



General Certificate of Education

Psychology 2181

Specification A

Unit 3 (PSYA3) Topics in Psychology

Mark Scheme

2010 examination - January series

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PSYA3: Topics in Psychology

BIOLOGICAL RHYTHMS AND SLEEP

1

Total for this question: 25 marks

(a) Outline one example of a circadian rhythm.	<i>(4 marks)</i>
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AO1 = 4 marks Outline of one circadian rhythm

Circadian rhythms have a 24 hour periodicity, and include the sleep/waking cycle and body temperature. Candidates are likely to outline the sleep-waking cycle. Besides correctly identifying the rhythm, an outline might include reference to the role of endogenous body clocks and external zeitgebers such as light. However any material relevant to the sleep-waking cycle would be creditworthy. This section should be marked bearing in mind time constraints.

AO1 Mark bands

4 marks	Outline is reasonably thorough, accurate and coherent
3-2 marks	Outline is limited, generally accurate and reasonably coherent
1 mark	Outline is weak and muddled
0 marks	No creditworthy material

(b) (i) Outline one or more explanations for sleep disorders (eg insomnia, sleep walking, narcolepsy).	<i>(5 marks)</i>
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AO1 = 5 marks Outline of **one or more** explanations for sleep disorders

There are a variety of explanations for insomnia, including basic dysregulation of biological rhythms and a range of secondary factors; these may include apnoea, psychological and medical conditions, and personality factors.

For narcolepsy there is clear evidence implicating genetics and the neurotransmitter orexin (also known as hypocretin); description of symptoms is not credit-worthy unless linked to explanations eg REM phenomena leaking into consciousness.

Sleepwalking – this is a parasomnia, occurring in NREM sleep. There is no clear biological explanation beyond the relationship with NREM. Psychodynamic approaches emphasise the leakage of dream content from REM into NREM sleep ie it is an acting out of dream imagery.

AO1 Mark bands

5 – 4 marks	Outline is reasonably thorough, accurate and coherent.
3 – 2 marks	Outline is limited, generally accurate and reasonably coherent.
1 mark	Outline is weak and muddled.
0 marks	No creditworthy material.

(b) (ii) Evaluate one or more explanations for sleep disorders	<i>(16 marks)</i>
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AO2/3 = 16 marks Analysis and evaluation of one or more explanations

Although unlikely, candidates need not focus on the explanations outlined in (b)(i). Research studies can be used to support a role for eg apnoea or personality factors in insomnia. Successful treatments (eg positive pressure masks or CBT) can be used to support explanations. Candidates may comment on the difficulty of isolating key variables.

There are many studies on dogs and other animals supporting a role for genetics and orexin in narcolepsy. These raise issues of extrapolation and generalisation. There are some human studies on genetic bases and the role of orexin. Candidates may also comment on the failure of pharmacological treatments as a limitation of the biological approach, and also its reductionist nature.

With sleepwalking the psychodynamic approach can be criticised in terms of its speculative and untestable nature. Such commentary need not be explicitly linked to the explanation to earn credit, but would not earn marks beyond 'rudimentary'.

Indicative issues/debates in the context of explanations for sleep disorders, depending upon the explanation evaluated: use of animals in research; reductionism and its strengths and limitations; alternative approaches, such as the biological and psychodynamic; ethical issues (use of animals); nature-nurture (brain mechanisms v. environmental factors).

Evaluation of research is creditworthy, but to gain good marks the implications for explanations need to be made clear; other material relevant to How Science Works might include analysis and interpretation of data; accurate communication of ideas; applications and implications of scientific findings (eg links between explanations and treatments); the tentative nature of scientific knowledge.

AO2/3 Mark Bands

16-13 marks Effective

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding.

The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant.

If reference is made to issues/debates/approaches, it is muddled and inaccurate.

Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

PERCEPTION**2****Total for this question: 25 marks**

Discuss the nature-nurture debate in relation to explanations of perceptual development.

