scientific theories did not describe reality.

7 – 9 Demonstrates detailed and precise knowledge and understanding of **two** reasons for holding a realist view of scientific theory.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** reasons for holding a realist view of scientific theory, or precise but partial knowledge and understanding, e.g. only one convincing reason is offered. At the top of this band a second reason may be stated briefly, not conveying detailed and precise understanding.

1 – 3 Demonstrates some knowledge and limited understanding of **two** reasons for holding a realist view of scientific theory.

0 No relevant philosophical knowledge and understanding.

Selection and Application (9 marks)

Illustration may involve:

- An example, or examples, drawn from science. Accounts of scientific discovery and/or progress.
- Analogous examples drawing from realism in epistemology (naïve realism or direct realism), ethics (moral realism), politics (historical materialism), etc.
- Accounts of illustrative arguments used by scientific realists (like Popper) and/or of the relationship between scientific realism and other theories in the philosophy of science generally (e.g. falsification).

7 – 8 Selects, or constructs, relevant examples and applies these to provide a clear, detailed and precise illustrative analysis of **two** reasons for holding a realist view of scientific theory.

4 – 6 Selects, or constructs, some relevant examples to provide a partial explanation, lacking detail and precision or narrowly focused on one issue, as an illustrative analysis of **two** reasons for holding a realist view of scientific theory. Responses in this band may be characterised by detailed explanation rather than illustration.

1 – 3 Selects and applies some relevant points to provide a basic explanation and/or a sketchy illustration of at least one reason for holding a realist view of scientific theory **or** some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

(b) Assess explanations of how progress in science is achieved. *(32 marks)*

Knowledge and Understanding (8 marks)

This might be tackled in a number of ways:

- An extension of part (a) – perhaps a contrast between the realist account of scientific progress and instrumentalism in science. Whether progress consists in getting closer to an accurate understanding and explanation of reality or whether it consists in finding concepts or useful fictions with predictive power.

- An approach rooted in a critical outline of what, exactly, scientific method is. This might involve comparing and contrasting various approaches including an idealised, or common sense, view of scientific method; the role accorded to verification and falsification in science, to confirmation and corroboration; the view that science is paradigmatic; the view ('against method') that breakthroughs are made when rigid adherence to paradigmatic principles and procedures are dispensed with.

7 – 8 Demonstrates detailed and precise knowledge and understanding of debates concerning explanations of how progress in science is achieved.

4 – 6 Demonstrates either a range of knowledge but general and prosaic understanding of debates concerning explanations of how progress in science is achieved, or narrow and detailed but partial knowledge and understanding of explanations of how progress in science is achieved.

1 – 3 Demonstrates some knowledge and limited understanding of explanations of how progress in science is achieved.

0 No relevant philosophical knowledge and understanding.

Selection and Application (8 marks)

Depending on the approach taken, some of the following or equivalent points will be selected for discussion:

- Scientific progress is achieved through developing theories which approximate to reality, discarding errors, overcoming ignorance, etc. This may be linked to verification and/or falsification, particularly the latter as an attempt to overcome the problem of induction. Scientific progress consists in the tentative acceptance of a theory which has withstood attempts to refute it and the rejection of theories which have not withstood rigorous testing.
- Kuhn's account of the structure of scientific revolutions will probably be offered. Anomalies occur and problems emerge that appear insoluble within the framework of existing scientific paradigms, so the adequacy of the paradigm begins to be doubted. Scientific revolutions and scientific progress occur when a new paradigm, with better explanatory and predictive power, replaces the conventional theoretical framework of normal science.
- Feyerabend: progress occurs when the rule book is thrown away.
- Instrumentalism: progress is made when scientific theory – seen as a useful fiction – employs concepts as instruments enabling successful calculations and predictions to be made. This data can be saved, the theory itself is less important and certainly cannot be shown to be a true or false description of reality.

7 – 8 Selects, or constructs, relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of debates concerning explanations of how progress in science is achieved.

4 – 6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of debates concerning explanations of how progress in science is achieved.

1 – 3 Selects and applies some relevant points to provide a basic analysis of debates concerning explanations of how progress in science is achieved **or** some relevant points feature in a tangential approach to the question.

0 No relevant philosophical points.

Interpretation and Evaluation (16) marks

A range of positions might be taken:

- Progress must consist in providing better explanations of reality – the 'no miracle' view. But, does realism also involve a view of an ideal-perfect/absolutist future science and an imperfect relativist present science?

- If not, and if all we can have is something which remains 'tentative for ever', how is theory to ground our beliefs and actions? Is such a view palatable? Can science proceed like this? If Popper were right then a number of scientific theories would have been rejected in the early stages of their development and progress in science would not have been achieved.

- Can theories be refuted? Scientific procedures involve theory, initial conditions and auxiliary statements: if testing fails to confirm a theory how do we know that it is the theory that is wrong rather than an auxiliary statement or some mistake made in specifying initial conditions?

- Is it true that the scientific community is characterised by commitment to a critical or sceptical attitude? If not, if 'doing science' is characterised by convention and adherence to a dominant paradigm, then during 'normal science' theories are highly immune from falsification. Progress consists in mopping-up anomalies and in discarding theories in favour of those which are better at saving the data we have, explaining it and making predictions.

- Progress consists in developing instruments, theories and concepts, with predictive success and explanatory power – not in any movement towards a true depiction of reality.

13 – 16 Demonstrates the ability to interpret and integrate a range of points selected for discussion into a reasoned and coherent argument, sustaining relevance and directly addressing the question.

9 – 12 Demonstrates a critical appreciation of arguments and theories by evaluating some material and forming explicit judgements or summaries in relation to the question: responses in this band will advance a clear but inadequately supported position.

5 – 8 Evaluation is present within an exposition of arguments but is either implicit in a juxtaposition of theoretical approaches, briefly argued possibly with limited depth, scope and accuracy or poorly focused in relation to the specific question.

2 – 4 Demonstrates a simple and basic appreciation of a limited range of material, or of limited aspects of the issue. Discursive points may be listed or asserted with very little explanation, limited and poorly developed or may have limited relevance.

0 – 1 Little or no relevant philosophical insights.