



General Certificate of Education

Psychology 5181/6181 *Specification A*

Unit 4 PYA4

Mark Scheme

2005 examination – June series

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

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

PYA4

QUALITY OF WRITTEN COMMUNICATION (QoWC)

Band 3	The work is characterised by a CLEAR expression of ideas, the use of a GOOD range of specialist terms, and FEW errors of grammar, punctuation and spelling.	4-3 marks
Band 2	The work is characterised by a REASONABLE expression of ideas, the use of SOME specialist terms, and REASONABLE grammar, punctuation and spelling.	2-1 marks
Band 1	The work is characterised by a POOR expression of ideas, the use of a LIMITED range of specialist terms, and POOR grammar, punctuation and spelling.	0 marks

PYA4 ASSESSMENT OBJECTIVE 1

	Content	Detail and accuracy	Organisation & structure	Breadth and depth
12-11	Substantial	Accurate and well-detailed	Coherent	Substantial evidence of both and balance achieved
10-9	Slightly limited	Accurate & reasonably detailed	Coherent	Evidence of both but imbalanced
8-7	Limited	Generally accurate & reasonably detailed	Reasonably constructed	Increasing evidence of breadth and/or depth
6-5	Basic	Generally accurate, lacks detail	Reasonably constructed	Some evidence of breadth and/or depth
4-3	Rudimentary	Sometimes flawed	Sometimes focused	
2-0	Just discernible	Weak/muddled/inaccurate	Wholly/mainly irrelevant	

PYA4 ASSESSMENT OBJECTIVE 2

	Evaluation is	Material used in	Selection and elaboration
12-11	Thorough	Highly effective	Appropriate selection and coherent elaboration
10-9	Slightly limited	Effective	Appropriate selection and elaboration
8-7	Limited	Reasonably effective	Reasonable elaboration
6-5	Basic	Restricted	Some evidence of elaboration
4-3	Superficial and rudimentary	Not effective	No evidence of elaboration
2-0	Muddled and incomplete		Wholly or mainly irrelevant

General Note

In general, and unless otherwise indicated by the specific question and its marking scheme, description of research studies may be credited as AO1 or AO2. The critical element for AO2 credit is whether the research study is *explicitly* introduced as part of evaluation/commentary and findings/conclusions similarly linked as part of sustained evaluation/commentary ('topped and tailed'). If this is the case then the *whole* presentation of a research study should be credited as AO2. Otherwise the study may earn AO1 marks.

SECTION A – SOCIAL PSYCHOLOGY

1

Total for this question: 24 marks

Discuss research (theories **and/or** studies) into perception of the social world (e.g. social representations, social and cultural stereotyping). (24 marks)

Discuss is an **AO1** and **AO2** term, which requires the candidate to show evidence of their knowledge and understanding (**AO1**), and of their analysis and evaluation (**AO2**) of research (theories and/or studies) into perception of the social world. In the *Terms used in A2 Examinations* document, the term ‘research’ is defined as ‘the process of gaining knowledge and understanding via either theory construction, examination, or empirical data collection.

AO1

This question allows candidates to answer in general terms, for example through the use of schemas, heuristics, or the concepts of the cognitive miser and motivated tactician. Alternatively, they might draw upon the named topic areas (social representations and social/cultural stereotyping). Two central ideas in Moscovici’s view of social representations are *anchoring* (the tendency to classify and name unfamiliar objects and events by comparing them with familiar categories) and *objectification* (the process by which unfamiliar and abstract notions, ideas and images are transformed into more concrete and objective common-sense realities). Candidates may, by way of elaboration, examine the different ways in which information might be ‘objectified’, e.g. through personification of knowledge (i.e. linking a concept to a person); figuration (using a metaphorical image to help understand an abstract notion) or through the process of ontologising (an abstract notion is interpreted in concrete terms). Moscovici’s own research (Moscovici, 1961) looked at the way in which psychoanalytic concepts such as ‘neurosis’ and ‘complex’ were used in French society. Candidates who choose to write about social and cultural stereotyping may describe theoretical explanations of the functions of stereotypes or why they work (e.g. the concept of the illusory stereotype). Alternatively, candidates may examine research that has looked at the relationship between stereotyping and prejudice. It is possible that some candidates may take a much more general view of social perception and use material on prejudice or even attribution theory. The number of marks to be awarded for such responses should be determined by how closely the answer is ‘shaped’ to the requirements of this question rather than simply being an answer to a different question in this subsection. For example, answers on attribution theory with no explicit link to perception of the social world would not earn marks.

AO2

Evaluation may be achieved either by adopting a critical stance towards research into perception of the social world, or by examining theories or studies that support or challenge this research. For example, critics of social representations theory have argued that the concept of social representations is too vague and loosely defined, and therefore difficult to translate into scientific research. Likewise, some critics argue that social representations theorists *assume* consensual representations within a group and ignore diversity. Note that evaluation can also be positive, with a particular strength of social representations theory being its ability to offer a plausible explanation for cultural differences in social perception (e.g. the use of a fundamental attribution error and self-serving biases in Western societies and of group-serving biases in non-Western cultures). Likewise, although the existence of social stereotypes supports the concept of the ‘cognitive miser’, research has generally shown such stereotypes to be generally incorrect (Moghaddam, 1998).

Candidates may use research studies *either* as **AO1** or **AO2** in response to this question. Given the use of the term ‘research’ in the question these studies would count as **AO1** without further qualification, but in order to be counted as **AO2**, such material must be used as part of a sustained critical commentary.

AO1: Description of research into perception of the social world.

Band	Mark allocation	Marks
Band 3 Top	Description of research into perception of the social world is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved.	12-11
Band 3 Bottom	Description of research into perception of the social world is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved.	10-9
Band 2 Top	Description of research into perception of the social world is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 Bottom	Description of research into perception of the social world is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Description of research into perception of the social world is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 Bottom	Description of research into perception of the social world is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Evaluation of research into perception of the social world.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of research into perception of the social world is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of research into perception of the social world is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of research into perception of the social world is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Evaluation of research into perception of the social world is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Evaluation of research into perception of the social world is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration.	4-3
Band 1 Bottom	Evaluation of research into perception of the social world is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

Outline and evaluate **two or more** psychological explanations of love.

(24 marks)

Outline is an **AO1** injunction, which requires candidates to provide a summary description (**AO1**) of two or more psychological explanations of love. *Evaluate* is an **AO2** term requiring the candidate to present evidence of analysis and evaluation (**AO2**) of these explanations.

AO1

There are a number of theories that would be appropriate for this question. Possible explanations are Sternberg's triangular theory (Sternberg, 1986) and love as an aspect of attachment (e.g. Hazan and Shaver, 1987). For the former, candidates might write about the three components of love (intimacy, passion and commitment) and the typology of love relationships (e.g. romantic and companionate love). For the latter, candidates might describe the relationship between early attachment styles (secure, insecure etc.) and adult love experiences, or perhaps even the evolutionary significance of human love relationships. It is also possible that candidates may write about the formation, maintenance or dissolution of romantic relationships rather than focusing on love as a distinct topic. The number of marks awarded for this approach should be determined by the extent to which answers are 'shaped' to this topic. The same rule would apply for answers that are more focused on *attraction* than love. Answers that deal simply with the development of romantic relationships without emphasising *love* per se, would not constitute such a coherent response to this question as one that engaged with the question topic in a more explicit way. Some candidates might offer a response that dwells more on the development of love in childhood. Whilst the question does not preclude such a response, the same advice as in the previous example applies.

AO2

As part of the **AO2** component of this question, candidates may assess the degree of research support for their chosen explanations, consider alternative explanations, or assess cultural differences in the importance of love. For example, in Sternberg's triangular theory, passion is considered more important at the outset of love relationships in Western cultures whereas commitment is more important in non-Western cultures. What is required for **AO2** is more than just a *description* of research studies, alternative explanations or cultural differences, but candidates should be able to use these as part of a sustained critical commentary on the two or more explanations chosen. Those who simply *describe* such material without using this material as part of a sustained critical commentary should receive a maximum of 4 marks (top of Band 1) for the **AO2** component.

