



General Certificate of Education

Philosophy 5171/6171

**PLY4 Philosophy of Mind, Political
Philosophy or Philosophy of
Science**

Mark Scheme

2007 examination – June series

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Theme: Philosophy of Mind

1

Total for this question: 50 marks

(a) Describe and illustrate what philosophers mean by intentionality and explain its significance. (18 marks)

Knowledge and Understanding (9 marks)

Candidates may provide a brief exposition of the view that mental states possess certain features, including intentionality, distinguishing them from physical states. However, full marks can be obtained for a detailed and precise account of what is meant by intentionality. This is likely to include some of the following points:

- Brentano's thesis that intentionality is the hall mark of the mental, or the view that whereas (some) mental states are intentional no physical states are.
- Those mental states that are intentional include, for example, beliefs, desires, emotions, intentions and memories (and exclude feelings and sensations without an object eg a panic attack where there is just a general feeling of anxiety).
- Intentionality is the direction of the mind towards an object, the intentness of the mind towards its object, or perhaps, the aim of the mind towards its content.
- Mental states (or some mental states) possess *aboutness*: they are about something (eg a memory of one's grandfather is about one's grandfather).
- The object of an intentional mental state is not necessarily real (eg one's disgust that the tooth fairy didn't come is about the tooth fairy).
- Intentional states possess *aspectuality*: they represent (or misrepresent) an object under certain aspects.

This should be supplemented by comments about what is lacking in physical states eg that a neuron firing is not about anything, and/or with comments about the failures of those theories which ignore intentionality/attempt to reduce it.

- 7–9 Demonstrates detailed and precise knowledge and understanding of what philosophers mean by intentionality and why the concept is significant.
- 4–6 Demonstrates either a general and prosaic understanding of what philosophers mean by intentionality and of its significance (eg the concept is partly blurred with intending, or perhaps with qualia) or narrow and detailed but partial knowledge and understanding (eg references to aboutness are accurate but there is limited development beyond this).
- 1–3 Demonstrates some knowledge and limited understanding of what is meant by intentionality (eg the response is focused solely on intending). The significance of the concept may be ignored.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (9 marks)

Illustrations, or a single illustration, might draw from the literature and provide, for example, a detailed account of the Chinese Room in order to demonstrate the lack of ('honest to goodness') intentionality or involve a series of mental states (believing that, desiring that, intending that, hoping that, feeling disgusted that, remembering that, etc) that there are about an object. There may be attempts to contrast the aspectuality of mental aiming at with the non–aspectuality of physical aiming at, to bring out the representational aspect of intentionality. Some may refer to the failure of theoretical attempts to reduce the concept to something else (eg to behaviour, brain activity, computational programmes).

- 7–9 Selects or constructs at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of intentionality. The example(s) provided illuminate the concept.
- 4–6 Selects or constructs at least one relevant example to provide a partial illustration of intentionality either because detail and precision is lacking (for example, the Chinese Room is used but the connection to intentionality isn't precisely stated) or because the illustration is brief and undeveloped. Response in this level may be characterised by detailed explanation and very brief illustration.
- 1–3 Selects and applies at least one relevant point to provide a sketchy illustration of intentionality (eg the example used fails to distinguish the concept from qualia) *or* explanation of the concept is good but no illustration is offered. Answers at the bottom of this level may consist of vague exposition only with no attempt made to illustrate the concept.
- 0 No relevant philosophical points are made.

(b) Assess explanations of how mental events (such as beliefs and desires) cause actions.
(32 marks)

Knowledge and Understanding (8 marks)

The reference to explanations in the question requires a focus on more than one theory of the relationship between mind and body: candidates probably locate the issue within substance dualism and contrast this with at least one other theory drawing from property dualism, behaviourism, identity theory, functionalism, non–reductive materialism and eliminative materialism. It should be clear how the explanations considered treat the notion of mental causation (the view that mental events contribute causally to behaviour or action), for example:

- Behaviourism: this is a pseudo–problem, a problem that can be dissolved rather than solved.
- Identity theory: mental events are physical events and, as such, cause other physical events.
- Functionalism: mental events are identified with the causal role they play in the functioning of a system.
- Non–reductive approaches: 'mental' events supervene upon a subvenient neural structure and cause physical events in virtue of their physical properties.

Alternatively, a reasonable knowledge base for the question might be found in an analysis of the concept of causation.

- 7–8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to explanations of how mental events cause physical events.
- 4–6 Demonstrates either a range of knowledge but general and/or prosaic understanding of arguments and theories relating to explanations of how mental events cause physical events (eg positions are listed rather than developed) or narrow and detailed but partial knowledge and understanding of arguments and theories relating to mental causation (eg an approach rooted in dualism, occasionalism, parallelism, etc).
- 1–3 Demonstrates basic knowledge and limited understanding of aspects of arguments and theories relating to explanations of how mental events cause physical events.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (8 marks)

Some of the following, or equivalent, points should feature in discussions:

