# Psychology

# Higher and Standard level

## Specimen papers 1, 2 and 3

## For first examinations in 2027

# CONTENTS

Diploma Programme
Programme du diplôme
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# Psychology
# Higher level and standard level
# Paper 1

Specimen paper

1 hour 30 minutes

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**Instructions to candidates**

- Do not open this examination paper until instructed to do so.
- Section A: answer both questions.
- Section B: answer both questions.
- Section C: answer one question.
- The maximum mark for this examination paper is **[35 marks]**.



0000 – 5801

## Section A

Answer **both** questions from this section.

**Biological approach to understanding human behaviour**

**1.** Describe how **one** chemical messenger plays a role in **one** human behaviour. [4]

**Cognitive approach to understanding human behaviour**

**2.** Explain anchoring bias with reference to **one** example of human behaviour. [4]

## Section B

Answer **both** questions from this section.

**Context: Learning and cognition**

**3.** A group of researchers investigated imagination as a cognitive process. They suggested a model in which imagination consists of three stages of processing:

- Selection of elements
- Random combination of elements with each other
- Evaluation of combinations and output

To test this model, they conducted a study with a sample of primary school children. Each child was given a set of toy body parts (for example, tails, feet, hair, wings) and asked to create an imaginary creature. Researchers observed that children first selected a subset of body parts then spent time randomly combining them with each other, before deciding on a final version and presenting it to the researchers.

With reference to this study, explain the value of cognitive models for understanding cognitive processes. [6]

**Context: Human development**

**4.** As the school psychologist, you have been asked to suggest a strategy to promote empathy **and/or** prosocial behaviour among children at your school.

Explain how social learning theory could be used to achieve this goal. [6]

## Section C

Answer **one** question from this section.

**5.** In the context of **human development**, evaluate **one or more** strategies used by developmental psychologists to **measure** theory of mind. [15]

**6.** One claim in the psychology of **health and well-being** is that a single **perspective** is not enough to explain mental health. Discuss this claim with reference to **one** biological explanation of **one or more** disorders. [15]

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# Markscheme

## Specimen paper

## Psychology

## Higher level and standard level

## Paper 1

9 pages

International Baccalaureate®
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## Markbands for higher level and standard level paper 1, Section A

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • The response demonstrates limited knowledge relevant to the question.<br>• The example is relevant but is not explained. |
| 3–4 | • The response demonstrates detailed knowledge relevant to the question.<br>• The example is relevant and explained. |

## Markbands for higher level and standard level paper 1, Section B

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • Knowledge and understanding to the question is limited.<br>• The application of knowledge is relevant but limited. |
| 3–4 | • Knowledge and understanding has some detail and is mostly accurate.<br>• The application of knowledge is relevant and partially developed. |
| 5–6 | • Knowledge and understanding is accurate and detailed.<br>• The application of relevant knowledge is well developed. |

## Markbands for higher level and standard level paper 1, Section C

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–3 | • The response indicates little understanding of the demands of the question. Knowledge and understanding of specific content/concept(s) is very limited and contains inaccuracies.<br>• The response is descriptive. Any analysis present is superficial or incoherent. Links between concepts are not stated, or they are not relevant. Where a conclusion is included, this is very superficial or is not consistent with the rest of the response.<br>• Psychological terminology is not used or is consistently used inappropriately. Points are frequently inaccurate and unclear. |
| 4–6 | • The response indicates some understanding of the demands of the question. Relevant knowledge and understanding of content/concept(s) is described.<br>• There is limited analysis present and overall the response is more descriptive than it is analytical. Links between concepts are stated, and they are partly relevant. A simplistic conclusion is included.<br>• Psychological terminology is used, but often inappropriately. Points are frequently imprecise or vague. |
| 7–9 | • The response indicates understanding of the demands of the question, but these demands are only partially addressed. Relevant knowledge and understanding of content/concept(s) is partly explained.<br>• The response contains analysis, although this analysis lacks development. Links between concepts are explained, and they are partly relevant. A conclusion is included but it is not always consistent with the arguments presented.<br>• Psychological terminology is used sometimes appropriately. Relevant points are made but lack accuracy and development. |
| 10–12 | • The demands of the question are addressed. Relevant knowledge and understanding of content/concept(s) is mostly explained.<br>• The response contains critical analysis, although this analysis lacks development. Links between concepts are included and explained. The response argues to a conclusion that is consistent with the arguments presented.<br>• Psychological terminology is used, mostly appropriately. Points made are relevant and accurate but lack detail. |
| 13–15 | • The demands of the question are addressed. Relevant knowledge and understanding of content/concept(s) is fully explained.<br>• The response contains well-developed critical analysis. Links between concepts are included throughout the response and fully explained. The response argues to a reasoned and clearly stated conclusion that is consistent with the arguments presented.<br>• There is accurate and precise use of psychological terminology. Points are relevant, accurate and detailed. |

# Section A

**Biological approach to human behaviour**

**1.** Describe how **one** chemical messenger plays a role in **one** human behaviour. [4]

*Refer to the paper 1 section A markbands when awarding marks.*

The command term “describe” requires candidates to give a detailed account of the role of one chemical messenger in one human behaviour.

Chemical messengers include hormones, neurotransmitters and putative pheromones. Identification of the classification of chemical messenger is not required for top marks.

A description of the role of the chemical messenger may include how the chemical messenger interacts with the brain or nervous system and how this affects a specific human behaviour.

Relevant examples may include but are not limited to:

- dopamine as part of the reward circuit and habitual or addictive behaviour
- oxytocin, interacting with the amygdala, on trust behaviour
- testosterone, interacting with the amygdala and frontal lobe, on aggressive behaviour.

