

Study Psychology

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A-Level Psychology Practice Paper MARK SCHEME

This is a practice paper intended for revision following the **AQA** specification.

Paper 2: Psychology in Context

2 hours



Section A: Approaches

1. AO1 (1) for the correct answer: A

2. AO1 (1) for the correct answer: C

3. AO1 (2)

Brief outline of how Pavlov studied classical conditioning. Examples include; detail of his experiment with dogs; knowledge of Pavlovian concepts in the context of Pavlov's experiments UCS-UCR, N, CS-CR; mention of association of food/ bell with salivation; detail of Pavlovian theory – learning by association; temporal association/ contiguity **For example: Pavlov studied classical conditioning using his experiment with dogs, where he classically conditioned them to associate the sound of a bell with food. He wanted to create a response of salivation to the sound of the bell. The bell acted as a neutral stimulus which was paired with an unconditioned stimulus (food) over several trials, eventually resulting in a conditioned response (salivation).** Other reasonable marking points gain credit.

4. AO2 (4)

Application of knowledge of genotype and phenotype to explain the behaviour of identical twins Sarah and Louise. Examples include; Sarah and Louise have identical genotypes (genotype refers to genetic make-up of an individual); they do not have identical phenotypes (phenotype refers to the observable characteristics of an individual as a result of their genotype and their environment); although Sarah and Louise have the same genes, Sarah might practice netball more or have started lessons earlier than Louise, these environmental factors may make her better at netball. Their experiences mean they have developed different academic skills which might influence their subject choice. **For example: As Sarah and Louise are identical twins, they will share 100% of their DNA, this is their genetic make-up known as their genotype. This gives them genetic similarity and may explain why they both enjoy playing sport such as netball. However, they have both selected different A-level options which may be based on their innate ability mixed with individual experiences in the environment (phenotype). Louise may have had different experiences which encouraged her to choose Maths and Physics, despite being good at sport/ PE. Sarah and Louise do have the same genes, but Sarah might practice netball more or have started lessons earlier than Louise, and these environmental factors may make her better at netball. This could explain why she has chosen to study PE.** Other reasonable marking points gain credit.

5. AO1 (6) AO3 (10)

Outline of the cognitive approach which is then compared with the biological approach. Examples include; focus on internal mental processes, computer models/ theoretical models; information processing/ metacognition. Examples from Psychology or research can be used. Comparisons such as internal mental processes from the environment with influences from physiology/ biology (nature vs nurture debate); discussion of the interactionist approach; approaches to treatment (e.g. CBT vs drug therapy); use of scientific methods; the issue of determinism; the issue of reductionism; use of animal experiments and extrapolation. **For example: The cognitive approach considers the mind as mechanical and focuses on internal mental processes such as memory, thinking, language and perception. These mental processes are important when exploring human behaviour. One idea from the cognitive approach suggests we process information like a computer, taking information in as input, processing it and storing/ deleting the output. This assumes that mental processes are predictable and can help explain similarities between us. For example, the models of memory explain processes using this computer analogy, for instance, the linear model of the Multi-store Model of Memory by Atkinson & Shiffrin (1968). Another suggestion is that experiences within our external environment can influence these mental processes. For example, research into reconstructive memory and schema theory have suggested how information processing can be altered or distorted. Schemas are mental representations held in memory that help organise information from the world around us, and we store schemas in our mind and use them when recalling information. The cognitive approach adopts a scientific view to studying human behaviour and often conducts research under controlled conditions in laboratory experiments. One similarity between the cognitive approach and the biological approach is they both aim to establish cause and effect, through direct manipulation in experimental research. For example, in cognitive studies on eyewitness testimony, such as Loftus & Palmer (1974) the effect of leading questions on memory was manipulated by changing the verb in a question about a car crash. Similarly, in biological experiments like Sperry (1968) manipulation of visual or tactile tasks helped to explore the differences seen in split-brain patients. This method of investigation is reliable and allows for useful conclusions following empirical testing. Another similarity is both approaches adopt a reductionist view of behaviour, where they attempt to simplify behaviour down to single explanations. For example, the cognitive approach would use internal mental processes as an explanation for behaviour, particularly if there are deficits such as in those seen in the thinking and attention of individuals with OCD. Equally, the biological approach reduces behaviour down to simpler parts such as genetics or neurochemicals. Both approaches offer reductionist explanations for human behaviour which are useful. One difference between the cognitive approach and the biological approach is their view on practical applications to treatment for mental health conditions. For example, the cognitive approach uses therapies such as CBT which focus on challenging irrational thoughts and developing behavioural strategies to overcome issues or help manage symptoms. In contrast, the biological approach takes a physical view usually with medical interventions such as drug therapy. For example, a patient with schizophrenia would be given anti-psychotic drugs to help manage their symptoms. Both approaches have valuable contributions to treatment but take different perspectives.** Other reasonable marking points gain credit.