Candidates who present only one explanation should be restricted to a maximum mark in Band 2 (top) (see **AO1** and **AO2** mark allocations). Note that the *outline* injunction does not require the same degree of detail as the *describe* injunction. As the question invites candidates to focus on *two or more* explanations, examiners should make allowances for a trade-off between depth and breadth in responses to this question.

AO1: Outline of two or more psychological explanations of love.

Band	Mark allocation	Marks
Band 3 Top	Outline of two or more psychological explanations of love is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent .	12-11
Band 3 Bottom	Outline of two or more psychological explanations of love is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent .	10-9
Band 2 Top	Outline of two or more psychological explanations of love is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . <i>Partial performance is substantial, accurate and well-detailed (top of band) or slightly limited, accurate and reasonably detailed (bottom of band).</i>	8-7
Band 2 Bottom	Outline of two or more psychological explanations of love is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . <i>Partial performance is limited, generally accurate and reasonably detailed.</i>	6-5
Band 1 Top	Outline of two or more psychological explanations of love is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable . <i>Partial performance is basic, generally accurate and lacking detail.</i>	4-3
Band 1 Bottom	Outline of two or more psychological explanations of love is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement. <i>Partial performance is rudimentary and sometimes flawed with little focus on the question.</i>	2-0

AO2: Evaluation of two or more psychological explanations of love.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of two or more psychological explanations of love is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration.	12-11
Band 3 bottom	Evaluation of two or more psychological explanations of love is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of two or more psychological explanations of love is limited . The material is used in a reasonably effective manner and shows reasonable elaboration . <i>Partial performance is thorough, highly effective and coherent (top of band) or slightly limited and effective (bottom of band).</i>	8-7
Band 2 bottom	Evaluation of two or more psychological explanations of love is basic . The material is used in a restricted manner and shows some evidence of elaboration. <i>Partial performance is limited and reasonably effective with reasonable elaboration.</i>	6-5
Band 1 Top	Evaluation of two or more psychological explanations of love is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration. <i>Partial performance is basic and restricted with some evidence of elaboration.</i>	4-3
Band 1 bottom	Evaluation of two or more psychological explanations of love is muddled and incomplete . The material may be wholly or mainly irrelevant. <i>Partial performance is superficial and not used effectively with no evidence of elaboration.</i>	2-0

3

Total for this question: 24 marks

Outline and evaluate **one or more** explanations of human altruism **and/or** bystander behaviour. (24 marks)

Outline is an **AO1** term, which requires the candidates to provide a summary description of two or more explanations of human altruism and/or bystander behaviour. *Evaluate* is an **AO2** term which requires the candidate to give evidence of **AO2** with relation to these explanations of human altruism and/or bystander behaviour.

AO1

Two major explanations of human altruism are the *empathy-altruism hypothesis* (Batson, 1991) and the *negative-state relief model* (Cialdini, 1997). Eisenberg's *theory of prosocial reasoning* might also be used in this context (Eisenberg et al., 1983). The *EAH* and *NSR model* in particular are rooted in research studies. If candidates do not provide an explanation as such *but* do provide descriptions of one or more studies, these can be credited as AO1 insofar as they *illustrate* an explanation and/or its theoretical bases. It is likely that such relevant AO1 material embedded in the description of a study/studies will be *rudimentary*. If the candidate then offers as AO2 material evaluation of the studies described, then only evaluation focused on the *explanation* should be credited i.e. issues such as *ecological validity* would need to focus on the implications for the associated explanation.

Other acceptable explanations of human altruism include kin selection. Explanations of bystander behaviour include Latané and Darley's *cognitive model* (Latané and Darley, 1970) and the *arousal: cost-reward model* (Piliavin et al., 1981). It is possible that candidates might include description of *studies* of bystander behaviour (e.g. Darley and Latané, 1968) rather than, or as well as, *explanations* of bystander behaviour. Inclusion of such studies may be counted as **AO2** commentary provided they are linked in some way to the explanations of bystander behaviour. Discussion of the fate of Kitty Genovese (or similar cases) should only earn credit if it is explicitly linked to the explanations given.

AO2

Evaluation using research evidence may be accomplished in many ways, including the juxtaposition of alternative explanations (e.g. Cialdini's contention that Batson's research does not show real altruism), the ability of different explanations to explain real life examples of 'altruistic' behaviour, and the use of research evidence that supports or challenges the explanation in question. Both of the major explanations of human altruism have problems with research that appears to contradict their central assumptions. Research has, for example, suggested that the high personal cost of helping may sometimes direct attention away from concern for the other person and toward the participants themselves. This suggests that in some conditions empathy does not lead to altruism. There are also problems with the negative-state relief model. Research has shown that people are more likely to help when they are in a good mood (rather than a negative mood).

The degree to which candidates use research studies or alternative explanations as part of a developed critical argument, rather than simply presenting further descriptive content, should constitute the effectiveness of the evaluation, and hence the number of marks awarded for this skill.

As candidates may focus on *two or more* explanations, examiners should make allowances for a trade-off between depth and breadth in responses to this question.

AO1: Outline of one or more explanations of human altruism/bystander behaviour.

Band	Mark allocation	Marks
Band 3 Top	Outline of one or more explanations of human altruism/bystander behaviour is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent .	12-11
Band 3 bottom	Outline of one or more explanations of human altruism/bystander behaviour is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent .	10-9
Band 2 Top	Outline of one or more explanations of behaviour is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed .	8-7
Band 2 bottom	Outline of one or more explanations of human altruism/bystander behaviour is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable .	6-5
Band 1 Top	Outline of one or more explanations of human altruism/bystander behaviour is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 bottom	Outline of one or more explanations of human altruism/bystander behaviour is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Evaluation of one or more explanations of human altruism/bystander behaviour.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of one or more explanations of human altruism/bystander behaviour is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 bottom	Evaluation of one or more explanations of human altruism/bystander behaviour is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of one or more explanations of human altruism/bystander behaviour is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 bottom	Evaluation of one or more explanations of human altruism/bystander behaviour is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Evaluation of one or more explanations of human altruism/bystander behaviour is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 bottom	Evaluation of one or more explanations of human altruism/bystander behaviour is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

SECTION B – PHYSIOLOGICAL PSYCHOLOGY

4

Total for this question: 24 marks

Outline and evaluate **one** invasive and **one** non-invasive method used to investigate the brain.
(24 marks)

Outline is an **AO1** injunction, which requires candidates to provide a summary description (**AO1**) of one invasive and one non-invasive method used to investigate the brain. The **AO2** injunction is *Evaluate*, which requires the candidate to give evidence of **AO2** with relation to these methods.

AO1

Invasive methods for studying the brain include electrical/chemical stimulation, ablation and lesioning.

Non-invasive methods used to study the brain include electrical recording (EEG), computed tomography (CT) scans, magnetic resonance imaging (MRI) and positron emission tomography (PET) scans. Also appropriate in this latter group are the newer techniques of the functional MRI (fMRI), single photon emission tomography (SPET) and magnetoencephalography (MEG). Candidates are free to outline any two of these methods. It is possible that some candidates write about ‘scanning’ as one method and ‘imaging’ as another, and therefore outline more than the one non-invasive method asked for in this question. Provided the candidate makes an explicit attempt to justify why such methods might be grouped together within a superordinate ‘method’, this is acceptable. It is possible that some candidates may present fMRI as a development of MRI rather than as a completely separate technique. This is also an acceptable response.

Examiners should not allow generic ‘invasive’ or ‘non-invasive’ answers. If candidates outline more than one method in either category, the best one should be credited. There are, however, some acceptable inclusive approaches (e.g. scanning and imaging, stimulation) that would satisfy the requirement to cover ‘one’ method. Note that the injunction *Outline* does not require the same degree of descriptive detail as the *Describe* injunction.