Although a study may be used as the example, a hypothetical example that is linked to the chemical messenger is equally acceptable.

If a candidate refers to more than one chemical messenger, credit should be given only for the first chemical messenger.

If a candidate refers to more than one human behaviour, credit should be given only for the first human behaviour.

**Cognitive approach to understanding human behaviour**

**2.** Explain anchoring bias with reference to **one** example of human behaviour. [4]

*Refer to the paper 1 section A markbands when awarding marks.*

The command term "explain" requires candidates to give a detailed account, including reasons or causes, of how anchoring bias can affect one example of human behaviour.

The anchoring bias is a cognitive bias that causes us to rely heavily on the first piece of information we are given about a topic. When explaining the bias, candidates should consider the reasons and/or causes for this bias.

Reasons for anchoring bias include but are not limited to:

- a lack of knowledge or insufficient information
- cultural norms
- ego depletion – a lack of will power based on past experience
- lack of time to make a more informed decision
- personal experience relevant to the decision
- the role of mood or social context
- the selective accessibility hypothesis
- the use of System 1 thinking to reduce cognitive load.

Examples of relevant human behaviours include but are not limited to:

- memory and decision-making – for example, effects on courtroom decisions by judges and juries
- perception and decision-making – for example pricing effects and how customers perceive the value of an item.

Although a study may be used as the example, a hypothetical example that demonstrates anchoring bias is equally acceptable.

If a candidate refers to more than one example of human behaviour, credit should be given only for the first.

## Section B

**Context: Learning and Cognition**

**3.** A group of researchers investigated imagination as a cognitive process. They suggested a model in which imagination consists of three stages of processing:

- Selection of elements
- Random combination of elements with each other
- Evaluation of combinations and output

To test this model, they conducted a study with a sample of primary school children.
Each child was given a set of toy body parts (for example, tails, feet, hair, wings) and asked to create an imaginary creature. Researchers observed that children first selected a subset of body parts then spent time randomly combining them with each other, before deciding on a final version and presenting it to the researchers.

With reference to this study, explain the value of cognitive models for understanding cognitive processes. [6]

*Refer to the paper 1 section B markbands when awarding marks.*

The command term “explain” requires candidates to give a detailed account, including reasons or causes, for the value of cognitive models for understanding cognitive processes.

Explanations include but are not limited to:

- Mathematical models of cognition
- Computer models of cognition
- Models are tested in empirical research studies.
- It is usually impossible for a model to be tested in its entirety by one research study; different studies are required to test different parts of the model.
- Models are based on constructs that must be measured; it is important that these constructs are well operationalized.

Application of understanding to this particular model may include but is not limited to:

- The study supports the overall assumption that imagination is a process of recombination of existing elements.
- The study supports the prediction that a first step in the process of imagination is selecting a subset of the given elements.
- The study supports the idea that there are three consecutive stages in the process of imagination: first selecting elements, then combining them, then presenting the output.
- Although it was observed that children spent some time combining elements with each other, it is claimed in the model that this combination is random, and this randomness is not directly tested in this research study.

**Context: Human development**

**4.** As the school psychologist, you have been asked to suggest a strategy to promote empathy **and/or** prosocial behaviour among children at your school.

Explain how social learning theory could be used to achieve this goal. [6]

*Refer to the paper 1 section B markbands when awarding marks.*

The command term “explain” requires candidates to give a detailed account, including reasons or causes, for how social learning theory could be used to promote empathy and/or prosocial behaviour.

Responses should demonstrate a clear understanding of social learning theory. This may include but is not limited to:

- vicarious reinforcement
- the role of self-efficacy
- identification with models
- mediating factors (attention, retention, reproduction, and motivation)
- influences on social learning (e.g., liking the model, in-group identification).

Candidates must apply the theory in suggesting a strategy. Potential strategies may include but are not limited to:

- Adults and role models should consistently demonstrate empathy/prosocial behaviour in their interactions with others.
- Watch movies or read books that depict characters going through emotional experiences or who need help. Characters in the media used should reflect the diversity of the school community.
- Encourage interactions with peers who exhibit prosocial behaviour.
- Empathy training – involve children and teens in community service or volunteering opportunities.
- Have students share stories or news articles about acts of kindness and prosocial behaviour.
- Develop a school television show that models prosocial behaviour.
- Publicly praise those in the school who show empathy and/or prosocial behaviour.

The explanation of the choice of strategy should be explicitly linked to relevant aspects of social learning theory.

## Section C

**5.** In the context of **human development**, evaluate **one or more** strategies used by developmental psychologists to **measure** theory of mind. [15]

*Refer to the paper 1 section C markbands when awarding marks.*

The command term "evaluate" requires candidates to make an appraisal by weighing up the strengths and limitations of one or more strategies used by developmental psychologists to measure theory of mind (TOM).

Strategies used by developmental psychologist may include but are not limited to:

- False belief tasks (e.g., the Sally-Anne task)
- Repacholi and Gopnik's goldfish crackers vs. broccoli task
- Perspective-taking tasks (Piaget's Three Mountains Task; Hughes' police doll task)
- Social attribution tasks (e.g., asking children to attribute emotions, intentions, or beliefs to characters in a specific social situation).

To demonstrate critical thinking, candidates should evaluate the effectiveness of these techniques with regard to both their strengths and limitations.

Strengths of these strategies in measuring TOM may include but are not limited to:

- The procedures are highly standardized, making them easy to administer and compare across different studies and populations.
- The results of individual tests are consistent over time.
- They give researchers a way to measure TOM since cognitive processes cannot be directly observed.
- fMRI research appears to support the milestones measured by these strategies

Limitations of these strategies in the measurement of TOM may include but are not limited to:

- False belief tests are most appropriate for children above a certain age (typically 4–5 years old) who have reached the developmental stage where they can understand and participate in these tasks.
- Many of these tasks are highly dependent on language skills.
- Cultural biases may affect measurement of TOM in non-Western samples.
- There are different versions of the tasks that may yield different results (e.g., Piaget's Three Mountains Task and Hughes' police doll task); the measurement may not be seen as reliable.