(25 marks)

AO1 = 9 marks Outline of the nature-nurture debate in relation to explanations of perceptual development

AO1 marks can be earned through a description of the nature-nurture debate and an outline of relevant research studies. These can be taken, for instance, from classic and modern research into the development of perceptual abilities (Fantz, Gibson & Walk etc), distortion studies, and cross-cultural work. The question is open, and research using non-human animals, such as Blakemore's work on the cat visual cortex, is creditworthy. However the focus of the question is on the nature-nurture debate, and any studies outlined must be *explicitly* shaped to the debate.

Gibson and Gregory must be used effectively in relation to perceptual development and the nature-nurture debate to earn marks in the top two bands. Otherwise the maximum mark would be 4.

AO1 Mark Bands**9-8 marks Sound**

Knowledge and understanding are accurate and well detailed.

A good range of relevant material has been selected. There is substantial evidence of breadth and depth. Organization and structure of the answer are coherent.

7-5 marks Reasonable

Knowledge and understanding are generally accurate and reasonably detailed.

A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.

4-3 marks Basic

Knowledge and understanding are basic/relatively superficial.

A restricted range of material has been presented.

Organisation and structure of the answer are basic.

2-1 marks Rudimentary

Knowledge and understanding are rudimentary and may be muddled and/or inaccurate.

The material presented may be very brief or largely irrelevant.

Lacks organization and structure.

0 marks

No creditworthy material.

AO2/3 = 16 marks Analysis and evaluation of the nature-nurture debate in relation to explanations of the perceptual development

There are many accessible and relevant studies supporting one or other side of the debate, and effective use of findings and their implications would be a key aspect of accessing AO2 marks. For marks in the top two bands there must be a sustained critical commentary on the nature-nurture debate. Overall commentary on the interaction of nature and nurture in perceptual development would be creditworthy. Evaluation could also include the problem of extrapolating from non-human animals and cultural bias.

Indicative issues/debates/approaches in the context of the nature-nurture debate; ethical issues (eg studies in infants, non-human animals); cross-cultural research, including cultural bias in research and cultural differences in perceptual development; methodology in developmental psychology; the biological approach.

Evaluation of research is creditworthy, but to gain good marks the implications for explanations need to be made clear. Other material relevant to How Science Works might include the analysis and interpretation of data; the communication of ideas; implications of scientific findings.

AO2/3 Mark Bands

16-13 marks Effective

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

RELATIONSHIPS**3****Total for this question: 25 marks**

'To put it at its most basic, women want resources and men want to spread their genes.'

Discuss the evolutionary approach to explaining parental investment in humans (eg sex differences, parent-offspring conflict). (25 marks)

AO1 = 9 marks Outline of evolutionary explanations.

Triver's parental investment theory is likely to provide the basis for AO1 marks. This can be linked to descriptions of differences in mate selection and parental behaviour between males and females. Further considerations could include anisogamy, parent-offspring conflict and cuckoldry. Later developments, such as Buss and Schmitt's sexual strategies approach, would also be relevant, but whatever explanations are presented AO1 marks will depend upon the focus and understanding demonstrated in the answer. Overarching evolutionary explanations, such as the selfish-gene approach, may only earn AO1 marks if the relevance to parental investment is explicit. The question is on parental investment, and material on other aspects of relationships, is unlikely to earn marks.

Description of relevant research evidence would be another route to AO1 marks, although studies must be explicitly linked to parental investment.

AO1 Mark Bands**9-8 marks Sound**

Knowledge and understanding are accurate and well detailed.
A good range of relevant material has been selected. There is substantial evidence of breadth/depth. Organization and structure of the answer are coherent.

7-5 marks Reasonable

Knowledge and understanding are generally accurate and reasonably detailed.
A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.

4-3 marks Basic

Knowledge and understanding are basic/relatively superficial.
A restricted range of material has been presented.
Organisation and structure of the answer are basic.

2-1 marks Rudimentary

Knowledge and understanding are rudimentary and may be muddled and/or inaccurate.
The material presented may be very brief or largely irrelevant.
Lacks organization and structure.