AO2

Although the specification prescribes strengths and limitations in this area, this focus is not necessary in this question. Candidates may, however, use strengths and/or limitations of their chosen methods as the AO2 component of their answer. They may, for example, consider the strengths and/or limitations of their chosen methods directly - modern forms of lesioning, such as radio frequency lesioning, have the advantage that lesion size can be accurately controlled, allowing lesioning of small nerves without damaging surrounding nerves. Alternatively, they can evaluate their chosen method(s) through comparison with other methods. For example, MRI scans give highly detailed three-dimensional pictures of a person’s brain, and are therefore typically superior to the images gathered by a CT scan. However, like CAT scans, these are only static images of the brain, which do not tell us much about the functions of the different structures. It is also possible that candidates may evaluate their chosen methods by considering research that has demonstrated the wider application of that method or methods. For example, research using PET scans has revealed that the pattern of neural activity in the brains of schizophrenics is different to that of non-schizophrenics. This has led investigators to the conclusion that the disorder must have a physical cause.

What is required for **AO2** is more than just a description of research studies, alternative methods or applications, (though simply describing strengths and/or limitations is OK), but candidates should be able to use these as part of a sustained critical commentary on the two methods chosen. Those who simply describe such material without using this material as part of a sustained critical commentary should receive a maximum of 4 marks (top of Band 1) for the **AO2** component. There is a partial performance penalty for both components of this question. Candidates who outline (or evaluate) only one explanation should be restricted to a maximum mark in Band 2 (top) (see AO1 and AO2 mark allocations).

AO1: Outline of one invasive and one non-invasive method used to investigate the brain.

Band	Mark allocation	Marks
Band 3 Top	Outline of one invasive and one non-invasive method used to investigate the brain is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent .	12-11
Band 3 Bottom	Outline of one invasive and one non-invasive method used to investigate the brain is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent .	10-9
Band 2 Top	Outline of one invasive and one non-invasive method used to investigate the brain is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . <i>Partial performance is substantial, accurate and well-detailed (top of band) or slightly limited, accurate and reasonably detailed (bottom of band).</i>	8-7
Band 2 Bottom	Outline of one invasive and one non-invasive method used to investigate the brain is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . <i>Partial performance is limited, generally accurate and reasonably detailed.</i>	6-5
Band 1 Top	Outline of one invasive and one non-invasive method used to investigate the brain is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable . <i>Partial performance is basic, generally accurate and lacking detail.</i>	4-3
Band 1 Bottom	Outline of one invasive and one non-invasive method used to investigate the brain is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement. <i>Partial performance is rudimentary and sometimes flawed with little focus on the question.</i>	2-0

AO2: Evaluation of one invasive and one non-invasive method used to investigate the brain.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of one invasive and one non-invasive method used to investigate the brain is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of one invasive and one non-invasive method used to investigate the brain is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of one invasive and one non-invasive method used to investigate the brain is limited . The material is used in a reasonably effective manner and shows reasonable elaboration . <i>Partial performance is thorough, highly effective and coherent (top of band) or slightly limited and effective (bottom of band).</i>	8-7
Band 2 Bottom	Evaluation of one invasive and one non-invasive method used to investigate the brain is basic . The material is used in a restricted manner and shows some evidence of elaboration . <i>Partial performance is limited and reasonably effective with reasonable elaboration.</i>	6-5
Band 1 Top	Evaluation of one invasive and one non-invasive method used to investigate the brain is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration . <i>Partial performance is basic and restricted with some evidence of elaboration.</i>	4-3
Band 1 Bottom	Evaluation of one invasive and one non-invasive method used to investigate the brain is muddled and incomplete . The material may be wholly or mainly irrelevant . <i>Partial performance is superficial and not used effectively with no evidence of elaboration.</i>	2-0

5

Total for this question: 24 marks

- (a) Outline research (theories **and/or** studies) into **one or more** forms of biological rhythms (e.g. circadian, infradian, ultradian rhythms). (12 marks)
- (b) Assess the consequences of disrupting biological rhythms. (12 marks)

(a) *Outline* is an **AO1** term, which requires candidates to provide a summary description (**AO1**) of research into one or more forms of biological rhythm. In the *Terms used in Examinations document*, the term ‘research’ is defined as ‘the process of gaining knowledge and understanding via either theory construction, examination, or empirical data collection.

(b) The **AO2** term is Assess, which requires the candidate to present evidence of analysis and evaluation (**AO2**) in terms of a consideration of the extent to which disruption of such biological rhythms has consequences for the individual.

(a) AO1

Although the question gives three specific biological rhythms as examples, it is acceptable for candidates to choose other examples in their answer. For example, some candidates may choose two different aspects of the circadian rhythm (e.g. the sleep-wake cycle and body temperature).

The question is, however, quite specific in asking for *research* into one or more forms of biological rhythm, rather than a general description/definition of the nature of each rhythm. It is not necessary for candidates to name a particular study, but it should be recognisable as exploring issues pertinent to the rhythm in question. Thus, we might expect studies of isolation, sleep deprivation and phase shifting (circadian rhythm), the basic rest-activity cycle (ultradian rhythm) and the human menstrual cycle (infradian rhythm). Candidates who choose to write about studies of isolation (e.g. Michel Siffre) or sleep deprivation (e.g. Peter Tripp) should make the link between such studies and their underlying biological rhythm explicit if they are to gain marks for this material. It is possible that some candidates make reference to studies of endogenous pacemakers and/or exogenous zeitgebers, jet lag and/or the effects of shift work as research studies relevant to circadian rhythms. These are perfectly acceptable provided the candidate makes an explicit link between the studies being described and an underlying biological rhythm. It is also possible, if not probable, that many candidates choose to write about stages of sleep as part of ‘research’ into ultradian rhythms. Insofar as identification of such stages can be traced back to researchers such as Dement and Kleitman, this is acceptable without identifying specific studies. The degree to which candidates ‘shape’ their response to the specific requirements of this question (i.e. biological rhythms) determines the coherence of the answer, and therefore the number of marks awarded.

Note that the *outline* injunction does not require the same degree of detail as the *describe* injunction. As the question invites candidates to focus on *one or more* forms of biological rhythm, examiners should make allowances for a trade-off between depth and breadth in responses to this question.

(b) AO2

This part of the question may most likely elicit material on shiftwork and/or jet lag. Thus, examiners can expect discussion of the circadian trough and the problems of poor quality sleep (shiftwork) or discussion of the differential consequences of phase *advance* and phase *delay*. Alternatively, candidates may discuss research on altered sleep patterns (e.g. late nights) and the consequential effects on performance. What is required for **AO2** is more than just a *description* of the effects of disrupted rhythms, but candidates should be able to use these as part of a sustained commentary on these effects. Those who simply *describe* such material without using this material as part of a sustained critical commentary should receive a maximum of 4 marks (top of Band 1) for the **AO2** component. It is not necessary for the rhythms discussed in the second part of the question to be the same as those in the first part.

Material in one question part that does not earn marks but would do so in the other question part should be exported to that part.

AO1: Outline of research into one or more forms of biological rhythms.

Band	Mark allocation	Marks
Band 3 Top	Outline of research into <i>one or more</i> forms of biological rhythms is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent .	12-11
Band 3 Bottom	Outline of research into <i>one or more</i> forms of biological rhythms is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent .	10-9
Band 2 Top	Outline of research into <i>one or more</i> forms of biological rhythms is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed .	8-7
Band 2 Bottom	Outline of research into <i>one or more</i> forms of biological rhythms is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable .	6-5
Band 1 Top	Outline of research into <i>one or more</i> forms of biological rhythms is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 Bottom	Outline of research into <i>one or more</i> forms of biological rhythms is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Assessment of the consequences of disrupting biological rhythms.

Band	Mark allocation	Marks
Band 3 Top	Assessment of the consequences of disrupting biological rhythms is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Assessment of the consequences of disrupting biological rhythms is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Assessment of the consequences of disrupting biological rhythms is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Assessment of the consequences of disrupting biological rhythms is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Assessment of the consequences of disrupting biological rhythms is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Assessment of the consequences of disrupting biological rhythms is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

6

Total for this question: 24 marks

Critically consider the role of brain structures in emotion.	(24 marks)
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Critically consider is an **AO1** and **AO2** term, which requires the candidate to show evidence of their knowledge and understanding (**AO1**), and of their analysis and evaluation (**AO2**) of the role of brain structures in emotion.