Candidates may evaluate one strategy to show depth of understanding or more than one to demonstrate breadth of knowledge and understanding. Both approaches are equally acceptable.

**6.** One claim in the psychology of health and well-being is that a single perspective is not enough to explain mental health. Discuss this claim with reference to **one** biological explanation of **one or more** disorders. [15]

*Refer to the paper 1 section C markbands when awarding marks.*

The command term “discuss” requires candidates to offer a considered review of the claim that one perspective is not enough with regard to one biological explanation.

Candidates will demonstrate knowledge and understanding through one biological explanation of disorders and at least one non-biological perspective.

Discussion may include but is not limited to:

- The use of a reductionist vs. holistic approach to understanding mental health.
- Biological explanations may be seen as deterministic and lead to stigma; however, biological explanations have also led to an increase in human rights and the declassification of some disorders.
- The value of an interactionist approach; the diathesis stress model argues that biological factors alone do not lead to disorders, but the interaction of biological and environmental/cognitive factors.
- Biological predisposition on its own has low predictive validity.
- Biological research has led to drug treatment that has led to less institutionalization of those with mental illness; however, other perspectives have sometimes led to more effective treatment than biological treatments.
- Biological perspectives tend to focus on universal physiological traits and cannot account for individual differences (e.g., differences in symptom manifestation in different cultures).
- Biological explanations are often based on animal models, which may not reflect the actual disorder in humans.

Candidates may refer to one disorder to show depth of understanding or more than one to demonstrate breadth of knowledge and understanding. Both approaches are equally acceptable.

If a candidate refers to more than one biological explanation, credit should be given only for the first biological explanation.

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# Psychology
# Higher level and standard level
# Paper 2

Specimen paper

1 hour 30 minutes

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**Instructions to candidates**

- Do not open this examination paper until instructed to do so.
- Section A: answer all the questions.
- Section B: answer the question.
- The maximum mark for this examination paper is **[35 marks]**.

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3 pages

## Section A

The following questions refer to your participation in a class practical. Answer **all** the questions in this section.

**1.** Describe how you used an interview or focus group in your class practical **and** its aim and procedure. [4]

**2.** Explain the concept of bias in relation to the interview or focus group in your class practical. [4]

**3.** Compare and contrast the research methodology of an interview or focus group used in your class practical with the research methodology of an experiment. [6]

**4.** Design an observation to investigate the same topic you investigated in your class practical. [6]

## Section B

Answer the following question.

**5.** Discuss the following study with reference to **two or more** of the following concepts: bias, causality, measurement, and/or responsibility. [15]

To test whether self-esteem affects attraction, Kiesler and Baral conducted an experiment. They administered a fake IQ test to two groups of men and gave them fictitious scores. One group was told that they had scored the highest scores ever seen on the test. The second group was told that there must have been some misunderstanding because their scores were so low and that the test markers could not account for the errors. The second group was asked to redo the test two weeks later.

The scores were given to each participant individually, after which the participant was asked to wait in another room to receive his payment for participating in the study. During that time, an attractive woman (who was part of the experiment) walked into the room and sat one seat away from the participant. The researchers wanted to see if the participant's self-esteem affected their willingness to engage in discussion with an attractive woman. They found that the men who received high test scores engaged in conversation with the woman more quickly and in more detail than the men who received low test scores.

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**References:**

**5.** Kiesler, S. B. and Baral, R. L., 1970. "The secret for a romantic partner: The effects of self-esteem and physical attractiveness on romantic behavior." In: K. J. Gergen and D. Marlove, eds. *Personality and social behavior*. Reading, MA: Addison-Wesley. Chapter 8. SOURCE ADAPTED.

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# Markscheme

## Specimen paper

## Psychology

## Higher level and standard level

## Paper 2

8 pages

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## Markbands for higher level and standard level paper 2, Section A

### Question 1: Knowledge and understanding

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • The response demonstrates limited knowledge and understanding of the research methodology relevant to the class practical.<br>• Psychological terminology is limited or contains some inaccuracies. |
| 3–4 | • The response demonstrates detailed knowledge and understanding of the research methodology relevant to the class practical.<br>• Psychological terminology is used accurately. |

### Question 2: Application

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • The knowledge and understanding of the concept is relevant but limited.<br>• There are some relevant links between the concept and the class practical. |
| 3–4 | • The knowledge and understanding of the concept is well developed.<br>• There are clear and detailed links between the concept and the class practical. |

### Question 3: Compare and contrast

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • Similarities or differences are described in limited detail or contain errors.<br>• There is limited psychological terminology relevant to the research methods. |
| 3–4 | • Similarities and differences are explained in limited detail and may lack clarity or either similarities or differences are discussed in detail.<br>• Psychological terminology relevant to the research methods is used, but with some inaccuracies. |
| 5–6 | • Similarities and differences are discussed in detail.<br>• Psychological terminology relevant to the research methods is used effectively. |

### Question 4: Design

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • The procedure of the research method is described in limited detail or contains inaccuracies.<br>• There is limited use of psychological terminology relevant to the research method. |
| 3–4 | • The procedure of the research method is explained in some detail but lacks clarity.<br>• Psychological terminology relevant to the research method is used, but with some inaccuracies. |
| 5–6 | • The procedure of the research method is explained with accuracy and detail.<br>• Psychological terminology relevant to the research method is used effectively. |