- Further amplification of the nature of the problem eg illustrative examples of how beliefs and desires cause action (whether or not we can explain this).
- This is probably described as the main difficulty confronting dualism: how can non-physical events, or non-physical properties, cause physical events? Some may refer to Quine's account of causation as the flow of energy.
- An interactionist position may be developed. They just do and it is clear that they do: eg stress, anxiety, fear, etc (all mental) produce effects that are physical. So, the fact of mental causation conforms to our experience. Some may refer to Hume's account of causation.
- Some may refer to, and probably reject, 17th century solutions (occasionalism, parallelism) denying interaction.
- The claim may be made that mental states, as mental states, do not cause physical processes: there is one-way interaction only between body and mind. Mental states are mere epiphenomena.
- Mental states do cause actions but, because the mental is anomalous, this must be because they have physical properties which fall under strict physical laws.
- The notion of supervenience might be employed.
- The functionalist attempt to account for the causal role of mental states through the concept of functional, or structural, organisation.
- The behaviourist view that this is a pseudo-problem.
- Reductive solutions to the problem: mental states are physical state: beliefs and desires are folk psychology and should be eliminated.
- It might be suggested that there are psycho-physical laws – and that psycho-physical laws are not different in kind from the laws of physics – or that physical laws are also anomalous (because the world is 'dappled').

NB. To address the question at least **two** theories should be considered.

- 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 relating to explanations of how mental events cause physical events.
- 4–6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused (eg on the problems of dualist explanations) or lacking detail and precision (eg in a list of points that aren't developed) or arguments and theories relating to explanations of how mental events cause physical events.
- 1–3 Selects and applies some relevant points to provide a basic analysis of at least one explanation of the problem of mental causation **or** some relevant points feature in a tangential approach to the question (eg the focus is on how physical events cause mental events).
- 0 No relevant philosophical points are made.

Interpretation and Evaluation (16 marks)

A range of argumentation, following points selected for discussion, is possible.

For example, it might be suggested that this is an insoluble problem.

It might be argued that mental states are not causally responsible for physical states:

- And, some form of materialism provides a better explanation of the interaction between mind and body: physical effects have a complete physical cause.
- Or, that some form of dualism remains tenable – eg epiphenomenalism.
- Or, that mental states are not causally efficacious as mental states and that some (non-reductive) versions of the physicalism risk collapse into epiphenomenalism. (Some may link the problem of mental causation specifically to this issue).
- Or that neither mental states nor physical states are causally efficacious if we adopt a strict, law-like, account of causation.

Alternatively, it might be argued that mental states are causally responsible and that:

- Dualism, via the accordance with ordinary beliefs, is acceptable; the failure to explain ‘how’ is because the problem cannot be explained, but we know ‘that’.
- An account of causation can be given such that dualism can explain how mental events cause physical events.
- Some (non-reductive) versions of materialism do provide an acceptable account of mental causation: mental events cause physical events (the fact that this can only be described in terms of the physical properties they possess isn’t particularly significant).
- They are causally efficacious because they are physical states.

13–16 Demonstrates the ability to interpret and integrate a range of points and 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 level may 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 is demonstrated.

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2

Total for this question: 50 marks

(a) Describe and illustrate **two** criticisms of the view that personal identity depends upon bodily 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 body is spatially and temporally continuous throughout T1...T2. There may also be some discussion of how, while we all lose skin cells, brain cells and some of us have organ transplants, implants and other modifications, we don't suppose that such changes, especially if gradual and continuous, amount to a different body. We retain the same form and underlying structure (the same DNA, fingerprints, blood type, etc) however this is not essential and it would be legitimate to simply identify and describe two critical points without first giving an exposition of the view. These are likely to draw from:

- Physical continuity isn't a *necessary* condition of identity. We can conceive of attributing identity through time where physical continuity isn't satisfied.
- Physical continuity isn't a *sufficient* condition of identity. We can conceive of refusing to attribute identity through time where physical continuity is satisfied.
- The continued existence of the whole body isn't required for identity through time, only the continued existence of the brain: but is the continued existence of the *whole* brain necessary or sufficient for identity?
- The continued existence of the brain (or part of it) won't give identity through time if mentality isn't reducible to the functioning of the brain *and/or* if certain features of the body other than the brain, ie other aspects of facticity, are significant for personal identity.

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

4–6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** criticisms of the view that personal identity depends upon bodily continuity through time, or narrow and detailed but partial knowledge and understanding eg only one criticism is clear and a second is omitted or unconvincing *or* two versions of the same critical point are offered, or points are implicit in the illustration(s).

1–3 Demonstrates some knowledge and limited understanding of at least one criticism of the view what personal identity depends on bodily continuity through time (eg the critical point isn't clear *or* the discussion confuses qualitative and numerical identity *or* blurs physical and psychological continuity).

0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (9 marks)

Illustrations, or (possibly) a single illustration covering two criticisms, are likely to draw from the literature eg thought experiments such as adaptations of Theseus's ship, Shoemaker's brain transplant (Brownson), Parfit's teletransporter (possibly in the form of Star Trek), etc and/or case studies where, although bodily continuity is present, we would hesitate to ascribe identity eg amnesia, personality disorders, etc.

- 7–8 Selects or constructs at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of **two** criticisms of the view that personal identity depends upon bodily continuity through time. The example(s) provided illuminate the criticisms identified.
- 4–9 Selects or constructs at least one relevant example to provide a partial explanation of two criticisms of the view that personal identity depends on bodily continuity through time either because detail and precision is lacking or because only one criticism is illustrated (at the top of this level it may be illustrated twice). Responses in this level may be characterised by detailed explanation and very brief illustration.
- 1–3 Selects and applies at least one relevant point to provide a basic explanation and/or sketchy illustration of at least one criticism of the view that personal identity depends upon bodily continuity through time. Answers at the bottom of this level may consist of vague exposition only with no attempt to illustrate a criticism.
- 0 No relevant philosophical points are made.