Level	Marks	Description
4	13 - 16	Knowledge of the cognitive approach is accurate and generally well detailed. Comparison with the biological approach is thorough and effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	9 - 12	Knowledge of the cognitive approach is evident but there are occasional inaccuracies/omissions. Comparison with the biological approach is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	5 - 8	Limited knowledge of the cognitive approach is present. Focus is mainly on description. Any comparison with the biological approach is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 - 4	Knowledge of the cognitive approach is very limited. Comparison with the biological approach is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Section B: Biopsychology

6. AO1 (2)

Identification of the divisions of the peripheral nervous system (PNS). Examples include; Autonomic Nervous System (can reference; Sympathetic and Parasympathetic but not without Autonomic) and Somatic Nervous System. **For example: *The peripheral nervous system is split into two sub-divisions; the autonomic nervous system which includes the sympathetic and parasympathetic nervous systems; and the somatic nervous system.*** Other reasonable marking points gain credit.

7. AO1 (2)

Outline of the role of inhibitory neurotransmitters such as GABA. Examples include; reference to hyperpolarisation and reducing the likelihood of neurons firing; reducing action potentials; inhibiting the response at the synapse; slowing down the electrical impulse. **For example: *An inhibitory neurotransmitter is a chemical messenger that reduces the likelihood of a postsynaptic neuron firing an action potential by causing the neuron to hyperpolarise. This is where it becomes more negative in charge creating an inhibitory postsynaptic potential (IPSP). For example, neurotransmitters like GABA act by calming the nervous system instead of promoting electrical activity.*** Other reasonable marking points gain credit.

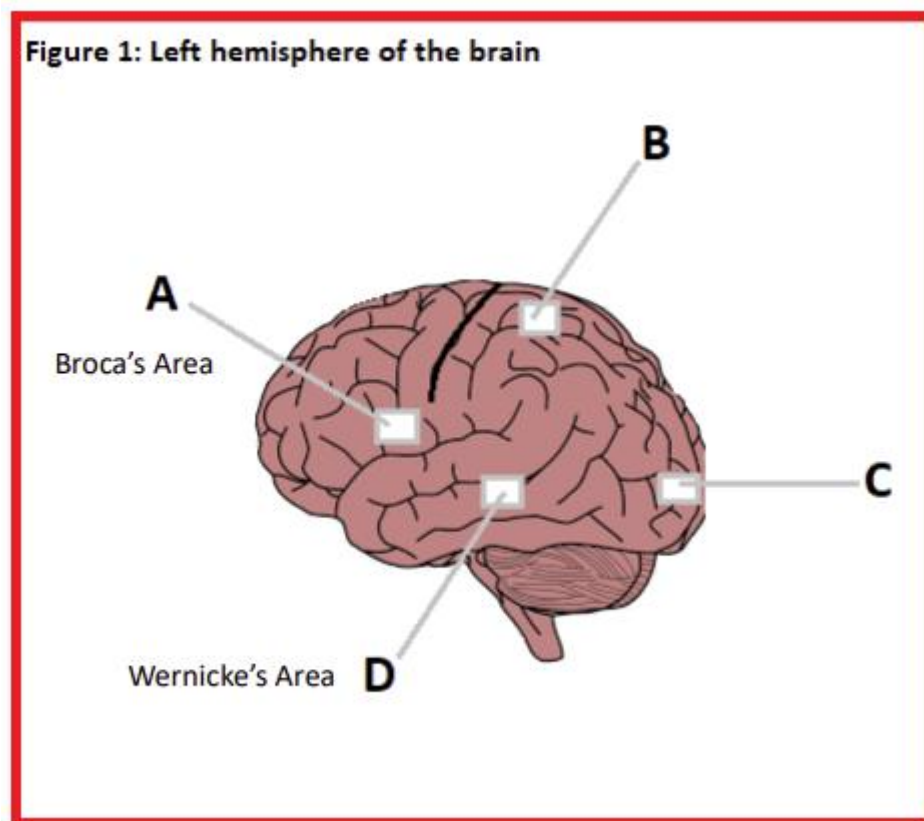
8. AO1 (4)