0 marks

No creditworthy material.

AO2/3 = 16 marks Analysis and evaluation of evolutionary explanations of parental investment in humans

The research of Buss and others on gender differences in mate preferences in the modern day provides relevant evidence on evolutionary explanations. Further commentary could include cultural shifts over time, such as the problem of non-heterosexual relationships, changes in male and female attitudes to relationships and parental investment.

Indicative issues/debates/approaches in the context of the evolutionary approach: evolutionary psychology (sociobiology) and alternative approaches; evolutionary reductionism; cultural bias/differences in studies of parental investment; gender bias/differences in studies of parental investment; free will and determinism.

Evaluation of research is creditworthy, but to gain good marks the implications for explanations need to be made clear. Other material relevant to How Science Works might include implications for society of evolutionary findings and ideas; analysis and interpretation of data; communication of ideas.

AO2/3 Mark bands

16-13 marks Effective

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

AGGRESSION**4****Total for this question: 25 marks**

Discuss explanations of institutional aggression.

*(25 marks)***AO1 = 9 marks** Description of explanations of institutional aggression

This is a new topic to the A2 Specification and is likely to produce a range of answers. To earn AO1 marks they must focus on explanations for aggression in groups and institutions such as prisons, the police and army, and terrorist organizations. Explanations may refer to situational and individual factors, and refer to established studies such as Zimbardo's prison experiment or to more recent work on, for instance, the war in Iraq. Zimbardo has also introduced the 'Lucifer' effect to explain aggression. Social psychological explanations such as deindividuation and social learning theory could be made relevant. The focus of any answer must be on institutional aggression rather than aggression in general for marks beyond Basic.

Although candidates are required to describe more than one explanation, there are no partial performance criteria on this question. Answers covering only one explanation will lack breadth and can earn a maximum of 6 marks for AO1.

AO1 mark bands**9-8 marks Sound**

Knowledge and understanding are accurate and well detailed.
A good range of relevant material has been selected. There is substantial evidence of breadth/depth. Organization and structure of the answer are coherent.

7-5 marks Reasonable

Knowledge and understanding are generally accurate and reasonably detailed.
A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.

4-3 marks Basic

Knowledge and understanding are basic/relatively superficial.
A restricted range of material has been presented.
Organisation and structure of the answer are basic.

2-1 marks Rudimentary

Knowledge and understanding are rudimentary and may be muddled and/or inaccurate.
The material presented may be very brief or largely irrelevant.
Lacks organization and structure.

0 marks

No creditworthy material.

AO2/3 = 16 marks Analysis and evaluation of explanations of institutional aggression

The most effective route to AO2 marks would be the use of relevant research findings in evaluating different explanations. Commentary could include the problem of isolating specific factors and the application of explanations and findings to real life examples. The use of alternative explanations of aggression, such as the biological approach, can earn AO2 marks if used as part of sustained and effective evaluation.

Indicative issues/debates/approaches in discussing explanations of institutional aggression: ethical issues in research studies; cultural/gender bias in research on institutional aggression, and culture/gender differences in institutional aggression; socially-sensitive research; free will and determinism in the context of institutional aggression.

Evaluation of research is creditworthy, but to gain good marks the implications for explanations need to be made clear. Other material relevant to How Science Works might include the communication of ideas, the implications and applications of research findings; analysis and interpretation of findings; the use of science by society in decision making.

AO2/3 Mark bands

16-13 marks Effective

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line or argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary and is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

EATING BEHAVIOUR

5

Total for this question: 25 marks

'Dieting often fails because people are trying to go against their biological drive to eat.'

Discuss explanations for the success and/or failure of dieting.

(25 marks)

AO1 = 9 marks

Outline of explanations for the success and/or failure of dieting

As another new area in the Specification a wide range of answers can be expected. Polivy's work on restraint theory, developed later into the boundary model, is likely to be popular. This approach incorporates some aspects of Nisbett's biological/genetic body weight set-point theory. Health psychology models such as the theory of planned behaviour or planned relapse could also be used to earn AO1 marks.