## Markbands for higher level and standard level paper 2, Section B

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–3 | • The response indicates little understanding of, and critical engagement with, any of the specified concepts in relation to the study.<br>• The response is descriptive. Any analysis present is superficial or incoherent. Links between concepts and source material are not included or are irrelevant to the discussion. Where a conclusion is included, this is very superficial or is not consistent with the rest of the response.<br>• Psychological terminology is not used or is consistently used inappropriately. Points are frequently inaccurate and unclear. There are few, if any, references to the study. |
| 4–6 | • The response indicates a basic understanding of, and critical engagement with, at least one of the specified concepts in relation to the study.<br>• There is limited analysis present and overall the response is more descriptive than it is analytical. Links between concepts and the study are of limited relevance or ineffectively support the discussion. A simplistic conclusion is included.<br>• Psychological terminology is used, but often inappropriately. Points are frequently imprecise or vague. There are occasional references to the study. |
| 7–9 | • The response indicates some understanding of, and critical engagement with, one or more of the specified concepts in relation to the study.<br>• The response contains analysis, although this analysis lacks development. Links between concepts and the source material are relevant, but they lack development in support of the discussion. A conclusion is included.<br>• Psychological terminology is used, sometimes appropriately. Relevant points are made but lack accuracy and development. Specific references to the study are made, although these are sometimes ineffective. |
| 10–12 | • The response indicates good understanding of, and critical engagement with, at least two of the specified concepts in relation to the study.<br>• The response contains critical analysis, although this analysis lacks development. Links between concepts and the study are used to support the discussion. The response argues to a conclusion that is consistent with the arguments presented.<br>• Psychological terminology is used, mostly appropriately. Points made are relevant and accurate but lack detail. There are specific references to the study. |
| 13–15 | • The response indicates very good understanding of, and critical engagement with, two or more of the specified concepts in relation to the study.<br>• The response contains well-developed critical analysis. Links between concepts and source material are relevant and well developed and effectively support the discussion. The response argues to a reasoned and clearly stated conclusion that is consistent with the arguments presented.<br>• There is accurate and precise use of psychological terminology. Points are relevant, accurate and detailed. There are specific and effective references to the study. |

## Section A

**1.** Describe how you used an interview or focus group in your class practical **and** its aim and procedure. [4]

The command term “describe” requires candidates to give a detailed account of how an interview or focus group was used to carry out the class practical.

Candidates should describe the aim and procedure of the interview or focus group that they used in the class practical. The aim may be written either as a research question or a statement of the aim of the study.

A description of an interview or focus group may include but is not limited to:

- the type of interview – semi-structured, focus group
- piloting of the interview
- training for the interview/focus group
- ways that interviewer effects were controlled
- types of questions – open vs. closed questions
- how the data were recorded/transcribed
- interview schedules/guides
- focus group questions – engagement questions, exploration questions, exit questions
- focus group seating plan.

Responses that only reference the research method, but not how the method was used in the class practical, may only achieve marks in the low band.

**2.** Explain the concept of bias in relation to the interview or focus group in your class practical. [4]

The command term “explain” requires candidates to give a detailed account, including reasons or causes, for how bias is related to the class practical.

Examples of how bias many affect an interview or focus group include but are not limited to:

- **Sampling bias.** The selection of participants can introduce bias if the researcher only includes individuals from a particular demographic or background.
- **Interviewer bias.** The interviewer’s personal beliefs, attitudes, and preconceptions can impact the questions they ask and how they interpret the responses.
- **Question wording bias.** The phrasing of interview questions can inadvertently introduce bias by leading participants to respond in a certain way or by framing issues in a particular light.
- **Response bias.** Participants may provide responses that they believe the interviewer wants to hear, which can result from social desirability bias.
- **Cultural bias.** If interviewers and participants come from different cultural backgrounds, there may be misunderstandings or misinterpretations of responses due to cultural differences in communication styles and norms.
- **Recall bias.** Participants may not accurately recall past events or experiences, which can lead to inaccurate or incomplete information in the interviews.

Candidates may also explain how biases may have been avoided, including but not limited to:

- **Pilot testing.** Conducting pilot interviews to refine questions and identify potential sources of bias.
- **Training interviewers.** Providing training to interviewers to minimize their biases and ensure consistency in data collection.
- **Using open-ended questions.** Formulating open-ended questions that allow participants to express their thoughts freely.

Candidates may explain a small number of biases in order to demonstrate depth of knowledge or may explain a larger number of biases in order to demonstrate breadth of knowledge. Both approaches are equally acceptable.

**3.** Compare and contrast the research methodology of an interview or focus group used in your class practical with the research methodology of an experiment. [6]

The command term “compare and contrast” asks candidate to give an account of similarities and differences between two or more items or situations.

Comparisons of an interview or focus group and an experiment include but are not limited to:

- Both require planning and may have a pilot study.
- Both must meet ethical considerations of informed consent, protection from harm, and the anonymity of the participants.
- Both require a consideration of the representativeness of the sample.
- Interviews may involve structured questions aimed at answering specific research questions, and experiments are often designed to test hypotheses about the causal relationships between variables.

Contrasts of an interview or focus group and an experiment include but are not limited to:

- Interviews and focus groups typically generate qualitative data, whereas experiments generate quantitative data.
- The data collected in interviews and focus groups rely on participants’ subjective experiences and interpretations; experimental data are often more objective, as they are based on controlled conditions and measures.
- Interviews and focus groups have limited control over variables; experiments strive for high internal validity.
- Interviews and focus groups are often conducted in natural settings; experiments are often carried out under controlled lab conditions.
- Interviews and focus groups often use purposive, non-random sampling; experiments often involve random sampling and random allocation to conditions to ensure representativeness and reduce bias.
- Interviews and focus groups allow researchers to understand individual perspectives, emotions, and experiences; experiments attempt to determine causal relationships.