Outline of the role of adrenaline in the fight or flight response. Examples include; adrenaline is released from the adrenal medulla in response to activation of the sympathomedullary pathway; adrenaline has a range of effects on the body; the direct effects of adrenaline include increase in heart rate, constriction of blood vessels, increasing rate of blood flow and raising blood pressure, diverting blood away from the skin, kidneys and digestive system, increasing blood to brain and skeletal muscle, increasing respiration and sweating; also can include the general effects of adrenaline such as preparing the body for action, fight or flight, increasing blood supply/ oxygen to skeletal muscle for physical action and increasing oxygen to brain for rapid response planning. **For example: *In the fight or flight response danger is recognised by the amygdala in the brain sending an alarm signal to activate the sympathomedullary pathway. Adrenaline is the hormone released by the adrenal glands as a result of activation from the sympathetic nervous system to trigger the fight or flight response. Adrenaline has a direct effect on the body by activating the cardiovascular system such as increasing heart rate and contracting blood vessels to raise blood pressure. It also causes changes in the respiratory system by increasing breathing rate and relaxing muscles needed for faster, smoother breathing. This improves oxygen intake necessary in the fight or flight response. It can also cause some processes such as digestion to slow down, as this is not required in the fight or flight response.***

Adrenaline prepares the body for sudden stress, by prioritising survival and enabling high-energy physiological responses in the body. Other reasonable marking points gain credit.

9. AO1 (2)

For correctly identifying the location of the two language centres.



Broca's Area **A**

Wernicke's Area **D**

10. AO1 (2)

For clear outline of the key difference between EEGs and ERPs. **For example: An EEG is a recording of general brain activity usually linked to states such as sleep and arousal, whilst ERPs are elicited by specific stimuli presented to the participant.** Other reasonable marking points gain credit.

11. AO1 (2) AO3 (2)

Outline of two strengths of studying the brain using scanning techniques. Examples include; objective credibility for diagnosis, non-invasive methods, spatial resolution, temporal resolution, usefulness. **For example: One strength of using brain scans to study the brain and behaviour is they can be non-invasive. For instance, an fMRI scan does not require patients to have any invasive procedures such**

as chemical dyes or tracers. This is a more ethical approach for patients. Another strength of using brain scans is they can provide useful conclusions essential for diagnosis, particularly when they have good spatial resolution. For instance, FMRI scans show clear pictures of how changes in blood oxygenation and blood flow act as a result of brain activity. This provides useful information about the areas of the brain involved in particular mental processes. Other reasonable marking points gain credit.