(b)	Assess the view that mental events are brain processes.
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(32 marks)

Knowledge and Understanding (8 marks)

Candidates probably identify the view as the identity theory and describe this as the view that:

- Mental states or events are identical with physical states of, or processes in, the brain.
- Some may distinguish between type–type and token–token identity theories.
- There may be general references to reductive materialism and/or to ontological reduction.
- Some may refer to non–reductive theories such as anomalous monism and/or biological naturalism and/or to mentality supervening upon neural structures.

Full marks can be obtained for a detailed and precise account of versions of the identity theory (or of brain chauvinism) stressing that it is the case, or that it will turn out to be the case, that mental states are identical to brain states: or that mental states are realised in the architecture of the brain; or, insofar as they are causally efficacious, are physical states falling under physical laws.

- 7–8 Demonstrates detailed and precise knowledge and understanding of arguments and/or theories relating to the view that mental events are brain processes.
- 4–6 Either a range of knowledge relating to the view that mental events are brain processes is presented but knowledge and understanding is general and prosaic or knowledge and understanding of this issue is partial, narrow and detailed (eg a focus on type–type identity only).
- 1–3 Demonstrates basic knowledge and limited understanding of aspects of relevant arguments and theories relating to the view that mental events are brain processes.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (8 marks)

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

- Explanations of how this view differs from earlier materialist views such as behaviourism: two *different* vocabularies which don't *mean* the same but which refer to one process.
- Explanations of the view might include reasons for holding it: a response to some problems in dualism; the economy of the theory; the explanatory success of the neuro-sciences; the neural dependence of mental phenomena; the physical origin and constitution of the individual; evolutionary explanations of the development of brain capacities; the ability to explain mental causation by bringing it into the physical domain; ridding the world of nomological danglers in the interests of unified science.
- Critical points (likely to be favoured) include: whether scientific research actually supports a strict numerical identity between types of mental event and types of brain process; whether we can identify a type of mental event as the same event in persons A and B; chauvinism; whether, if a token-token version of identity is adopted, mentality can be more liberally attributed; the failure to give an adequate account of consciousness, eg the intentionality of mental states; absent qualia; the irreducibility of subjective features of mental events to objective physical processes; whether properties which depend upon but cannot be reduced to neural processes are actually physical (supervenience); whether a mental vocabulary is necessary at all (eliminative materialism); whether the identity is contingent or necessary; whether an adequate account of mental causation can be offered.
- Some familiar 'thought experiments' are probably employed to illustrate some of these critical points.

- 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 relating to the view that mental events are brain processes.
- 4–6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused (eg on type-type identity theory) or lacking detail and precision, of arguments and theories relating to the view that mental events are brain processes.
- 1–3 Selects and applies some relevant points to provide a basic analysis of at least one aspect of this issue **or** some relevant points feature in a tangential approach to the question.
- 0 No relevant philosophical points are made.

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: clearly mentality is dependent upon neural processes but is it reducible to neural processes? There are some strengths and weaknesses in this view.
- An argument siding with materialism (the only plausible explanation of what the mind is and how it works) and, possibly, arguing the merits of reductive against non-reductive positions.
- An argument siding with dualism, insisting on the irreducible nature of mental properties and/or on the view that whatever problems dualism throws up they are not solved by (any form of) materialism.
- The issue is insoluble.

- 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 of summaries in relation to the question: responses in this level may advance a clear but inadequately supported position.
- 5–8 Evaluation is present within an exposition of arguments but is either implicit in a description of how the issue has been approached, briefly argued possibly with limited depth, scope and accuracy or poorly focused in relation to the specific question (eg the focus is too general).
- 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 (eg the focus is on our behaviour).
- 0–1 Little or no relevant philosophical insight is demonstrated.

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Theme: Political Philosophy

3

Total for this question: 50 marks

(a) Describe and illustrate **two** ways in which we might be said to lack positive freedom. (18 marks)

Knowledge and Understanding (9 marks)

The concept of positive freedom is probably described either briefly, as ‘freedom to ...’, or, in more detail as, for example, ‘the capacity to function in a truly human way’ together with an account of what this involves. Thus, there may be references to the ‘higher self’, autonomy, reason, self-realisation or development and what might be involved in a ‘truly human life’. However, this background might be implicit in an account of two ways in which we might lack positive freedom. These are likely to be drawn from:

- We are not free from inclinations, impulses, cravings or addictions.
- We are not free from compulsions or behaviour dispositions associated with our individual psyche whether these are genetically programmed or the result of socialisation.
- We lack the ability to reflect upon our beliefs and desires.
- We are not free from material constraints preventing us from developing an ability or capacity.
- We are not free to pursue a self-chosen life.
- We are deprived of information which affects our ability to reason.

Other reasonable points should also be rewarded. No marks are available for evaluative attempts to point to inconsistencies in the concept, link it to negative freedom or claim that negative freedom is the primary meaning of liberty.