Candidates may compare and contrast a small number of similarities/differences in order to demonstrate depth of knowledge or may compare and contrast a larger number of similarities/differences in order to demonstrate breadth of knowledge. Both approaches are equally acceptable.

Although a discussion of both similarities and differences is required, it does not have to be evenly balanced to gain high marks.

**4.** Design an observation to investigate the same topic you investigated in your class practical. [6]

The command term “design” asks candidates to produce a plan for how an observation could be used to investigate the same topic as their class practical.

Designing an observation may include but is not limited to:

- choice of the observation setting (naturalistic or under controlled conditions)
- type of observation – overt or covert; participant or non-participant; controlled or naturalistic
- type of data collection – time, event, or point sampling
- use of a behavioural checklist
- behavioural categories and operationalization
- establishing inter-rater reliability
- recording behaviour
- ethical considerations of the design
- selecting a sample.

## Section B

**5.** Discuss the following study with reference to **two or more** of the following concepts: bias, causality, measurement, and/or responsibility. [15]

*Refer to the paper 2, section B markbands when awarding marks.*

The command term "discuss" requires candidates to offer a considered review of the concepts with regard to the study.

Examples of how the concepts may be linked to the study include but are not limited to the following.

**Bias**

There are several aspects of bias that could be discussed. There is an assumption that IQ testing is valued by all individuals and cultures and that it is linked to self-esteem. There is also a gender bias (only focusing on men's self-esteem); the cultural bias that men should want to speak to an "attractive woman" in a public space; and a Western bias that promotes extraverted behaviour.

**Causality**

The researchers attempted to establish causality by manipulating the IV and measuring the DV while keeping other variables constant. However, individual differences may have affected the findings. Introverted individuals or men who have higher-than-average (or lower-than-average) self-esteem may compromise internal validity.

**Measurement**

It is not clear in this study how a person's level of self-esteem is measured; it is assumed that the news that one scores high or low on an IQ test will have an effect. The dependent variable is the amount of time to engage and the detail of the conversation with the woman. A discussion of why these may not be reliable or objective measures is appropriate.
In addition, as the results are not blinded, objectivity of measurement could be affected.

**Responsibility**

It is debatable whether the lowering of a participant's self-esteem is a form of undue stress. Debriefing would be important to alleviate feelings of low self-esteem, but finding out that one did not score high on the test may lead to embarrassment. The use of an attractive woman could be seen as objectification or culturally inappropriate.

In discussing how concepts may interact regarding this study, candidates may consider:

- The lack of clear operationalization of variables (measurement) could compromise internal validity (causality).
- Gender and cultural biases may lead to concerns about the level of responsibility taken by the researchers.
- Cultural assumptions (bias) about human behaviour may affect the objectivity of the researchers (measurement).

Candidates may discuss two concepts to show depth of understanding or more than two to demonstrate breadth of understanding. Both approaches are equally acceptable.

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# Psychology
# Higher level
# Paper 3

Specimen paper

1 hour 45 minutes

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**Instructions to candidates**

- Do not turn over this examination paper until instructed to do so.
- Answer all the questions.
- The accompanying **psychology resource booklet** is required for this examination paper.
- The maximum mark for this examination paper is **[30 marks].**

0000 – 5803

2 pages

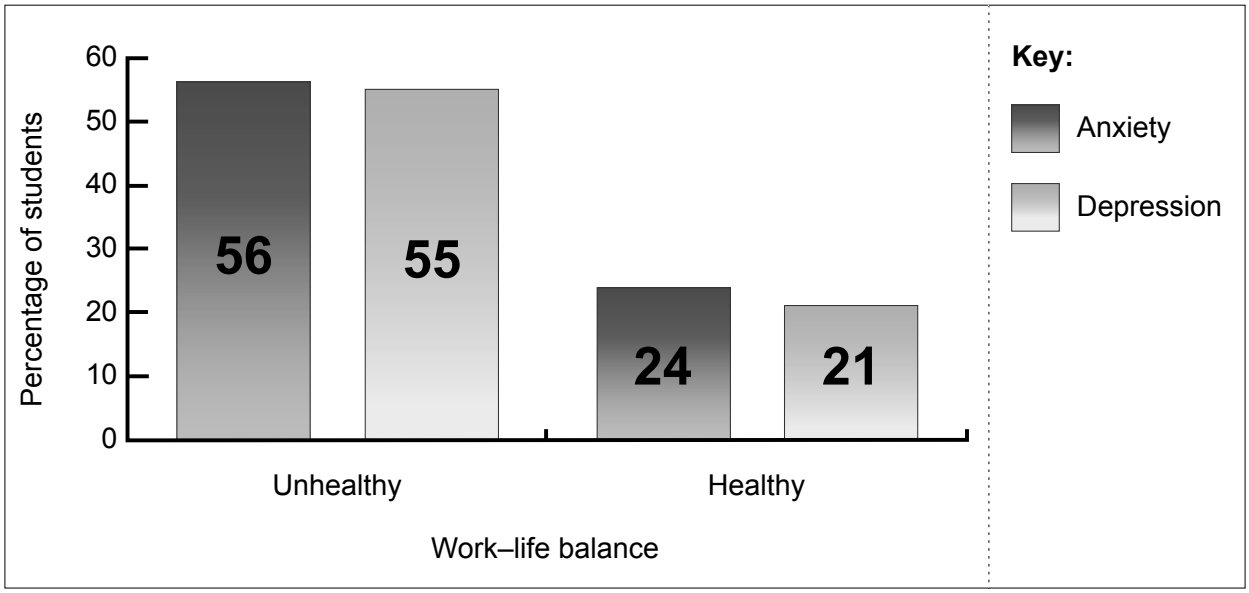
Answer **all** questions. Refer to source 1 below to answer question 1 and the sources in the accompanying resource booklet to answer questions 2–4.