12. AO1 (3) AO3 (5)

Outline of split-brain research with evaluation of strengths and weaknesses. Examples include; visual/tactile tests by Sperry or the case of Karen Bryne (Alien Hand Syndrome), usefulness of split-brain research, objective credibility, reliability, issues with ethics, generalisation and lack of control group comparisons. **For example:** *Split-brain patients are individuals who have undergone surgery to remove the connection between the two sides of the brain (hemispheres). This is done by severing the corpus callosum; a network of nerve fibres that allow the brain's left and right hemispheres to communicate. This procedure prevents the spread of seizures (usually with epileptic patients) between the hemispheres but results in the two halves of the brain operating independently of each other.* **Sperry (1968)** *conducted experiments with split-brain patients to investigate how the hemispheres operate. He did this using a variety of visual and tactile tests. For example, he would ask participants to focus on a fixed point, with one eye covered, while he flashed images into the left and right visual fields. Participants were required to describe what they had seen. Sperry found that information shown and responded to in one visual field could only be recognised again if shown to the same visual field. One strength of split-brain research is the useful applications for understanding how lateralisation of function in the brain works. This has helped with neurorehabilitation of patients with brain-damage and has shown how functional recovery of the brain works. Experiments such as Sperry offer scientific credibility as they are conducted objectively using reliable methodology. However, one weakness of conducting research with split-brain patients is there is a problem with generalisability as most studies only include small sample sizes of participants with rare or unique conditions. Split-brain studies can also oversimplify hemispheric lateralisation. The brain is complex and understanding the role of the two hemispheres and how plasticity allows for compensation across the damaged hemispheres, can be difficult.* Other reasonable marking points gain credit.

Level	Marks	Description
4	7–8	Knowledge of split-brain research is accurate with some detail. Evaluation is thorough and effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	5–6	Knowledge of split-brain research is evident but there are occasional inaccuracies/omissions. Evaluation is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	3–4	Limited knowledge of split-brain research is present. Focus is mainly on description. Any evaluation is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1–2	Knowledge of split-brain research is very limited. Evaluation is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Section C: Research Methods

13. AO2 (3)

Description of one way the behavioural category of 'aggressive' behaviour could be operationalised. This includes specific suggestions for how this aggression would be measured through observation. Examples include; fighting, punching, biting, hitting. **For example: One way the behavioural category of 'aggressive' behaviour could be operationalised is by counting the number of times a chimpanzee is seen to hit another chimpanzee with force or aggression. This would have to be clearly displayed as a negative behaviour with the chimpanzee showing their teeth or disgruntled aggression in their facial expressions. This would have to be observed as a key difference compared to playful hitting or fighting to be recorded objectively.** Other reasonable marking points gain credit.

14. AO1 (1) AO2 (1)

1 mark for correct value for the % score for each group based on the category for 'aggressive behaviour over other males in the group' – both male (84%) and female (16%) scores must be calculated separately. **For example: The % score for male chimpanzees and aggressive behaviour over other males in the group is 84% ($16/19 \times 100\%$) and the % score for female chimpanzees and aggressive behaviour over other males in the group is 16% ($3/19 \times 100\%$).**

15. AO2 (2)

Brief explanation of what the % scores for male and female chimpanzees tell us about 'aggressive behaviour over other males in the group'. Examples include; differences between two scores, males show more aggressive behaviour than females. **For example: The % scores show that males displayed significantly more aggressive behaviours over other males in the group (84%) compared to females (16%). This tells us that males acted more aggressively than females.** Other reasonable marking points gain credit.

16. AO2 (1) AO3 (1)

Outline of one strength of conducting a naturalistic observation in the context of this study. Examples include; high ecological validity, mundane realism, usefulness. **For example: One strength of conducting a naturalistic observation in this study is there is high ecological validity. This is the extent to which the setting or environment reflects real life. In this study all the chimpanzees were studied**

in their natural habitat in the zoo where they lived. This is likely to give a realistic view of how the chimpanzees would normally behave. Other reasonable marking points gain credit.

17. AO1 (2)

Explanation to outline what is meant by event sampling in this observation. Examples include; recording all behaviour that is observed during the entire event. **For example:** *Event sampling is where researchers record every behaviour that is seen during the entire observation. In this study all the chimpanzees behaviour was recorded over 3 days, in both morning and afternoon sessions.* Other reasonable marking points gain credit.