Although candidates are likely to take a general approach to explanations for the success and/or failure of dieting, that describes both success and failure, some may explicitly focus on *either* the success *or* the failure of dieting, using the counter position as evaluation (AO2). Examiners should assess the material in the way most favourable to the candidate.

Examiners should be sensitive to answers that are largely anecdotal. Answers that are not psychologically informed will be rudimentary. Similarly, general essays on feeding mechanisms will not earn marks unless focused on the question. Background material on whether dieting works or not is relevant can receive limited AO1 credit.

AO1 mark bands

<p>9-8 marks Sound Knowledge and understanding are accurate and well detailed. A good range of relevant material has been selected. There is substantial evidence of breadth/depth. Organization and structure of the answer are coherent.</p>
<p>7-5 marks Reasonable Knowledge and understanding are generally accurate and reasonably detailed. A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.</p>
<p>4-3 marks Basic Knowledge and understanding are basic/relatively superficial. A restricted range of material has been presented. Organisation and structure of the answer are basic.</p>
<p>2-1 marks Rudimentary Knowledge and understanding are rudimentary and may be muddled and/or inaccurate. The material presented may be very brief or largely irrelevant. Lacks organization and structure.</p>
<p>0 marks No creditworthy material.</p>

AO2/3 = 16 marks Analysis and evaluation of the explanations for the success or failure of dieting

Research evidence supporting, for instance, the boundary model would be an effective route to AO2 marks, as would an evaluation of the internal/external validity of laboratory-based studies. General commentary could include the complex nature of dieting behaviour, for instance the interplay of cognitive, biological (genetic), and affective factors. Cultural attitudes to eating behaviour would also be important.

Indicative issues/debates/approaches in relation to explanations for the success or failure of dieting: comparison of social, cognitive and biological approaches; (biopsychosocial models); cultural and gender biases in research; cultural and gender differences; free will and determinism; nature-nurture; reductionism.

Evaluation of research is creditworthy, but to gain good marks the implications for explanations need to be made clear. Other material relevant to How Science Works might include analysis and interpretation of data (eg correlational methods); communication of ideas and information; application of research findings; use of scientific findings for social policy.

AO2/3 Mark bands**16-13 marks Effective**

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

GENDER**6****Total for this question: 25 marks**

(a) Outline psychological and biological explanations of gender development.	<i>(9 marks)</i>
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AO1 = 9 marks

Outline of psychological and biological explanations of gender development.

Psychological approaches to gender development include cognitive-developmental and gender schema theories. More general theories, such as social learning, may earn AO1 marks if clearly focused on gender development. Biological approaches include the roles of genetics and hormones, and evolutionary perspectives. Biological explanations must link to the development of gender role behaviour as well as or instead of development of biological sex to receive full credit.

Examiners should be sensitive to the time constraints of this question part, given the limited time candidates have to answer this question part. For marks in the top two bands coverage of both types of approach should be reasonably balanced. Candidates who outline only psychological **or** biological approaches are showing partial performance, and can earn a maximum of **6** marks for AO1. Examiners should be sensitive to depth/breadth trade offs in answers covering more than one example of each type of explanation.

AO1 mark bands**9-8 marks Sound**

Knowledge and understanding are accurate and well detailed.
A good range of relevant material has been selected. There is substantial evidence of breadth/depth. Organization and structure of the answer are coherent.

7-5 marks Reasonable

Knowledge and understanding are generally accurate and reasonably detailed.
A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.

*Partial Performance is **sound** (maximum 6 marks)*

4-3 marks Basic

Knowledge and understanding are basic/relatively superficial.
A restricted range of material has been presented.
Organisation and structure of the answer are basic.

*Partial Performance is **reasonable***

2-1 marks Rudimentary

Knowledge and understanding are rudimentary and may be muddled and/or inaccurate.
The material presented may be very brief or largely irrelevant.
Lacks organization and structure.

*Partial Performance is **basic***

0 marks

No creditworthy material.