The sources in this examination have been collated to assess the claim that the use of technology in education may have a negative effect on the mental health of students.

**Source 1**

**Figure 1** shows the effect of healthy and unhealthy work–life balance on student mental health, specifically on levels of anxiety and depression.

**Figure 1: The effect of work–life balance on student mental health**




**1.** Explain **one** issue that limits the interpretation of the data in **source 1**. [3]

**2.** Analyse the findings from **source 2** and state a conclusion linked to the claim that the use of technology in education may have a negative effect on the mental health of students. [6]

**3.** Discuss how the researcher could improve the credibility of the findings in **source 3**. [6]

**4.** To what extent can we conclude that the use of technology in education may have a negative effect on the mental health of students? In your answer, use your own knowledge and **at least three** of **sources 2–5**. [15]

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**References:**

**Source 1** OwlLite, n.d. *How stressful is it to do a PhD?* [online] Available at: https://www.zhihu.com/question/64460892 [Accessed 15 March 2024]. SOURCE ADAPTED.

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# Psychology
# Higher level
# Paper 3 – resource booklet

Specimen paper

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**Instructions to candidates**

- Do not open this booklet until instructed to do so.
- This booklet accompanies paper 3.



0000 – 5808

The sources in this examination have been collated to assess the claim that the use of technology in education may have a negative effect on the mental health of students.

**Source 2**

A sample of 50 students were either asked to complete an online task that would take up to six hours or they were asked not to use their computers for the whole day. There were 25 students in each group. At the end of the day, all students took a mental health test. The maximum possible score was 30, indicating a high level of mental health.

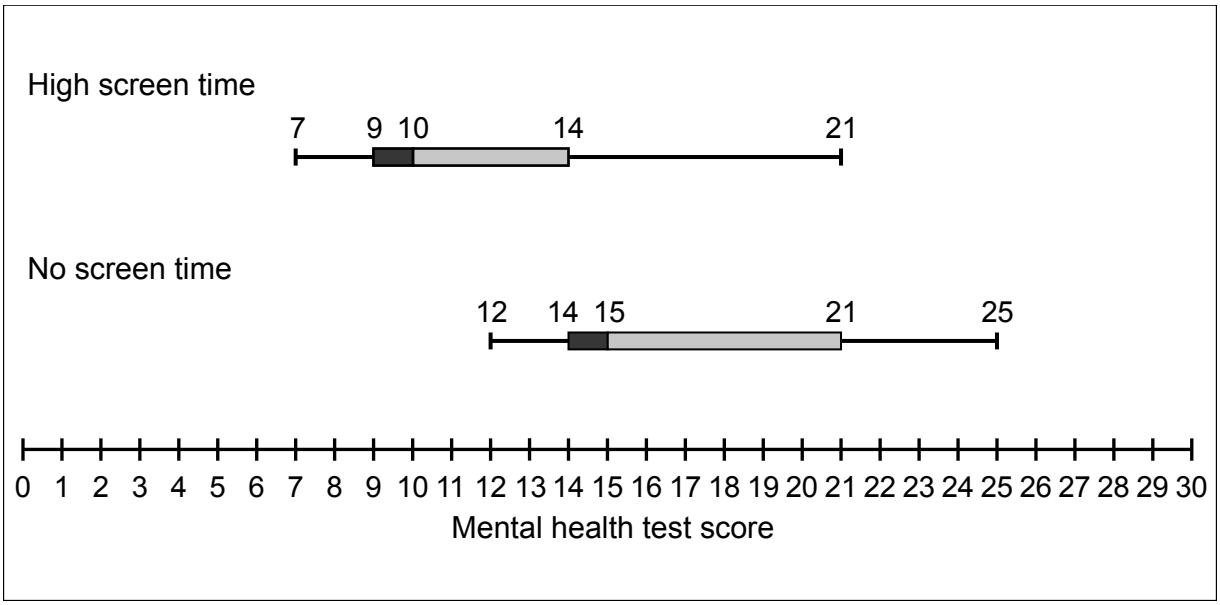
The table shows mental health test scores in relation to screen time.

**Table 1: Mental health test scores in relation to screen time**

| | **Scores on mental health test** | |
|---|---|---|
| | **High screen time** | **No screen time** |
| **Maximum** | 21 | 25 |
| **Median** | 10 | 15 |
| **Mean** | 11.6 | 17.64 |
| **Standard deviation** | 3.87 | 4.48 |
| **Minimum** | 7 | 12 |

The box and whisker plot in **Figure 1** is based on the data presented in **Table 1**.

**Figure 1: Box and whisker plot based on the results of the mental health test**



**Source 3**

A researcher carried out a series of focus groups with students from four different schools to discuss how online learning during school closures during the COVID-19 pandemic negatively affected their mental health. The researcher carried out inductive content analysis on the focus group transcripts and found the following themes:

- Isolation from friends led to feelings of missing out, anxiety, and loneliness.
- Extensive time with parents led to frequent arguing and feelings of being misunderstood.
- Online learning felt “unreal” and “detached” from “real education”.

**Source 4**

A study was conducted to analyse the correlation between mental health and hours spent doing homework on laptops. The participants took several mental health tests to measure levels of cognitive dulling (difficulty concentrating), depression, general anxiety, and obsessive–compulsive disorder (OCD). The results are shown in **Table 2**.