AO1

The key brain structures associated with emotion are located in the limbic system. These include the hypothalamus, hippocampus and amygdala. Stimulation of the hypothalamus in animal subjects generally results in rage and its destruction to a decrease in emotional behaviour. Likewise, electrical and chemical stimulation of the hippocampus brings about emotional responses and autonomic reactions similar to those found during normal emotion. However, the full range of emotional experiences involves much more of the brain. There is evidence, for example, that the right hemisphere of the cerebral cortex may be more important than the left in certain types of emotional behaviour. The frontal lobes, although primarily neocortex, are also implicated in emotion. Early animal studies that involved frontal lobe ablations (a precursor to the frontal lobotomy) produced a decrease in emotional responsiveness. The exact role of the frontal lobes in emotion is, however, as yet unknown.

Although not strictly a *structure*, the autonomic nervous system plays an important role in emotional arousal. Candidates may, therefore, make reference to the James-Lange and Cannon-Bard theories of emotion to illustrate the role of autonomic nervous system arousal in emotional experience. The Cannon-Bard theory could be made relevant but only as a way of illustrating the role of brain structures. It is harder to see how a candidate might make the James-Lange theory relevant in this respect.

AO2

Evaluation of this area may touch on the relative uncertainty that taints much of our understanding of the role of different brain structures in emotion, or the mechanisms by which they act. Research in this area is widely accessible, and better-informed candidates should be able to support their assertions about the role of different brain structures through reference to empirical studies in that area. It is also appropriate for candidates to consider the *consequences* of damage to a particular area. For example, temporal lobe damage can lead to the Klüver-Bucy syndrome (a condition where subjects fail to display normal fears and anxieties). Understanding the physiology of emotion is fraught with difficulties. Some of these are methodological - for example the technical difficulties of determining the precise location and extent of a particular lesion or how to confine the effect of stimulation or a lesion to a given area of interest. A related problem is the whole idea of localisation of function. In attempting to define a specific area of brain as 'involved' with emotional behaviour and experience, there is the implication that this area of the brain is *responsible* for that behaviour or experience. However, this is rarely the case. Rather it is more accurate to say that the action of a particular area of the brain is *necessary* for the occurrence of a particular emotional behaviour, but it may not be a sufficient condition for that behaviour to take place. Candidates may, therefore, as part of their AO2 content, point out the role of non-neurological factors in emotional behaviour and experience. However, this should form part of a sustained commentary on the role of brain structures rather than simply a description of an alternative 'psychological' explanation.

Despite the use of the term 'brain *structures*' in the question, this does not imply a partial performance penalty should a candidate only discuss the role of *one* brain structure. Instead it acknowledges that emotional behaviour and experience may be spread across many different areas of the brain rather than being located in just one central area.

AO1: Knowledge and understanding of the role of brain structures in emotion.

Band	Mark allocation	Marks
Band 3 Top	Knowledge and understanding of the role of brain structures in emotion is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 Bottom	Knowledge and understanding of the role of brain structures in emotion is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Knowledge and understanding of the role of brain structures in emotion is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 Bottom	Knowledge and understanding of the role of brain structures in emotion is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Knowledge and understanding of the role of brain structures in emotion is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 Bottom	Knowledge and understanding of the role of brain structures in emotion is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Analysis and evaluation relating to the role of brain structures in emotion.

Band	Mark allocation	Marks
Band 3 Top	Analysis and evaluation of the role of brain structures in emotion is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Analysis and evaluation of the role of brain structures in emotion is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Analysis and evaluation of the role of brain structures in emotion is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Analysis and evaluation of the role of brain structures in emotion is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Analysis and evaluation of the role of brain structures in emotion is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Analysis and evaluation of the role of brain structures in emotion is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

SECTION C - COGNITIVE PSYCHOLOGY

7

Total for this question: 24 marks

Outline and evaluate **two or more** explanations of pattern recognition (e.g. template and feature detection theories). (24 marks)

Outline is an **AO1** injunction, which requires candidates to provide a summary description (**AO1**) of *two or more* explanations of pattern recognition. The **AO2** injunction is *Evaluate*, which requires the candidate to present evidence of **AO2** in relation to these explanations.

A01

There are a number of ‘explanations’ of pattern recognition that would be appropriate in a response to this question. Candidates may describe *theories* of pattern recognition (such as template theory and prototype theories) or focus on the role of biological mechanisms in pattern recognition, (e.g. theories such as Hubel and Wiesel’s feature detection model [Hubel and Wiesel, 1979] or McClelland and Rumelhart’s connectionist approach, [McClelland and Rumelhart, 1985]). Alternatively, candidates may offer material that relates to the role of context in pattern recognition. It is acceptable, therefore, for candidates to focus on theories such as Gregory’s ‘top-down’ constructivist theory (Gregory, 1973), and Healy’s unitisation hypothesis (Healy, 1994). Also relevant in this context are explanations on face recognition (e.g. Bruce and Young, 1986). Bruce and Young’s model specifies a number of different processing modules that are important in this aspect of pattern recognition (e.g. structural encoding and expression analysis).

A02

Candidates may evaluate particular explanations directly (e.g. it is difficult for simple template theories to make sense of the complex visual material that we encounter), or by contrasting the strengths of one explanation with the limitations of another. Alternatively, candidates may use research studies to substantiate (or challenge) the assumptions of a particular explanation. For example, Bruce and Young’s claim that face recognition consists of a number of different processing modules is supported by research that has shown different types of facial recognition deficits among servicemen who had received wounds to posterior regions of the brain (Young et al., 1993).

What is required for **AO2** is more than just a *description* of relevant research studies that may (or may not) support the assumptions of the chosen explanations, candidates should be able to use these research studies to construct an evaluative argument relating to the explanations in part (a) of the question. Those who simply *describe* appropriate research studies without using this material as part of a sustained critical commentary should receive a maximum of 4 marks (top of Band 1) for the **AO2** component.

There is a partial performance penalty for both components of this question. Candidates who outline (or evaluate) only one explanation should be restricted to a maximum mark in Band 2 (top) (see **AO1** and **AO2** mark allocations). Note that the *outline* injunction does not require the same degree of detail as the *describe* injunction. As the question invites candidates to focus on *two or more* explanations, examiners should make allowances for a trade-off between depth and breadth in responses to this question.

AO1: Outline of two or more explanations of pattern recognition.

Band	Mark allocation	Marks
Band 3 Top	Outline of two or more explanations of pattern recognition is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent .	12-11
Band 3 bottom	Outline of two or more explanations of pattern recognition is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent .	10-9
Band 2 Top	Outline of two or more explanations of pattern recognition is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . <i>Partial performance is substantial, accurate and well-detailed (top of band) or slightly limited, accurate and reasonably detailed (bottom of band).</i>	8-7
Band 2 bottom	Outline of two or more explanations of pattern recognition is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . <i>Partial performance is limited, generally accurate and reasonably detailed.</i>	6-5
Band 1 Top	Outline of two or more explanations of pattern recognition is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable . <i>Partial performance is basic, generally accurate and lacking detail.</i>	4-3
Band 1 bottom	Outline of two or more explanations of pattern recognition is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement. <i>Partial performance is rudimentary and sometimes flawed with little focus on the question.</i>	2-0

AO2: Evaluation of two or more explanations of pattern recognition.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of two or more explanations of pattern recognition is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 bottom	Evaluation of two or more explanations of pattern recognition is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of two or more explanations of pattern recognition is limited . The material is used in a reasonably effective manner and shows reasonable elaboration . <i>Partial performance is thorough, highly effective and coherent (top of band) or slightly limited and effective (bottom of band).</i>	8-7
Band 2 bottom	Evaluation of two or more explanations of pattern recognition is basic . The material is used in a restricted manner and shows some evidence of elaboration . <i>Partial performance is limited and reasonably effective with reasonable elaboration.</i>	6-5
Band 1 Top	Evaluation of two or more explanations of pattern recognition is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration . <i>Partial performance is basic and restricted with some evidence of elaboration.</i>	4-3
Band 1 bottom	Evaluation of two or more explanations of pattern recognition is muddled and incomplete . The material may be wholly or mainly irrelevant . <i>Partial performance is superficial and not used effectively with no evidence of elaboration.</i>	2-0

Discuss the nature-nurture debate with respect to perceptual development.