18. AO2 (2)

One suggestion of how the psychologist could improve the reliability of this observation. Examples include; control, standardisation, inter-observer reliability. **For example:** *One way the psychologist could improve the reliability of this observation is by using more than one observer to record the data from the categories of behaviour using the tally chart. If both observers agree on the behaviour displayed this would give the study high inter-observer reliability.* Other reasonable marking points gain credit.

19. AO2 (3)

Outline of the reasons why a Chi-Squared test is appropriate in this investigation; must mention test of difference, experimental design and level of measurement (e.g. nominal). **For example:** *A chi-squared test is the most appropriate statistical test as the researchers are looking for a difference between the chimpanzees using an independent groups design (separate groups of males and females) and they are recording nominal data from the categories in the observation tally chart.*

20. AO1 (1)

1 mark for correct value of the calculated degrees of freedom figure; 1. **For example:**

$$df = (r-1)(c-1)$$

$$df = (2-1) \times (2-1)$$

$$df = 1$$

21. AO2 (3)

A correct significance statement to explain the result determined by the critical value in the table (e.g. 2.71). **For example:** *The calculated value of the chi-squared test was 2.093 which is less than the critical value of 2.71 (for a one-tailed test, when $p < 0.05$, $df = 1$). Therefore, this result is not significant as the calculated value is less than the critical value, so the research hypothesis would be rejected and the null hypothesis accepted.* Other reasonable marking points gain credit.

22. AO2 (2)

Outline of one conclusion that could be made about social dominance in chimpanzees based on the results of this investigation. Examples include; aggressive behaviour is more likely in male chimpanzees, aggressive behaviour is less likely in female chimpanzees, males display more dominance over females in the group. **For example:** *One conclusion that can be made about social dominance in chimpanzees is that although males generally display more aggressive behaviour over other males in the group and show more evidence of dominance over females in the group, this is not significant enough to say all male chimpanzees would behave like this. This limits the conclusions that can be made from the results of this investigation.* Other reasonable marking points gain credit.

23. AO2 (3)

Outline of how the researchers could use volunteer sampling to gather a sample of 20 student participants in this study. Examples include; advertisement/ posters in colleges or university campus, volunteers are selected by random from all student respondents, sample of 20 selected. **For example:** *The researchers could place a poster in the student areas of a sixth form college, asking for volunteers for their investigation into colour and mood. They could leave a contact email or telephone number at the bottom, so students can get in touch. A sample of 20 participants would need to be collected at random from all the respondents to the poster. This could be done by placing all names in a hat and randomly selecting 20 students as required.* Other reasonable marking points gain credit.

24. AO2 (1) AO3 (1)

Outline of one advantage of conducting a pilot study in the context of this study. Examples include; check for reliability or internal validity, check pictures depict the colour scheme appropriately, check the rating scale for mood does not see response bias or nil returns. **For example:** *One advantage of conducting a pilot study is to check the internal validity of the materials used, this is that they are testing what they are designed to test accurately. For instance, in this study the researchers would need to check that the rating scale for mood measured what it intended to, in this case that the continuum from happiness to sadness was a true reflection of people's mood.* Other reasonable marking points gain credit.