**Table 2: The correlation coefficients of the aspects measured by the mental health tests and hours spent doing homework on laptops**

| Mental health test | Correlation coefficient |
|---|---|
| Cognitive dulling | 0.25 |
| Depression | 0.76 |
| General anxiety | 0.80 |
| OCD | 0.12 |

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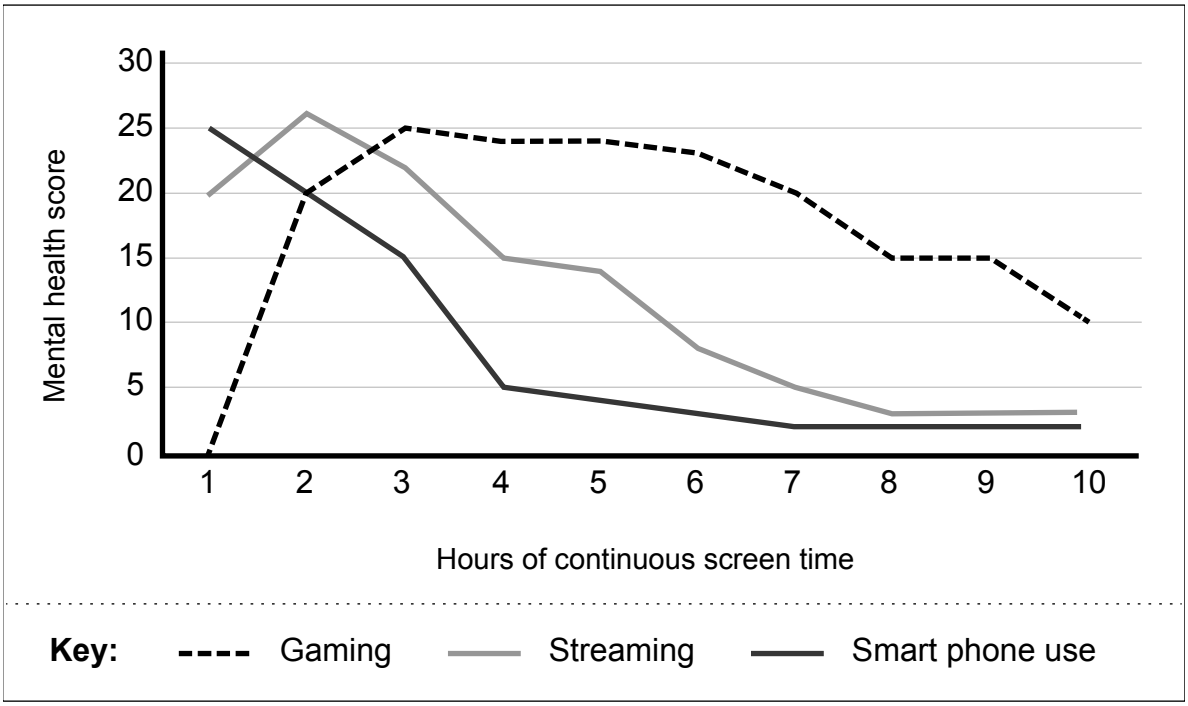
**Source 5**

**Figure 2** shows scores on a mental health test with regard to hours of continuous screen time in three areas: gaming, streaming, and smart phone use. Higher mental health test scores indicate better mental health.

**Figure 2: Scores on a mental health test with regard to hours of continuous screen time**



Diploma Programme
Programme du diplôme
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# Markscheme

## Specimen paper

## Psychology

## Higher level

## Paper 3

7 pages

**Markbands for higher level paper 3, question 1: interpretation of graphs**

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1 | A relevant issue is identified. |
| 2 | A relevant issue is clearly described. |
| 3 | A relevant issue is explained. |

**Markbands for higher level paper 3, question 2: data analysis**

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • There is limited analysis of the data or the analysis contains inaccuracies.<br>• A conclusion is attempted but it is not relevant. |
| 3–4 | • Analysis of the data is accurate but lacks detail or development.<br>• A conclusion is stated but the link to the findings lacks clarity. |
| 5–6 | • The data is analysed in detail.<br>• A conclusion is stated that is explicitly linked to the findings. |

**Markbands for higher level paper 3, question 3: research considerations**

| Mark | Level descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–2 | • Discussion shows limited understanding of the research consideration.<br>• Reference to relevant supporting evidence from the source is limited or missing. |
| 3–4 | • Discussion shows some understanding of the research consideration, but with some inaccuracies.<br>• Reference to relevant supporting evidence from the source is implicit. |
| 5–6 | • Discussion shows detailed understanding of the research consideration.<br>• Reference to the relevant supporting evidence from the source is explicit. |

**Markbands for higher level paper 3, question 4: synthesis**

| Mark | Descriptor |
|---|---|
| 0 | The work does not reach a standard described by the descriptors below. |
| 1–3 | • The response indicates little understanding of the demands of the question. Knowledge and understanding relevant to the claim is anecdotal or of very marginal relevance.<br>• The response is mostly descriptive. Any analysis present is superficial or incoherent. Knowledge relevant to one or more of the sources is included but there is no clear link to the claim.<br>• There is little or no discussion of different points of view. Where a conclusion is included, it is superficial or is not consistent with the rest of the response. |
| 4–6 | • The response indicates some understanding of the demands of the question. Knowledge and understanding relevant to the claim is limited or of marginal relevance. There is limited discussion of the extent to which the claim is valid.<br>• The response contains limited analysis and overall is more descriptive than analytical. Relevant knowledge is used to interpret one or more of the sources but with inaccuracies or without a clear link to the claim.<br>• There is little relevant discussion of different points of view. A simplistic conclusion is included. |
| 7–9 | • The response indicates understanding of the demands of the question, but these demands are only partially addressed. Knowledge and understanding relevant to the claim is limited or lacks clarity. There is some discussion of the extent to which the claim is valid.<br>• The response contains analysis, although this analysis lacks development. Relevant knowledge is used to interpret at least two of the sources but the link to the claim is limited.<br>• There is some discussion on relevant and different points of view. The response includes a conclusion that is only partially supported by evidence. |
| 10–12 | • The demands of the question are understood and addressed. Knowledge and understanding relevant to the claim has some detail with some development. There is discussion of the extent to which the claim is valid, but the response lacks some detail.<br>• The response contains critical analysis, although this analysis lacks development. Relevant knowledge is used to interpret two or more of the sources to support the discussion of the claim.<br>• There is some discussion of different points of view. The response argues to a conclusion that is consistent with the arguments presented. |
| 13–15 | • The demands of the question are understood and addressed. Knowledge and understanding relevant to the claim is detailed and well developed. There is detailed relevant discussion of the extent to which the claim is valid.<br>• The response contains well-developed critical analysis. Relevant knowledge is used to interpret at least three of the sources and is used effectively to support the discussion of the claim.<br>• Different points of view are identified and evaluated. The response argues to a reasoned and clearly stated conclusion that is consistent with the arguments presented. |