(24 marks)

Discuss is an **AO1** and **AO2** term, which requires the candidate to present evidence of their knowledge and understanding (**AO1**) of the nature-nurture debate with respect to perceptual development and analysis and evaluation (**AO2**) in relation to the nature-nurture debate in this context.

AO1

It is most likely that candidates will draw upon studies of perceptual development, some of which demonstrate the importance of *nature* (e.g. Fantz's study of face perception in infants and Gibson and Walk's studies using the visual cliff), and some of which demonstrate the importance of *nurture* (e.g. Blakemore and Cooper's study of restricted experience in kittens or von Senden's study of perceptual deprivation). Although candidates have a wide range of studies to draw upon when answering this question, it is important that they use these studies to demonstrate the different aspects of the nature-nurture argument rather than simply describing, for example, the development of depth perception or of visual constancies. Infant studies tend to offer support for the nature aspect of this argument, and cross-cultural studies tend to offer support for the nurture side of the argument. Alternatively, candidates might describe *explanations* of perceptual development, which champion the different side of this argument (e.g. top-down and bottom-up explanations). For example, Gibson and Gibson's differentiation theory (Gibson and Gibson, 1955) argues that perceptual development involves learning to perceive differences between objects. In contrast to this position, Piaget's enrichment theory (Piaget, 1954) emphasises the importance of schemas that are necessary for the development of full perceptual abilities.

AO2

Evaluation of this debate may be accomplished in many ways, including the degree to which different arguments are supported (or challenged) by research studies or theoretical perspectives. Alternatively, candidates may offer evaluation of studies (or theories) as a way of evaluating one particular side of the nature-nurture argument. It is also possible that some candidates might use the arguments of one side of the debate as counterarguments to the other side of the debate. Candidates who use this latter approach as their chosen method of evaluation should make some attempt at building a critical argument rather than simply presenting two opposing sets of arguments. Candidates who simply *describe* alternative theories or appropriate research evidence without using this material as part of a sustained critical commentary should have this material credited under **AO1**.

Note that there are a number of alternative 'routes' through this question. Candidates may, for example, offer a description (**AO1**) of the nature-nurture debate (in the context of perception) with studies that illustrate this debate as **AO2**. A further approach would be to describe the procedures and/or findings of appropriate research as **AO1**, and then offer conclusions and/or criticisms relevant to the nature-nurture debate as **AO2**.

General description of nature-nurture without any focus on perception (e.g. restricted to IQ only) should be restricted to marks in Band 1.

AO1: Description of the nature-nurture debate with respect to perceptual development.

Band	Mark allocation	Marks
Band 3 Top	Description of the nature-nurture debate with respect to perceptual development is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 Bottom	Description of the nature-nurture debate with respect to perceptual development is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Description of the nature-nurture debate with respect to perceptual development is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 Bottom	Description of the nature-nurture debate with respect to perceptual development is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Description of the nature-nurture debate with respect to perceptual development is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 Bottom	Description of the nature-nurture debate with respect to perceptual development is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Evaluation of the nature-nurture debate with respect to perceptual development.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of the nature-nurture debate with respect to perceptual development is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of the nature-nurture debate with respect to perceptual development is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of the nature-nurture debate with respect to perceptual development is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Evaluation of the nature-nurture debate with respect to perceptual development is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Evaluation of the nature-nurture debate with respect to perceptual development is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Evaluation of the nature-nurture debate with respect to perceptual development is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

Critically consider research (theories **and/or** studies) into the process of language acquisition.
(24 marks)

Critically consider is an **AO1** and **AO2** term, which requires the candidate to show evidence of their knowledge and understanding (**AO1**), and of their analysis and evaluation (**AO2**) of research into the process of language acquisition. In the *Terms used in A2 Examinations* document, the term ‘research’ is defined as ‘the process of gaining knowledge and understanding via either theory construction, examination, or empirical data collection.

AO1

There are two approaches to answering this question. These may be used independently, or in conjunction with each other. Candidates may describe research into the *process* of language acquisition (e.g. focusing on the stages of language acquisition and the characteristics of each stage) or they may describe different theories of the *development* of language. The major explanations of language development are those derived from the behaviourist perspective (e.g. Skinner, 1957), the nativist perspective (e.g. Chomsky, 1957) and the interactionist perspective (e.g. Slobin, 1985). There are numerous other ‘explanations’ that include language as an important component. Provided any such explanations are focused on the acquisition of language, they should receive credit. Theories such as the ‘linguistic relativity hypothesis’ (Whorf, 1956) may be credited as appropriate for an environmental explanation of language provided the candidate has stressed the developmental nature of the relationship between language and thought. As the question does not stress language development in humans, it is permissible for candidates to consider explanations of language acquisition in non-humans. This does not mean that any material on language in non-humans is relevant, only that which focuses on the *acquisition* or *development* of language in non-humans. It is also possible that some candidates may have read about research into the acquisition of a *second* language. Many of the developmental processes appropriate to the acquisition of a native language also apply to the acquisition of a second language, although research has uncovered differences in this process.

AO2

Evaluation may be accomplished in many ways, including the value of any studies quoted, the explanatory power of the chosen theories (i.e. their ability to ‘fit the facts’), their research support, or inconsistencies within the theories themselves. It is possible that candidates may introduce further research or theories as a way of demonstrating alternatives to the explanation being evaluated. They may, for example, describe one theory of language development (e.g. Skinner’s verbal behaviour theory) and then proceed to introduce a second theory (e.g. Chomsky) to evaluate the first theory. The degree to which candidates use this material as part of a developed critical argument, rather than simply presenting alternative perspectives, should constitute the effectiveness of the evaluation, and hence the number of marks awarded for **AO2**. Candidates who simply describe alternative explanations or appropriate research evidence without using this material as part of a sustained critical commentary should have this material credited under **AO1** instead.

AO1 Knowledge and understanding of research into the process of language acquisition.

Band	Mark allocation	Marks
Band 3 Top	Knowledge and understanding of research into the process of language acquisition is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 bottom	Knowledge and understanding of research into the process of language acquisition is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Knowledge and understanding of research into the process of language acquisition is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 bottom	Knowledge and understanding of research into the process of language acquisition is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Knowledge and understanding of research into the process of language acquisition is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 bottom	Knowledge and understanding of research into the process of language acquisition is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2 Analysis and evaluation of research into the process of language acquisition.

Band	Mark allocation	Marks
Band 3 Top	Analysis and evaluation of research into the process of language acquisition is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Analysis and evaluation of research into the process of language acquisition is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Analysis and evaluation of research into the process of language acquisition is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Analysis and evaluation of research into the process of language acquisition is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Analysis and evaluation of research into the process of language acquisition is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Analysis and evaluation of research into the process of language acquisition is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

SECTION D – DEVELOPMENTAL PSYCHOLOGY

10

Total for this question: 24 marks

Describe and evaluate Vygotsky’s theory of cognitive development. (24 marks)

Describe is an **AO1** term which requires the candidate to give evidence of their knowledge and understanding (**AO1**) of research into Vygotsky’s theory of cognitive development. *Evaluate* is an **AO2** term which requires the candidate to give evidence of analysis and evaluation (**AO2**) with relation to Vygotsky’s theory.