(b) Consider whether psychological or biological approaches provide the better explanation of gender development. (16 marks)

AO2/3 = 16 marks Commentary on whether psychological or biological approaches provide the better explanation of gender development

The most effective route for AO2 marks would be the use of research evidence followed by commentary on the balance of evidence in favour of one approach or the other, and/or the ability of either approach to explain psychological observations on the nature of gender development. For marks in the top two bands the question of which approach provides the better explanation must be explicitly addressed. Conclusions may take the form of an interaction rather than supporting one over the other. A further route to the full range of AO2/AO3 marks would be to provide a clear, substantial and effective argument in favour of one approach.

Indicative issues/debates/approaches in relation to psychological and biological approaches to gender development: comparison of social, cognitive, biological approaches; reductionist explanations (biological, evolutionary); cultural bias and differences; gender bias and differences; ethical issues; nature-nurture and the free will-determinism argument; socially-sensitive research.

Evaluation of research is creditworthy, but to gain good marks the implications for explanations need to be made clear. Other material relevant to How Science Works might include: analysis and interpretation of data; social impact of scientific findings; communicating scientific ideas and findings.

AO2/3 Mark bands**16-13 marks Effective**

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

INTELLIGENCE AND LEARNING**7****Total for this question: 25 marks**

'We now realise that animal behaviour can be too complex to be explained through simple conditioning.'

Discuss evidence for intelligence in non-human animals.

*(25 marks)***AO1 = 9 marks**

Outline of evidence for intelligence in non-human animals

AO1 credit is likely to be earned through an outline of the many research studies on intelligence in non-human animals. These study such areas as Machiavellian intelligence, theory of mind, tool use, altruism, and language. Species-specific skills such as migration and homing would need to be explicitly justified as examples of *intelligent* behaviour to receive marks.

For marks in the top two bands examples would need to be accurate and show clear understanding of their relevance to intelligence.

Straightforward description of classical and/or operant conditioning not shaped to the question cannot receive marks beyond 'rudimentary'.

AO1 mark bands**9-8 marks Sound**

Knowledge and understanding are accurate and well detailed.
A good range of relevant material has been selected. There is substantial evidence of breadth/depth. Organization and structure of the answer are coherent.

7-5 marks Reasonable

Knowledge and understanding are generally accurate and reasonably detailed.
A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.

4-3 marks Basic

Knowledge and understanding are basic/relatively superficial.
A restricted range of material has been presented.
Organisation and structure of the answer are basic.

2-1 marks Rudimentary

Knowledge and understanding are rudimentary and may be muddled and/or inaccurate.
The material presented may be very brief or largely irrelevant.
Lacks organization and structure.

0 marks

No creditworthy material.

AO2/3 = 16 marks Analysis and evaluation of evidence for intelligence in non-human animals.

A key route to AO2 marks would be a critical consideration and evaluation of research evidence. Better candidates may comment on the *consistency* of the evidence for eg theory of mind in primates and other animals. More general commentary could include the nature of intelligence in non-human animals and comparison with human intelligence. Additional material could concern species-differences and/or an evolutionary perspective.

Indicative issues/debates/approaches in the context of evidence for intelligence in non-human animals: comparative psychology and use of non-human animals in research (ethical issues); naturalistic studies and the scientific method; sociobiology (evolutionary psychology); nature-nurture.

Methodological evaluation of relevant research evidence. Other material relevant to How Science Works might include the analysis and interpretation of data; communication of ideas and findings; implications and applications of scientific findings (eg the treatment of non-human primates).

AO2/3 Mark bands**16-13 marks Effective**

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

COGNITION AND DEVELOPMENT**8****Total for this question: 25 marks****(a) Describe one theory of cognitive development.****(9 marks)****AO1 = 9 marks**

Description of one theory of cognitive development

Candidates are able to choose from Piaget, Vygotsky, and Bruner. Descriptions must be accurate, for instance, Piaget's stages, Vygotsky and the role of the ZPD, or Bruner's modes of representation. Although unlikely, answers may present studies as a way of illustrating aspects of the theory, in which case they can earn AO1 marks. This is particularly important in this question where AO2/3 material focuses on applications to education.