- 7–9 Demonstrates detailed and precise knowledge and understanding of **two** ways in which we might be said to lack positive freedom.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** ways in which we might be said to lack positive freedom, or narrow and detailed but partial knowledge and understanding eg one way is clear and developed but a second is omitted, unclear or unconvincing, or blurred with negative freedom.
- 1–3 Demonstrates some knowledge and limited understanding of at least one way in which we might be said to lack positive freedom. In this level the concept of positive freedom may be confused with negative freedom.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (9 marks)

Illustrations, or a single illustration covering two ways, might draw from various cravings or addictions, such as drug addiction or alcoholism; material constraints on our choices or affecting our ability to make choices, such as poverty, health, education; political constraints such as misinformation; the impact of socialisation or genes on our abilities or personalities; various instincts and drives of the 'lower self', etc.

- 7–9 Selects or constructs at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of **two** ways in which we might be said to lack positive freedom. The example(s) provided illuminate the reasons identified.
- 4–6 Selects or constructs at least one relevant example to provide a partial explanation of **two** ways in which we might be said to lack positive freedom either because detail and precision is lacking or because only one way is identified and illustrated. Responses in this level may be characterised by detailed explanation and very brief illustration.
- 1–3 Selects and applies at least one relevant point to provide a basic explanation and/or sketchy illustration of at least one way in which we might be said to lack positive freedom. Answers at the bottom of this level may consist of vague exposition only with no attempt made to illustrate a reason.
- 0 No relevant philosophical points are made.

(b) Assess the view that the functions of the state should be minimal.	(32 marks)
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Knowledge and Understanding (8 marks)

This view of the state is likely to be rooted in classical liberalism (and particularly, although not only, classical English liberalism). Thus, an outline might include:

- The Lockean view that our original position (in a state of nature) is 'a state of perfect freedom'. The liberties and rights we possess are God-given and don't require justification.
- The state, however, does require justification and is only legitimate if we consent to it (and there may be references to the concept of a social contract here) *and* if it conforms to our reasons for assenting to it, which are to limit our freedoms in order to protect them.
- The primary function of the state is to protect individual liberty, the state can therefore be seen as a kind of 'protection agency' (Nozick).
- This classical liberal idea of a minimal state rests on the concept of negative freedom: individual liberty is the supreme value and, given that we possess liberty in the absence of constraint, it follows that the functions of the state should be limited or minimal.
- The state is a convenience, the law a necessary evil.

A different account of similar thinking might be rooted in Mill. Some indication of the range of human, social activities at issue should also be present: the question is not simply about law, it also involves, for example, economic interests and activity and morality.

- 7–8 Demonstrates detailed and precise knowledge and understanding of arguments and theories relating to the view that the functions of the state should be minimal.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and theories relating to the view that the functions of the state should be minimal *or* narrow and detailed but partial knowledge and understanding of arguments and theories relating to this question (eg the focus is solely upon law).
- 1–3 Demonstrates basic knowledge and limited understanding of aspects of arguments and theories relating to the view that the functions of the state should be minimal.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (8 marks)

Some of the following, or equivalent, points should be discussed:

- References to the connections between individualism, pluralism, negative freedom and the minimal state: the state as protection agency or the state as honest broker.
- Hobbes' view that "the liberties of subjects depend on the silence of the law" and the liberal insistence that such liberties are rights (they don't depend upon the whim of the sovereign) and the focus on laws that constrain subjects.
- Examples may be provided of laws deemed illegitimate or unacceptable *and/or* of governments deemed to be acting illegitimately (by interfering in a private sphere of life, creating a nanny state, etc).
- The alternative view that freedom depends on law (eg that some freedoms are constituted and regulated by the law) and that, consequently, the protection of freedom does not require a minimal state.
- The connection between autonomy, self–development, essentialist theories of man, positive freedoms and a supportive welfare state. Some (welfare) liberals see a positive role for the state in areas such as the amelioration of poverty, the promotion of health and education, etc
- The tension in some liberal positions (eg Mill) concerning individualism (and negative freedom) and self–development (and positive freedom).
- Similarly, the role of the state in relation to public morality might be questioned. Should the (minimal) state steer clear of issues concerning public morality or should the state 'punish the grosser forms of vice'? Liberals tend to argue for freedom from custom, morality or 'unwritten laws' but would a minimal state be able to resist the 'tyranny of the majority'? Alternatively, should public opinion, via the state, exercise some constraining power if society is to function effectively?
- On the same lines, is the free market the best way of regulating economic activity? Is state interference in the economy bureaucratic, inefficient and unnecessary? Some (welfare liberals, socialists) might argue that the power of the state should be increased to protect individuals from the unequal outcomes of market activities.

- 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 relating to the view that the functions of the state should be minimal.
- 4–6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused (eg on morality) or lacking detail and precision, of arguments and theories relating to the view that the functions of the state should be minimal.
- 1–3 Selects and applies some relevant points to provide a basic analysis of at least one aspect of this issue **or** some relevant points feature in a tangential approach to the question (eg the focus is on the state of nature).
- 0 No relevant philosophical points are made.