AO1

Vygotsky’s theory is specifically named as a prescribed theory on the specification. His theory on the social nature of thought is characterised by a number of important features, although it is not necessary for all of these features to be included in a full-marks answer to this question. These features include the importance of culture in cognitive development (e.g. the role of others and the difference between elementary and higher mental functions), the role of language, and the zone of proximal development. Some candidates may choose to extend their description of Vygotsky’s theory through description of applications of this theory (e.g. collaborative learning, scaffolding). This is acceptable as many of these applications are important parts of the theory as well. Alternatively, some candidates may choose to use these applications as part of their evaluation of the theory. This is also acceptable.

As this question specifies one particular theory, material that is relevant to other theories (e.g. Piaget) should not receive credit unless it is being used as part of a critical evaluation of Vygotsky’s theory (and so credited under **AO2**).

AO2

There are a number of ways in which Vygotsky’s theory can be evaluated. There are, for example, strengths (e.g. its educational applications) and limitations (e.g. the relative lack of empirical evidence) of this theory that might form the backbone of the **AO2** component of this question. Alternatively, candidates could construct an evaluation based on research studies that support (or challenge) the assumptions of the theory. For example, research by McNaughton and Leyland (1990) has supported the concept of the zone of proximal development, whereas research by Sinclair-de-Zwart (1969) failed to find evidence to support the importance of language in cognitive development. The degree to which candidates use this material as part of a developed critical argument, rather than simply *describing* related research studies, should constitute the effectiveness of the evaluation, and hence the number of marks awarded for **AO2**. Candidates who simply describe alternative theories (such as Piaget’s theory) or appropriate research evidence without using this material as part of a sustained critical commentary should receive a maximum of 4 marks (top of Band 1) for **AO2**.

Note: Marks for this question should not be ‘depressed’ in anticipation of the breadth of material usually offered in response to questions on Piaget.

AO1: Description of Vygotsky's theory of cognitive development.

Band	Mark allocation	Marks
Band 3 Top	Description of Vygotsky's theory of cognitive development is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 bottom	Description of Vygotsky's theory of cognitive development is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Description of Vygotsky's theory of cognitive development is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 bottom	Description of Vygotsky's theory of cognitive development is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Description of Vygotsky's theory of cognitive development is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 bottom	Description of Vygotsky's theory of cognitive development is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Evaluation of Vygotsky's theory of cognitive development.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of Vygotsky's theory of cognitive development is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of Vygotsky's theory of cognitive development is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of Vygotsky's theory of cognitive development is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Evaluation of Vygotsky's theory of cognitive development is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Evaluation of Vygotsky's theory of cognitive development is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Evaluation of Vygotsky's theory of cognitive development is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

11

Total for this question: 24 marks

- | | |
|---|------------|
| (a) Outline and evaluate one psychodynamic explanation of personality development. | (12 marks) |
| (b) Outline and evaluate one social learning explanation of personality development. | (12 marks) |

(a) *Outline* is an **AO1** term, which requires candidates to provide a summary description (**AO1**) of one psychodynamic explanation of personality development. The **AO2** term is *Evaluate*, which requires the candidate to give evidence of **AO2** with relation to this psychodynamic explanation.

(b) *Outline* is an **AO1** term, which requires candidates to provide a summary description (**AO1**) of one social learning explanation of personality development. The **AO2** term is *Evaluate*, which requires the candidate to give evidence of **AO2** with relation to this social learning explanation.

AO1 [(a) and (b)]

Candidates must make sure that whatever material they choose in response to this question, it is explicitly relevant to the issue of 'personality development'. This is not particularly problematic when covering Freudian theory (if chosen by the candidate) for part (a), as arguably most, if not all of this theory is related to personality and its ongoing development. Candidates who choose Freudian theory cannot be expected to do more than cover the main features of this theory (e.g. the structure of personality, stages of development, fixation etc.) in the time available.

In part (b) candidates are required to outline the social learning approach to personality development. The basis of this approach lies in the work of Bandura and Walters (1963) who outlined the principles by which personality might be developed using the principles of their social learning theory. Their approach stressed the importance of 'reciprocal determinism' where the individual both influences and is influenced by his or her environment, and 'self-efficacy', where an individual's sense of their personal effectiveness influences their achievement. The situationalist theory of Walter Mischel, (which stresses that an individual's behaviour varies from situation to situation rather than being consistent across all situations) may also be used as an appropriate social learning explanation of personality development. If social learning studies are described with no mention of aspects of personality, AO1 would be flawed and earn a maximum of 2 marks for AO1 and 2 marks for AO2. If aspects of personality such as aggression are introduced, marks may be earned across the scale depending on how well the answer is shaped to the question.

Note that the *outline* injunction does not require the same degree of detail as the *describe* injunction.

AO2 [(a) and (b)]

Evaluation may be both negative *and* positive, therefore it is possible that some candidates may stress the explanatory power of their chosen approaches to personality, as well as the research support for its/their assumptions. Alternatively, they may focus more on the inadequacies of an approach, arguing, perhaps, that their chosen theory *supplements* other approaches to personality development rather than replacing them completely. It is possible that candidates may introduce further theories as a way of demonstrating alternatives to their chosen theory/theories. The degree to which candidates *use* this material as part of a developed critical argument, rather than simply presenting alternative perspectives, should constitute the *effectiveness* of the evaluation, and hence the number of marks awarded for this component. Candidates who simply *describe* alternative theories or appropriate research evidence without using this material as part of a sustained critical commentary should receive a maximum of 2 marks (top of Band 1) for this component.

In this question candidates may introduce alternative approaches to the expected ones. If these are explicitly and sensibly justified they should be marked on their merits.

AO1: [Part a and b] Outline of one psychodynamic/social learning explanation of personality development.

[AS APPROPRIATE FOR SIX MARKS]

Band	Mark allocation	Marks
Band 3 Top	Outline of one psychodynamic/social learning explanation of personality development is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent .	6
Band 3 bottom	Outline of one psychodynamic/social learning explanation of personality development is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent .	5
Band 2 Top	Outline of one psychodynamic/social learning explanation of personality development is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed .	4
Band 2 bottom	Outline of one psychodynamic/social learning explanation of personality development is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable .	3
Band 1 Top	Outline of one psychodynamic/social learning explanation of personality development is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	2
Band 1 bottom	Outline of one psychodynamic/social learning explanation of personality development is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	1-0

AO2: [Part a and b] Evaluation of one psychodynamic/social learning explanation of personality development.

[AS APPROPRIATE FOR SIX MARKS]

Band	Mark allocation	Marks
Band 3 Top	Evaluation of one psychodynamic/social learning explanation of personality development is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	6
Band 3 bottom	Evaluation of one psychodynamic/social learning explanation of personality development is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	5
Band 2 Top	Evaluation of one psychodynamic/social learning explanation of personality development is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	4
Band 2 bottom	Evaluation of one psychodynamic/social learning explanation of personality development is basic . The material is used in a restricted manner and shows some evidence of elaboration .	3
Band 1 Top	Evaluation of one psychodynamic/social learning explanation of personality development is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	2
Band 1 bottom	Evaluation of one psychodynamic/social learning explanation of personality development is muddled and incomplete . The material may be wholly or mainly irrelevant .	1-0

12

Total for this question: 24 marks

Discuss **two or more** explanations of adjustment to old age.

(24 marks)

Discuss is an **AO1** and **AO2** term, which requires the candidate to show evidence of their knowledge and understanding (**AO1**), and of their analysis and evaluation (**AO2**) of research (theories and/or studies) into two or more explanations of adjustment to old age.

AO1

There is a wide range of appropriate explanations that candidates might draw upon in response to this question. These include theories such as *social disengagement theory* (Cumming and Henry, 1961), *activity theory* (Havighurst et al., 1968) and *selectivity theory* (Field and Minkler, 1988). Alternatively candidates might focus on adjustment to specific aspects of old age, such as retirement or bereavement. Candidates may, for example, describe the impact of retirement from the perspective of the transition from 'generativity versus stagnation' to 'integrity versus despair' (Erikson, 1968). Appropriate explanations that might place bereavement within the topic of adjustment in old age include theoretical insights from Kübler-Ross, (1969) and Murray-Parkes, (1972). If this approach is taken, the focus of discussion must be on *explanations* of how older people adjust to retirement and bereavement, rather than general discussions of their effects (which would not receive credit).