**1.** Explain **one** issue that limits the interpretation of the data in **source 1**. [3]

*Refer to the paper 3 question 1 markbands when awarding marks.*

The command term “explain” requires candidates to give a detailed account, including reasons or causes, for the issue found in interpreting the data from source 1.

Relevant issues may include but are not limited to:

- The title does not specify that this is a study of the role of technology. Although it may seem obvious that technology may play a role, the data includes many other factors.
- The use of a limited range of the y-axis leads to a distortion in the representation of the data.
- It is unclear from the graph how “healthy” and “unhealthy” work–life balance was determined.
- It is also unclear what percentage of the students have both anxiety and depression (comorbidity).
- We do not know the size of the sample, and this would affect whether the results can be generalized (population validity).

If a candidate refers to more than one issue, credit should be given only for the first issue.

**2.** Analyse the findings from **source 2** and state a conclusion linked to the claim that the use of technology in education may have a negative effect on the mental health of students. [6]

*Refer to the paper 3 question 2 markbands when awarding marks.*

The command term “analyse” requires candidates to break down the findings in order to bring out essential elements of the study.

The analysis may include but is not limited to:

- Both the median and the mean score on the test is lower in the high screen time condition.
- The standard deviation is higher in the no screen time condition, indicating that there was a greater variation in the scores than in the high screen time condition.
- The range of the two sets of data are very similar. The high screen time condition has a range of 14 and the no screen has a range of 12. (Or, formula for interval level data: highest – lowest + 1.)
- In the box plot, as the median of each condition does not overlap with the box of the other condition, it is likely that the findings are significant.
- According to the box plot, the data is skewed to the right, indicating a greater variation of scores above the mean than below the mean. It also means that the data is not normally distributed.

Candidates should draw a conclusion with regard to the data in this study.

- It can be concluded that students who engaged in six hours of screen time were more likely to have lower scores on the mental health test than those who did the same task offline.
- Screen time has a negative effect on students’ mental health, and it is better for your mental health to not spend time looking at a screen.

**3.** Discuss how the researcher could improve the credibility of the findings in **source 3**. [6]

*Refer to the paper 3 question 3 markbands when awarding marks.*

The command term “discuss” requires candidates to offer a considered review of how the researcher could improve the credibility of their findings.

In a discussion of credibility, candidates may include but are not limited to:

- Consider conducting member checking, where participants review and confirm the findings.
- Combine focus group data with other research methods or data sources to validate findings and enhance credibility.
- Have colleagues or experts review the focus group methods and findings to provide an external perspective.
- Be transparent about any conflicts of interest or potential biases that may affect the research.
- Review the use of different methods/techniques to create transcripts.
- Consider the use of more than one researcher to collect or interpret data.

**4.** To what extent can we conclude that the use of technology in education may have a negative effect on the mental health of students? In your answer, use your own knowledge and **at least three** of **sources 2–5**. [15]

*Refer to the paper 3 question 4 markbands when awarding marks.*

The command term "to what extent" asks candidates to consider the merits or otherwise of the stated claim. Opinions and conclusions should be presented clearly and supported with appropriate evidence and sound argument.

**Use of sources**

Candidates should make use of at least three of the sources 2–5 to discuss the claim.

- Source 2 concludes that there is a difference in mental health scores for those that spent six hours on screen vs. those who were off screen. However, this was a single day and a single task; it is not clear that there was a pre-test, post-test design.
- Source 3 concludes that online learning led to negative feelings. However, it should be noted that the online learning took place during the COVID-19 pandemic and that this is a significant confounding variable when interpreting the findings.
- Source 4 concludes that there is a correlation between amount of time doing homework online and both depression and general anxiety. Correlational research, however, does not indicate causality, as other variables are not controlled.
- Source 5 concludes that streaming and smart phone use may have a greater negative impact on mental health than gaming. So we cannot generalize about the effects of screentime.
- Source 5 does not link directly to education, which is the theme of the discussion and therefore means this source only suggests screentime can affect mental health, but we don't know how much of it is related to education.

**Discussion**

Discussion of the claim may include but is not limited to:

- positive effects of technology use in education – including equity in access to information, ability to accommodate different types of learners, and promoting independent learning
- the difficulties of establishing causality in a naturalistic setting
- biases of researchers when carrying out research
- difficulties of measuring time on screen
- extraneous variables that may affect learning besides technology
- the operationalization of technology
- limitations of correlational findings
- the lack of data on individual mental health before exposure to technology
- lack of longitudinal research
- the validity of self-reported data about time on screen and/or mental health
- relevant research studies may be included to support the argument for and against the use of technology in education.