Interpretation and Evaluation (16 marks)

A range of argumentation is possible. For example:

- Some might argue that liberty needs to be defended against governments and that a legitimate state is a minimal state (so that individual liberties are maximal).
- The majority of writers in a liberal tradition would accept that law and liberty are compatible: the law is essential as a procedural device for securing a recognisable sphere of private life. It is only laws that unnecessarily constrain individuals that are seen as unjust. A state in which this occurs is acting illegitimately.
- It might be argued that conceptions of positive freedom, and of a welfare state, undermine liberty.
- It might be accepted that there is a tension between the state, coercive law and individual freedom, an uneasy relationship. The state, and the law, is a necessary evil.
- Some might argue that, even if we accept political liberty as a core value, the state should be enlarged (eg Rousseau).
- Some might question whether a minimal state could provide adequately for the full range of political goods eg freedom, rights, justice, well-being? Are these more likely to be obtained if the state is enlarged and enabled to emphasise eg welfare, community, obligation, duty, tradition, etc?
- Some might argue that the state itself (whether minimal or not) is unnecessary or illegitimate.

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 judgments or summaries in relation to the question: responses in this level may 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 is demonstrated.

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4

Total for this question: 50 marks

(a) Describe and illustrate **two** ways in which we might be said to possess rights. (18 marks)

Knowledge and Understanding (9 marks)

Two ways in which we might be said to possess rights are probably drawn from:

- The view that we have 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). Rights that *ought* to be recognised. Rights that have the authority of morality or justice.
- 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. Rights that *are* recognised. Rights that have the authority of force. (Where natural rights inform actual law they have the authority of force and justice).

However, two ways in which we might be said to possess rights could be drawn from either moral rights or legal rights:

- Moral rights might be argued to include the moral rights of an individual *and* the moral rights of any individual in a given situation or role *as well as* universal human rights.
- Legal rights might be argued to include the positive rights assured to everyone as enshrined in law *and* the positive rights, liberties, privileges and immunities enjoyed by particular groups of people (or particular persons) *and* traditional rights.

No marks are available for evaluating any conception of rights.

- 7–9 Demonstrates detailed and precise knowledge and understanding of **two** ways in which we might be said to possess rights.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** ways in which we might be said to possess rights, or narrow and detailed but partial knowledge and understanding eg one way is developed but a second is omitted, unclear or unconvincing.
- 1–3 Demonstrates some knowledge and limited understanding of at least one way in which we might be said to possess rights.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (9 marks)

It is probable that candidates develop illustrations around the nature of rights encompassed by these concepts and/or as declared in various constitutions or covenants. For example a natural right might be illustrated as 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 eg freedom of expression, freedom of worship, etc. (Candidates might illustrate alleged violations of such rights). Positive rights might be said to include liberty–rights, claim–rights, a right to exercise power, a right to immunity from the law. (Candidates might illustrate actual laws, liberties, duties and privileges as they apply in specific cases).

- 7–9 Selects or constructs at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of **two** ways in which we might be said to possess rights. The example(s) provided illuminate the ways identified.
- 4–6 Selects or constructs at least one relevant example to provide a partial explanation of **two** ways in which we might be said to possess rights either because detail and precision is lacking or because only one way is illustrated. Responses in this level may be characterised by detailed explanation and very brief illustration.
- 1–3 Selects and applies at least one relevant point to provide a basic explanation and/or sketchy illustration of at least one way in which we might be said to possess rights. Answers at the bottom of this level may consist of vague exposition only with no attempt made to illustrate a way in which rights might be grounded.
- 0 No relevant philosophical points are made.

- (b) Assess whether an unequal distribution of property between individuals could be a feature of a just society. (32 marks)

Knowledge and Understanding (8 marks)

The central concepts in the question should be clear:

- The concept of social, economic or distributive justice (which does not mean redistribution) requires us to consider the ethics of how political goods or benefits are distributed. This includes the distribution of property.
- There are competing views of what a just distribution of political goods, including property, might be based upon: eg universal human wants or needs, human rights, efforts and/or merits. Hence, there are competing views on what a just society would be like.
- The issue could be presented as a debate within liberalism and/or as a debate about whether the concept of justice takes priority over individual interests and rights, whether it is basic, the ‘first virtue’ of social institutions, and that which makes society possible or whether we should accord priority to individual liberties, entitlements and rights (especially if these are pre–social) and link justice to these.

- 7–8 Demonstrates detailed and precise knowledge and understanding of arguments and concepts relating to whether, in a just society, property could be unevenly distributed between individuals.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of arguments and concepts relating to whether property could be unevenly distributed in a just society or detailed but partial knowledge and understanding of arguments and concepts relating to distributive justice (eg a response based solely on classical liberalism).
- 1–3 Demonstrates basic knowledge and limited understanding of arguments and concepts relating to whether an uneven distribution of property between individuals could be a feature of a just society.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (8 marks)