It is also appropriate for candidates to focus their explanations on *cognitive* changes in old age. Cognitive changes that occur with ageing include intelligence, memory, learning and problem solving. Candidates may also discuss research into the more pathological cognitive changes associated with late adulthood. Some researchers have found evidence for increased *interiority* in late adulthood, with an increased tendency toward introspection and reflection. Provided such material provides an *explanation* of how people adjust to the cognitive changes associated with old age, this is acceptable.

AO2

Evaluative commentary may take several forms. If candidates choose social *theories* of adjustment (such as social disengagement theory), then such theories can be evaluated directly in terms of their central assumptions, their ability to 'fit statistical facts', or perhaps the research support for these assumptions. Candidates who choose specific areas of adjustment (such as retirement or bereavement), might evaluate their material in terms of available research evidence, or perhaps in terms of cross-cultural or sub-cultural differences in adjustment to those life events. Likewise, transitional theories of life events (e.g. Hopson, 1988) suggest that adjustment to life events such as bereavement and retirement may be positive in terms of subsequent developmental growth. Cognitive decline in old age is not inevitable as other factors, such as good physical health, stable marriages and active, stimulating lives positively correlate with higher intelligence scores in late adulthood. Many explanations of adjustment to old age are confounded by 'cohort effects', i.e. people who are 80 in 2004 will be very different to those who will be 80 in 2064 (due to better education and health, changing cultural patterns, and changing stereotypes about what is possible for older people).

Note - there is no one, universal, agreed 'threshold' for late adulthood, therefore candidates may be expected to include material relating to any adults of retirement age or over. This is acceptable. What is not acceptable, however, is material relating to much younger ages.

What is required for **AO2** is more than just a *description* of appropriate research studies or alternative explanations, but candidates should be able to use these as part of a sustained critical commentary on the explanations chosen. Those who simply *describe* such material without using this material as part of a sustained critical commentary should receive a maximum of 4 marks (top of Band 1) for the **AO2** component. Candidates who present only one explanation should be restricted to a maximum mark in Band 2 (top) (see **AO1** and **AO2** mark allocations). As the question invites candidates to focus on *two or more* explanations, examiners should make allowances for a trade-off between depth and breadth in responses to this question.

AO1: Description of two or more explanations of adjustment to old age.

Band	Mark allocation	Marks
Band 3 Top	Description of two or more explanations of adjustment to old age is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 bottom	Description of two or more explanations of adjustment to old age is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Description of two or more explanations of adjustment to old age is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth. <i>Partial performance is substantial, accurate and well-detailed (top of band) or slightly limited, accurate and reasonably detailed (bottom of band).</i>	8-7
Band 2 bottom	Description of two or more explanations of adjustment to old age is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth. <i>Partial performance is limited, generally accurate and reasonably detailed.</i>	6-5
Band 1 Top	Description of two or more explanations of adjustment to old age is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable . <i>Partial performance is basic, generally accurate and lacking detail.</i>	4-3
Band 1 bottom	Description of two or more explanations of adjustment to old age is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement. <i>Partial performance is rudimentary and sometimes flawed with little focus on the question.</i>	2-0

AO2: Evaluation of two or more explanations of adjustment to old age.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of two or more explanations of adjustment to old age is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of two or more explanations of adjustment to old age is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of two or more explanations of adjustment to old age is limited . The material is used in a reasonably effective manner and shows reasonable elaboration . <i>Partial performance is thorough, highly effective and coherent (top of band) or slightly limited and effective (bottom of band).</i>	8-7
Band 2 Bottom	Evaluation of two or more explanations of adjustment to old age is basic . The material is used in a restricted manner and shows some evidence of elaboration . <i>Partial performance is limited and reasonably effective with reasonable elaboration.</i>	6-5
Band 1 Top	Evaluation of two or more explanations of adjustment to old age is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration . <i>Partial performance is basic and restricted with some evidence of elaboration.</i>	4-3
Band 1 Bottom	Evaluation of two or more explanations of adjustment to old age is muddled and incomplete . The material may be wholly or mainly irrelevant . <i>Partial performance is superficial and not used effectively with no evidence of elaboration.</i>	2-0

SECTION E – COMPARATIVE PSYCHOLOGY

13

Total for this question: 24 marks

Discuss evidence for intelligence in non-human animals.

(24 marks)

Discuss is an **AO1** and **AO2** term which requires the candidate to both describe and evaluate evidence for intelligence in non-human animals.

AO1

‘Intelligence’ in non-human animals does not have one universally accepted definition. Animal intelligence may be ‘measured’ within a hierarchy of learning processes ranging from simple learning (such as habituation and associative learning) through to more complex learning (such as the development of learning sets). Under this view of intelligence, some species are clearly more ‘intelligent’ than others. Alternatively, intelligence may be seen as the solution of problems that have some ecological relevance in the environment in which the species evolved. Under this definition, all species are equally intelligent in their own ways, and the question becomes an examination of what different species’ intelligence consists of (Shettleworth, 1998). Indeed, all evidence of cognition and learning may be taken as evidence for ‘intelligence’.

An alternative approach to this question might be to examine the ‘social’ (or Machiavellian) theory of intelligence, i.e. the view that animal intelligence simply reflects mechanisms that have evolved to deal with social problems. Research with many social species, e.g. Vervet monkeys, has presented evidence for well-developed skills of social cognition within large and relatively stable social groups. Species that have highly developed ‘social intelligence’ may show clear foraging and other behavioural advantages over species that do not.

AO2

The **AO2** content is most likely to be interwoven throughout the essay, as many of the qualifications for animal intelligence are somewhat controversial, and subject to evidence and counter evidence. For example, given the inclusion of the terms ‘self-recognition’ and ‘theory of mind’ in the specification, it is likely that many candidates will concentrate on these as evidence for animal intelligence. This should give rise to interesting critical discussion, as claims for both of these faculties in non-human animals are hotly contested. Some candidates may choose to examine evidence for intelligence in cetaceans. Critical commentary may include physical evidence (brain size and quality) and behavioural evidence (such as evidence for the learning of complex behaviours or the use of ‘language’). It is also possible that some candidates will write about ‘Clever Hans’, and the methodological problems of measuring cognitive skills in non-human animals.

As the question specifies ‘non-human animals’, material relating to intelligence in human beings should not receive credit *unless* it is being used as part of a critical comparative argument, in which case it may earn marks under **AO2**.

AO1: Description of evidence for intelligence in non-human animals.

Band	Mark allocation	Marks
Band 3 Top	Description of evidence for intelligence in non-human animals is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth, and an appropriate balance between them is achieved.	12-11
Band 3 Bottom	Description of evidence for intelligence in non-human animals is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Description of evidence for intelligence in non-human animals is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 bottom	Description of evidence for intelligence in non-human animals is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Description of evidence for intelligence in non-human animals is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 bottom	Description of evidence for intelligence in non-human animals is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Evaluation of evidence for intelligence in non-human animals.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of evidence for intelligence in non-human animals is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of evidence for intelligence in non-human animals is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of evidence for intelligence in non-human animals is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Evaluation of evidence for intelligence in non-human animals is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Evaluation of evidence for intelligence in non-human animals is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Evaluation of evidence for intelligence in non-human animals is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

14

Total for this question: 24 marks

Discuss research (explanations and/or studies) into memory in non-human animals). (24 marks)
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Discuss is an **AO1** and **AO2** term, which requires the candidate to show evidence of their knowledge and understanding (**AO1**), and of their analysis and evaluation (**AO2**) of research (explanations and/or studies) into memory in non-human animals. In the *Terms used in A2 Examinations* document, the term 'research' is defined as 'the process of gaining knowledge and understanding via either theory construction, examination, or empirical data collection.