AO1 mark bands**9-8 marks Sound**

Knowledge and understanding are accurate and well detailed.

A good range of relevant material has been selected. There is substantial evidence of breadth and depth. Organization and structure of the answer are coherent.

7-5 marks Reasonable

Knowledge and understanding are generally accurate and reasonably detailed.

A range of relevant material has been selected. There is evidence of breadth and/or depth. Organisation and structure of the answer are reasonably coherent.

4-3 marks Basic

Knowledge and understanding are basic/relatively superficial.

A restricted range of material has been presented.

Organisation and structure of the answer are basic.

2-1 marks Rudimentary

Knowledge and understanding are rudimentary and may be muddled and/or inaccurate.

The material presented may be very brief or largely irrelevant.

Lacks organization and structure.

0 marks

No creditworthy material.

(b) Consider ways in which research into cognitive development has been applied to education. (16 marks)

AO2/3 = 16 marks Analysis and evaluation of one or more theories of cognitive development in terms of their applications to education

Each of the theories has direct applications to education; Piaget's ideas on readiness and discovery learning, Vygotsky's emphasis on scaffolding and peer mentoring, and Bruner's spiral curriculum. Critical aspects, such as the existence or not of rigid stages, the role of the social context as opposed to solitary learning, or the cultural contexts in which the different theories emerged, may all be relevant. Alternative theories (if not described in Part (a)) may earn AO2 marks if used as part of sustained and effective commentary.

Research studies (and their evaluation) may be used as relevant AO2 material if their relevance to the debate on applications to education is clear.

Indicative Issues/Debates/Approaches in the context of the application of theories of cognitive development to education: cognitive and cognitive-developmental approaches; cultural biases and differences.

Evaluation of research is creditworthy, but to gain good marks the implications for theories and their applications need to be made clear. Other material relevant to How Science Works might include: applications and implications of scientific ideas and findings; analysis and interpretation of data; communication of ideas using appropriate terminology; role of science in social decision making.

AO2/3 Mark bands**16-13 marks Effective**

Evaluation/commentary demonstrates sound analysis, understanding and interpretation. The answer is well focused and shows coherent elaboration and/or a clear line of argument. Issues/debates/approaches are used effectively. Ideas are well structured and expressed clearly and fluently. Consistently effective use of psychological terminology. Appropriate use of grammar, punctuation and spelling.

12-9 marks Reasonable

Evaluation/commentary demonstrates reasonable analysis and understanding. The answer is generally focused and shows reasonable elaboration and/or a line of argument is evident. Issues/debates/approaches are used in a reasonably effective manner. Most ideas appropriately structured and expressed clearly. Appropriate use of psychological terminology. Minor errors of grammar, punctuation and spelling only occasionally compromise meaning.

8-5 marks Basic

Evaluation/commentary demonstrates basic, superficial understanding. The answer is sometimes focused and shows some evidence of elaboration. Superficial reference may be made to issues/debates/approaches. Expression of ideas lacks clarity. Limited use of psychological terminology. Errors of grammar, punctuation and spelling are intrusive.

4-1 marks Rudimentary

Evaluation/commentary is rudimentary, demonstrating little understanding. The answer is weak, muddled and incomplete. Material is not used effectively and may be mainly irrelevant. If reference is made to issues/debates/approaches, it is muddled and inaccurate. Deficiency in expression of ideas results in confusion and ambiguity. The answer lacks structure, often merely a series of unconnected assertions. Errors of grammar, punctuation and spelling are frequent and intrusive.

0 marks

No creditworthy material is presented.

ASSESSMENT OBJECTIVES: UNIT 3

Question Number	AO1	AO2/3	Total
1(a)	4		
1(b)(i)	5		
1(b)(ii)		16	25
2	9	16	25
3	9	16	25
4	9	16	25
5	9	16	25
6(a)	9		
6(b)		16	25
7	9	16	25
8(a)	9		
8(b)		16	25