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

- The classical liberal view includes property within an individual's sphere of protected rights: this gives us a notion of distributive justice compatible with high levels of inequality. A just society could be characterised by vast inequalities.
- An alternative, welfare liberal, view is that unchecked and increasing levels of inequality are unjust because, for example, this restricts the liberty, opportunities and choices available to some individuals. A just society would be more egalitarian and would require some state intervention to regulate markets and redistribute property, or wealth, more evenly.
- Locke's view that our natural rights include property rights. Locke's arguments in defence of this: survival, work, adding value through work. God gave the earth to the industrious.
- Nozick's defence of classical liberalism. The attempt to impose any 'patterned' notion of justice is inconsistent with individual interests and freedoms. A just society recognises liberty and could not restrict or interfere with property dealings. Thus, in a just society, property could be distributed very unevenly and it would be unjust if the state were to intervene to change this.
- The attempt by welfare liberals, most notably Rawls, to argue for the amelioration of socio-economic inequality whilst preserving liberty. The argument for regulating markets is based on the hypothetical contract rational agents would make under a veil of ignorance. According to Rawls they would opt for equal rights to basic liberties, fair opportunities and for social inequalities to be arranged to the benefit of the least advantaged (ie an inequality is 'just' if it makes the least advantaged better off). A just society would be characterised by a more even distribution of property.
- Utilitarian arguments might also be referred to. The free market is the most efficient means of producing and distributing goods and this maximises happiness (this focuses less on the acquisition and more on the transfer of property but, again, there is limited scope for state intervention): *alternatively*, utilitarian justifications for state intervention to lessen the impact of markets on inequality (a free market plus welfare state). The tension in utilitarianism between justice (protecting individual rights because this provides security and maximises happiness) and utility (in which a right to property might be over-ridden due to the utility this affords).
- Socialism: the free market is wasteful and destructive; it produces alienated individuals and extreme (and unjust) levels of inequality; a more equal distribution of goods is necessary in order to maximise liberty (positive freedoms). From each according to his means to each according to his needs.

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- 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 relating to whether a just society could be characterised by an uneven distribution of property between individuals.
- 4–6 Selects or constructs some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of arguments and theories relating to whether a just society could be characterised by an uneven distribution of property between individuals.
- 1–3 Selects and applies some relevant points to provide a basic analysis of at least one aspect of this issue **or** some relevant points feature in a tangential approach to the question.
- 0 No relevant philosophical points are made.

Interpretation and Evaluation (16 marks)

A range of argumentation is possible:

- A just society protects individual rights and freedoms *and* this includes their freedom to acquire and right to possess property. Justice is compatible with inequality: this is because justice is based on desert. The efforts of the industrious, for example, provide a moral basis for property rights. Neither the State nor any individual has a right to interfere with this.
- A just society protects individual rights and freedoms *but* should not tolerate vast inequalities: this is because inequality has a negative impact on liberty because it confers lasting advantages to some at the expense of others leading to discrimination and a lack of opportunity. Justice requires some restrictions on individual freedoms, including the freedom to acquire property, and/or some intervention in the distribution of wealth.
- If justice and equality turn out to be incompatible then which should take priority? This question may lead to a discussion of the values of different political ideologies in relation to justice, rights, freedom and equality. For example, Hayek's view that the terms 'social' or 'economic' or 'distributive' justice are devoid of meaning or content in a market economy – "a free society in which the position of the different individuals and groups is not the result of anybody's design...cannot meaningfully be described as just or unjust". Alternatively, it might be suggested that property (as theft) is incompatible with justice.
- There is scope for an evaluation of deontological and utilitarian principles.

- 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 judgments or summaries in relation to the question: responses in this level may 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 (eg in which 'just distribution' is simply equated with 'redistribution'), 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 is demonstrated.
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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.

Theme: Philosophy of Science

5

Total for this question: 50 marks

(a) Describe and illustrate **two** criticisms of the hypothetico-deductive method. (18 marks)

Knowledge and Understanding (9 marks)

Candidates probably describe, or briefly illustrate, what the hypothetico-deductive method is: one begins with a hypothesis from which it is possible to deduce consequences which can be empirically tested through observation; the hypothesis might be refuted through such testing or provisionally accepted. Two criticisms are likely to be drawn from:

- Scientists don't hypothesise in a vacuum: the ability to make ‘bold conjectures’ depends upon prior experience, knowledge and a degree of creative flair. The hypothetico-deductive method provides no account of the reasoning that leads scientists to propose a theory in the first place.
- The hypothetico-deductive method is an attempt to avoid the problem of induction, but if hypotheses are rational then induction must have some role in their formation.
- The hypothetico-deductive method puts the cart before the horse: hypotheses don't precede observations, observations precede hypotheses.
- The hypothetico-deductive method, in concentrating upon the relationship between theories and the observational statements that can be inferred from them, ignores the actual practices – experimental practices as well as evidential practices – employed by scientists.
- Testing a theory is a more complex process than the hypothetico-deductive model suggests: many productive theories would have been discounted if this process were accepted.
- Aren't we more likely to reject an observation than a theory?
- Alternatively, the hypothetico-deductive method ‘confirms’ or ‘corroborates’ too much: if H is accepted then so is H+A (where A is any arbitrary statement).
- Individual scientific hypotheses are not subject to separate testing: the conjunction between the hypothesis and other auxiliary hypotheses is too complex.
- ‘Normal’ science is conservative rather than radical and/or critical: scientists are not in the business of making bold conjectures nor are they actively engaged in attempting to refute them.
- In a research programme core theories are immune from falsification.

Other relevant criticisms should also be rewarded.

- 7–9 Demonstrates detailed and precise knowledge and understanding of **two** criticisms of the hypothetico-deductive method.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of **two** criticisms of the hypothetico-deductive method, or narrow and detailed but partial knowledge and understanding eg one criticism is stated accurately but a second is very brief, blurred with the first or omitted. Answers in this level may list three or more criticisms rather than focus on two.
- 1–3 Demonstrates some knowledge and limited understanding of at least one criticism of the hypothetico-deductive method.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (9 marks)

Illustrative examples depend upon the criticisms selected. Hopefully some examples are drawn from science (eg of theories that have withstood refutation, or of the importance of auxiliary hypotheses) or from the study of scientists (the occupational culture, etc). Expect some references to examples used in the literature (eg by Chalmers) such as Copernicus's theory and observations of Venus, Newtonian theory and the orbit of Uranus, Lakatos's imaginary astronomer, Bohr's theory of the atom, etc.