AO1

This question requires candidates to critically consider research relating to the role of memory in non-human animals. This is most likely to be achieved by examining research evidence for the role of memory in navigation and foraging behaviour. Candidates who choose to write about navigation should use material that demonstrates the role of *memory* in this process rather than simply writing about navigation per se. Appropriate content would include memory for landmarks, and the possibility that some animals are capable of forming 'cognitive maps'. Candidates who write about aspects of navigation *without* addressing the importance of memory should not receive marks. The same requirement is true for material about foraging behaviour. The description of either theoretical explanations (such as optimality theory) or empirical studies of foraging must concentrate on the role of memory in the foraging process rather than, for example, the economics of foraging. Appropriate content might include the importance of spatial memory and the use of food caches as part of an overall foraging strategy.

AO2

If candidates choose to describe research *studies* as their **AO1** content, then evaluation may be achieved by examining the validity of the studies themselves, or the degree to which they confirm or challenge an underlying theoretical perspective and/or other related research in this area. For example, the claims for cognitive mapping skills in insects have been largely dismissed by counter-evidence whereas evidence for the same skills in mammals is less conclusive. Evidence for the development of specific brain structures (e.g. the hippocampus) in animals who rely on their spatial memory has also highlighted the importance of memory in foraging *and* navigational behaviour. The finding that London taxi drivers show particular forms of enlargement in their hippocampus when learning 'the knowledge' is evidence for the role of the hippocampus in memory (and therefore in navigation). However, this can only be used to illustrate a comparative process between species, rather than being directly relevant to the non-human emphasis in this question.

Note that although the most likely areas to be covered are those mentioned in the specification (and above), it is perfectly acceptable for candidates to discuss other aspects of memory in non-human animals.

For example, candidates might include research that has studied aspects of memory in non-humans such as capacity, retention, forgetting (e.g. proactive and retroactive interference) etc. Likewise, candidates may discuss research into working memory in non-humans or offer other theoretical interpretations of available research evidence.

AO1: Description of research into memory in non-human animals.

Band	Mark allocation	Marks
Band 3 Top	Description of research into memory in non-human animals is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 Bottom	Description of research into memory in non-human animals is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Description of research into memory in non-human animals is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth.	8-7
Band 2 Bottom	Description of research into memory in non-human animals is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth.	6-5
Band 1 Top	Description of research into memory in non-human animals is rudimentary and sometimes flawed . There is some focus on the question. The organisation and structure of the answer is reasonable .	4-3
Band 1 Bottom	Description of research into memory in non-human animals is just discernible . It is weak and shows muddled understanding. The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Evaluation of research into memory in non-human animals.

Band	Mark allocation	Marks
Band 3 Top	Evaluation of research into memory in non-human animals is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Evaluation of research into memory in non-human animals is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Evaluation of research into memory in non-human animals is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Evaluation of research into memory in non-human animals is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Evaluation of research into memory in non-human animals is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Evaluation of research into memory in non-human animals is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

15

Total for this question: 24 marks

Critically consider evolutionary explanations of sex differences in parental investment. (24 marks)

Critically consider is an **AO1** and **AO2** term, which requires the candidate to show evidence of their knowledge and understanding (**AO1**), and of their analysis and evaluation (**AO2**) of evolutionary explanations of sex differences in parental investment.

AO1

Trivers (1972) defined parental investment as ‘any investment by the parent in an individual offspring that increases the offspring’s chance of surviving (and hence reproductive success) at the cost of the parent’s ability to invest in other offspring’. In most species, males and females do not invest equally, with female investment tending to be far greater as female gametes are less numerous and more costly to produce than male gametes. Candidates can be expected to illustrate this basic difference through reference to the differential aspects of maternal and paternal investment, and the resultant consequences for human mating systems.

Evolutionary theorists suggest that part of the greater parental investment of females might be explained in terms of their greater certainty of maternity, a product of internal fertilisation in mammals. This may be reflected in the greater concern with sexual infidelity among males (indicating cuckoldry) and emotional infidelity among females (indicating diversion of resources).

AO2

There are a number of ways in which the claims of gender differences in parental investment can be tested. For example, although males are generally believed *not* to invest much in their offspring, this is not necessarily the case in all species. Females can ease the burden of prolonged maternal care is by forming long-lasting pair bonds with male partners who were prepared to help provide for the offspring. As a result, it is in the interest of males to impress females with their potential skills as carers.

Discussion of the consequences of differential investment may be credited as **AO1** or as **AO2**, depending on how the material has been used. Men stand to gain from polygamy whereas women have most to gain from monogamy. This is supported by anthropological evidence that shows polygamy has been the most common mating strategy throughout human history.

Another prediction of parental investment theory is that males are more likely to share resources with children that they know are their own, and less likely to share with those with whom do not share a blood relationship. This is challenged by research evidence that men may invest in stepchildren in order to convince the mother that they are ‘good providers’, thus promoting future mating possibilities (Anderson et al., 1999).

Note that there is no partial performance penalty implied in this question.

AO1: Knowledge and understanding of evolutionary explanations of sex differences in parental investments.

Band	Mark allocation	Marks
Band 3 Top	Knowledge and understanding of evolutionary explanations of sex differences in parental investment is substantial . It is accurate and well-detailed . The organisation and structure of the answer is coherent . There is substantial evidence of breadth and depth and an appropriate balance between them is achieved .	12-11
Band 3 Bottom	Knowledge and understanding of evolutionary explanations of sex differences in parental investment is slightly limited . It is accurate and reasonably detailed . The organisation and structure of the answer is coherent . There is evidence of breadth/depth and, whilst there is evidence of breadth and depth, a balance between them is not always achieved .	10-9
Band 2 Top	Knowledge and understanding of evolutionary explanations of sex differences in parental investment is limited . It is generally accurate and reasonably detailed . The organisation and structure of the answer is reasonably constructed . There is increasing evidence of breadth and/or depth .	8-7
Band 2 Bottom	Knowledge and understanding of evolutionary explanations of sex differences in parental investment is basic . It is generally accurate but lacks detail . The organisation and structure of the answer is reasonable . There is some evidence of breadth and/or depth .	6-5
Band 1 Top	Knowledge and understanding of evolutionary explanations of sex differences in parental investment is rudimentary and sometimes flawed . There is some focus on the question . The organisation and structure of the answer is reasonable .	4-3
Band 1 Bottom	Knowledge and understanding of evolutionary explanations of sex differences in parental investment is just discernible . It is weak and shows muddled understanding . The answer may be wholly or mainly irrelevant to the question's requirement.	2-0

AO2: Analysis and evaluation of evolutionary explanations of sex differences in parental investment.

Band	Mark allocation	Marks
Band 3 Top	Analysis and evaluation of evolutionary explanations of sex differences in parental investment is thorough . The material is used in a highly effective manner and shows evidence of appropriate selection and coherent elaboration .	12-11
Band 3 Bottom	Analysis and evaluation of evolutionary explanations of sex differences in parental investment is slightly limited . The material is used in an effective manner and shows evidence of appropriate selection and elaboration .	10-9
Band 2 Top	Analysis and evaluation of evolutionary explanations of sex differences in parental investment is limited . The material is used in a reasonably effective manner and shows reasonable elaboration .	8-7
Band 2 Bottom	Analysis and evaluation of evolutionary explanations of sex differences in parental investment is basic . The material is used in a restricted manner and shows some evidence of elaboration .	6-5
Band 1 Top	Analysis and evaluation of evolutionary explanations of sex differences in parental investment is superficial and rudimentary . The material is not used effectively and shows no evidence of elaboration .	4-3
Band 1 Bottom	Analysis and evaluation of evolutionary explanations of sex differences in parental investment is muddled and incomplete . The material may be wholly or mainly irrelevant .	2-0

A LEVEL/A2 UNIT 4: ASSESSMENT GRID

Question number	AO1	AO2
1	12	12
2	12	12
3	12	12
4	12	12
5(a)	12	
(b)		12
6	12	12
7	12	12
8	12	12
9	12	12
10	12	12
11(a)	6	6
(b)	6	6
12	12	12
13	12	12
14	12	12
15	12	12

Marks	AO1	AO2
Total marks for 3 questions	36	36
A-level total weighting (15%)	7.8%	7.2%