25. AO2 (6) AO3 (6)

A clear design of an experiment (lab or field) to investigate how colour affects mood. The three elements of the design to be included are; the type of experimental design, with justification; use of a self-report method of data collection, with justification; how to control one extraneous variable, with justification as to why this would need to be controlled. Examples include; type of experimental design with justification – e.g. independent groups design (one group of students or split into males and females), repeated measures design (all the students see both the pictures followed by the rating scale) or matched pairs design and why; method of data collection – type of self-report technique (questionnaires or interviews, structured/ unstructured – data collection of happiness score) and why this would be appropriate, quantitative/ qualitative data with justification; controlling one extraneous variable with justification why this needs to be controlled, e.g. minimising distractions from other students whilst looking at the pictures or answering the question about happiness, order effects (if repeated measures design), minimising demand characteristics by not informing students of the aim, standardisation of the pictures/ rating scale. **For example: In this study I would conduct a field experiment by asking participants in the student library to complete the picture task followed by the rating scale on happiness. This would be an independent groups design as only one group of students would be required for the test, and they only complete one experimental task. This experimental design avoids any order effects from repeating a procedure, making the findings more valid. However, finding a representative sample size e.g. 20+ for the experiment may be time consuming. In this study I would use a questionnaire as a form of self-report to gather the data on mood. Each participant would receive the scale question asking them to rate how happy they felt after seeing the pictures with 5 being very happy, 4; quite happy, 3; neutral/ ok, 2; quite sad and 1 being very sad. This rating scale would provide quantitative data which is easier to analyse and compare at the end. However, the scale could be subjective, as one person's rating of 1 for very sad could be different to someone else's reference for feelings of sadness. In this study I would control the extraneous variable of noise and distraction from other people, as this may interfere with people giving valid measures of their true feelings. They may not feel comfortable expressing their true feelings particularly if they are surrounded by other people. There could also be evidence of social desirability as a result, where participants give answers, they think are desired by the researcher. So, I would take each participant aside independently and show them the pictures and ask them to rate their happiness, while in a quiet and private setting in the student library.** Other reasonable marking points gain credit.

Level	Marks	Description
4	10–12	Suggestions are generally well detailed and practical, showing sound understanding of designing the experiment. All three elements are present. Justifications are appropriate. The answer is clear and coherent. Specialist terminology is used effectively. Minor detail and/or explanation sometimes lacking.
3	7–9	Suggestions are mostly sensible and practical, showing some understanding of designing the experiment. At least two elements are present. There is some appropriate justification. The answer is mostly clear and well organised. Specialist terminology is mostly used effectively.
2	4–6	Some suggestions are appropriate for designing the experiment, but others are impractical or inadequately explained. At least one element is addressed. Justifications are partial, muddled, or absent. The answer lacks clarity, accuracy and organisation on occasions.
1	1–3	Knowledge of designing the experiment is limited. The whole answer lacks clarity, has many inaccuracies and is poorly organised.
	0	No relevant content.

26. AO1 (3)

Description of the process and purpose of peer review. Examples include; Process - other psychologists check the research report before deciding whether it could be published, independent scrutiny by other psychologists working in a similar field, work is considered in terms of its validity, significance and originality, assessment of the appropriateness of the methods and designs used. Purposes - to ensure quality and relevance of research, e.g. methodology, data analysis etc, to ensure accuracy of findings, to evaluate proposed designs (in terms of aims, quality and value of the research) for research funding.

For example: *The process of peer review before publication is to allow other psychologists in a similar field of study to evaluate the research and consider its significance. Peers will evaluate the research methodology including a review of assessment materials used, and an exploration of the statistical outcomes. The purpose of a peer review is to check the research due for publication is of good quality and is relevant to the field of study. This helps maintain the credibility of research in the area and can also affect funding opportunities in the future.* Other reasonable marking points gain credit.

27. AO1 (3)

Description of the features of an abstract as illustrated in a scientific report. Examples include; first section of a report (accept alternative wording), brief/summary/ 100-300 words (accept alternative wording), contains (a summary of) the aims, methods, results, and conclusions (accept alternative wording). **For example:** *An abstract in a scientific report is the first section of the report which is written at the end once the investigation is completed as a whole. It is usually approximately 250 to 300 words and includes reference to all sections of the report; such as the aim, procedure, results and conclusions.* Other reasonable marking points gain credit.

28. AO1 (3)

Explanation of the meaning behind the empirical method, as a feature of a science. Examples include; science-based approach to data collection, direct observation or experimental methods of data collection, objectivity, control/ standardisation, operationalisation/ measurement, collection of quantitative/ qualitative data. **For example:** *The empirical method is a systematic, evidence-based approach to gaining knowledge through direct observation, experimentation, and experience rather than theory or logic alone. It relies on gathering data that can be verified by scientific procedures to test hypotheses and support theories. The focus of empirical methods is to provide reliable, credible evidence which can be used to inform our understanding of behaviour in sciences like Psychology.* Other reasonable marking points gain credit.

END OF PAPER

Study Psychology (c)

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