- 7–9 Selects or constructs at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of **two** criticisms of the hypothetico–deductive method. The example(s) provided illuminate the criticism identified.
- 4–6 Selects or constructs at least one relevant example to provide a partial explanation of **two** criticisms of the hypothetico–deductive method either because detail and precision is lacking or because only one criticism is clearly illustrated. Responses in this level may be characterised by detailed explanation and very brief illustration.
- 1–3 Selects and applies at least one relevant point to provide a basic explanation and/or sketchy illustration of **two** criticisms of the hypothetico–deductive method. Answers at the bottom of this level may consist of vague exposition only with no attempt made to illustrate the criticisms.
- 0 No relevant philosophical points are made.

(b) Assess the view that scientific laws describe necessary connections between events. (32 marks)

Knowledge and Understanding (8 marks)

This question could be approached in different ways but whichever approach is used the essential point to grasp is that there is a dispute about the status of law–like statements in science.

- A reasonable starting point would be Hume: prior to Hume it had been assumed that a cause had some *power* to produce an effect but Hume's sceptical arguments pose a severe challenge to this view.
- An outline of Hume's arguments might be given: we don't have an impression of a power or necessary connection, all we observe is a constant conjunction between events (what happens when two billiard balls collide); neither can we deduce such a power or necessary connection, the relationship between events in the world is not analytic, scientific laws aren't knowable a priori.
- The problem that emerges is that of distinguishing between accidentally true generalisations and scientific laws: Hume's approach doesn't appear to do so and we feel that there is a distinction to be drawn between a truth describing the relationship between events and accidental correlations or patterns.
- Thus, it is argued that scientific laws – if they are to be distinguished from accidental patterns – describe a necessary connection between events such that if x then y: not x, not y.

- 7–8 Demonstrates detailed and precise knowledge and understanding of arguments and concepts relating to the view that scientific laws describe necessary connections.
- 4–6 Demonstrates a range of knowledge but general and prosaic understanding of arguments and concepts relating to the view that scientific laws describe necessary connections *or* partial, narrow but detailed knowledge and understanding of arguments and concepts relating to this view.
- 1–3 Demonstrates basic knowledge and limited understanding of aspects of arguments and concepts relating to the view that scientific laws describe necessary connections (eg there is limited awareness that there is an issue to discuss).
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (8 marks)

Some of the following or equivalent points should be made:

- Examples of general, or particular, scientific laws might be given to advance discussion (eg as statements which seem to describe something other than an accidental pattern). General law-like statements include Newton's laws; particular law-like statements include the boiling points of various substances.
- The view that laws do describe patterns and regularities in nature rather than necessity. There is no necessity in nature: there is only constant conjunction. Logically, we're all in the same position as Russell's turkey.
- If this is unacceptable then we might be able to limit the damage if we confine laws to general statements: but then generalisations may still describe events that are accidentally constantly conjoined; also, not all laws are generalisations.
- Genuine laws support counterfactual conditionals, accidents don't: but while this may be true there is still no *explanation* of why it is true.
- It might be argued that not all necessary truths are a priori: that some necessary truths are known a posteriori. Such truths might include (at least some) scientific laws.
- Laws differ from accidents insofar as they are inductively supported by their instances: but does this yield necessity?
- Laws differ from accidents insofar as they fit into some idealised or systematised framework: but does this yield necessity?
- Scientific laws express a relation of necessitation between events: 'nomic' necessity describes relations which are universal and necessary. Necessitation implies constant conjunction but constant conjunction doesn't imply necessitation. Can this be shown to be true through research and experimentation?
- A non-Humean approach is necessary to deal with probabilistic laws – such as event x necessitates event y to degree p – because it does not seem possible to describe degrees of probability on the basis of constant conjunction. Do such laws, therefore, state quantitative relations of necessitation?

- 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 view that scientific laws describe necessary connections.
- 4–6 Selects or constructs some relevant points and examples to provide a partial analysis, either narrowly focused or lacking detail and precision, of arguments and theories related to the view that scientific laws describe necessary connections.
- 1–3 Selects and applies some relevant points to provide a basic analysis of at least one aspect of this issue **or** some relevant points feature in a tangential approach to the question.
- 0 No relevant philosophical points are made.

Interpretation and Evaluation (16 marks)

A range of argumentation is possible:

- Hume's arguments aren't persuasive: a non-observable something is not a non-existing something.
- But what does necessitation exist as? A convenient fiction? A concept we can't justify but have to believe in? So Hume's arguments are persuasive.
- The idea of necessary connection doesn't add anything to the idea of constant conjunction. So Hume's arguments are persuasive.
- Hume was right to say that we don't experience necessity but wrong to say that it isn't an a priori concept: it's a concept we have to impose upon experience in order to make sense of it. The necessity expressed in scientific laws is psychological but in a Kantian rather than Humean sense.
- Scientific laws don't describe necessary connections, there's no such thing.

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 judgments or summaries in relation to the question: responses in this level may 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 is demonstrated.

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 the instrumentalist view of scientific theory.	<i>(18 marks)</i>
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Knowledge and Understanding (9 marks)

The instrumentalist holds that:

- Scientific theories are instruments designed to accommodate descriptions of, and predictions about, observable phenomena: a scientific theory is useful as an instrument if it allows us to understand, control, predict, etc the behaviour of observable phenomena.
- The instrumentalist, typically, distinguishes between observable phenomena and theoretical concepts: theoretical concepts are seen as ‘useful fictions’ enabling calculations and predictions about observable phenomena.
- A theory is “a rule, or set of instructions, for the derivation of singular statements from other singular statements”. Different instrumentalist approaches to (high-level) theory include: it is useful but literally meaningless; it is a shorthand way of describing observable entities; its observable consequences may be seen to be true or false but there is no way of determining whether it is a true or false description of reality.
- This may be traced to idealist hostility to the view that human experience and/or reason can provide an insight into the reality behind appearances.
No marks are available for assessing instrumentalism.

- 7–9 Demonstrates detailed and precise knowledge and understanding of the instrumentalist view of scientific theory.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of the instrumentalist view of scientific theory, or narrow and detailed but partial knowledge or understanding eg in a brief, accurate but undeveloped account of the instrumentalist view of scientific theory.
- 1–3 Demonstrates some knowledge and limited understanding of the instrumentalist view of scientific theory.
- 0 No relevant philosophical knowledge and understanding is demonstrated.

Selection and Application (9 marks)

Illustrations of the instrumentalist view might include:

- Examples of non-observable theoretical concepts (eg gravitational field, friction, atomic particle, etc) as convenient fictions for describing the behaviour of observable entities or as ‘shorthand’ descriptions of observable phenomena.
- Illustrations of ‘pessimism’ concerning theory: that is, as many theories in the history of science have turned out to be false it is likely that current theories will turn out to be false. Whereas theoretical concepts are replaced (making it unlikely that they were ever descriptions of reality – and true or false in this sense) knowledge concerning observable entities has increased. This data is all that matters.
- The under-determination of theory by data: numerous and opposing theories are compatible with observed data. The theories we (presently) accept are simply those that have enjoyed predictive success.

- Examples drawn from the literature (eg Chalmers): how Copernican thought can be rendered in instrumentalist terms, Kekule’s theory of the molecular structure of organic chemical compounds.
- 7–9 Selects or constructs at least one relevant example and applies this to provide a clear, detailed and precise illustrative analysis of the instrumentalist view of scientific theory. The example(s) provided illuminate the outline.
- 4–6 Selects or constructs at least one relevant example to provide a partial explanation of the instrumentalist view of scientific theory either because the example is brief and undeveloped or because precision is lacking. Responses in this level may be characterised by detailed explanation and very brief illustration.
- 1–3 Selects and applies at least one relevant point to provide a basic explanation and/or sketchy illustration of the instrumentalist view of scientific theory. Answers at the bottom of this level may consist of vague exposition only with no attempt made to illustrate the point.
- 0 No relevant philosophical points are made.

(b)	Assess theories of scientific progress and development.
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	<i>(32 marks)</i>
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Knowledge and Understanding (8 marks)

This might be tackled in a number of ways:

- An extension of part (a) – perhaps a contrast between realists and instrumentalists in relation to the development of scientific concepts and theories. Whether progress consists in getting closer to an accurate understanding and explanation of reality or whether it consists in finding fruitful 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 ideal, or common sense, view of scientific method; reductionism, the view that progress is linear, cumulative and convergent; 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 theories of scientific progress and development.
- 4–6 Demonstrates either a range of knowledge but general and prosaic understanding of debates concerning theories of scientific progress and development, or narrow and detailed but partial knowledge and understanding of theories of scientific progress and development.
- 1–3 Demonstrates some knowledge and limited understanding of theories of scientific progress and development.
- 0 No relevant philosophical knowledge and understanding

Selection and Application (8 marks)

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

- Reductionism: scientific progress is linear as new and original scientific theories add to the body of scientific knowledge; it is cumulative, as it is incorporated into the body of known truths; it is convergent, it moves in the direction of a unified science, a theory of everything (TOE). But, is reduction always possible? Are new theories commensurate with existing theories?
- 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. Is this a convincing account of scientific method? Does it yield an account of development and progress?
- Relativism: Kuhn's account of the structure of scientific revolutions is probably 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 occurs when a new paradigm, with better explanatory and predictive power, replaces the conventional theoretical framework of normal science. But, in this case progress isn't related to truth and one might ask what sense of progress this provides given that we can't relate theories to truth or to each other because they are incommensurate.
- 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 can't be shown to be a true or false description of reality.
- Lakatos's view that progress is occurring in research programmes that have not degenerated.

- 7–8 Selects relevant points and examples and applies these to provide a clear, detailed and precise illustrative analysis of debates concerning theories of scientific progress and development.
- 4–6 Selects, or constructs, some relevant points and examples to provide a partial analysis, either narrowly focused on one or two positions or lacking detail and precision, of debates concerning theories of scientific progress and development.
- 1–3 Selects and applies some relevant points to provide a basic analysis of debates concerning theories of scientific progress and development **or** some relevant points feature in a tangential approach to the question.
- 0 No relevant philosophical points are made.

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/absolute future science and an imperfect relative 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 skeptical 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.
- Few would deny that science has developed and progressed – theories of how this occurs are less significant than the practice of ‘doing’ science.

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 judgments or summaries in relation to the question: responses in this level may 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 is demonstrated.