



The study schedule that survives the semester.

A timetable is not a wish list of hours. It is a plan for what your memory does with those hours. This document shows how to build one that holds up in week nine — and what the published evidence says about why the usual version collapses.

1 Why most timetables collapse by week three

Nearly every timetable fails for the same reason: it schedules *time* instead of *activity*. "Two hours of Micro Economics" tells you when to sit down and nothing about what to do. When the material is hard, the default response is to read it again — which feels productive and is one of the weakest things you can do.

"Practice testing and distributed practice received high utility assessments."

Dunlosky, Rawson, Marsh, Nathan & Willingham (2013), reviewing ten study techniques

SOURCE Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). *Psychological Science in the Public Interest*, 14(1), 4–58. "doi:10.1177/1529100612453266"

2 Four rules that do the work

RULE 1 — SPACE IT

Three one-hour sessions across a week beat one three-hour session. The gap matters more the further away the exam is.

EVIDENCE Cepeda, Pashler, Vul, Wixted & Rohrer (2006), *Psychological Bulletin*, 132(3), 354–380.

RULE 3 — INTERLEAVE IT

Mix question types in one sitting instead of twenty of the same kind. You must choose the method, which is the actual exam skill.

EVIDENCE Rohrer, Dedrick & Stershic (2015), *Journal of Educational Psychology*, 107(3), 900–908.

RULE 2 — RETRIEVE IT

Close the book and write what you remember, then check. Self-testing beats rereading — and beats concept mapping — for durable learning.

EVIDENCE Roediger & Karpicke (2006), *Psychological Science*, 17(3); Karpicke & Blunt (2011), *Science*, 331(6018).

RULE 4 — SLEEP ON IT

Sleep is when memory consolidates. Reviewing the hardest material shortly before sleep, and protecting seven to eight hours, is part of the timetable.

EVIDENCE Rasch & Born (2013), *Physiological Reviews*, 93(2), 681–766.

WHY "HARDER" IS THE POINT

Spacing, testing and interleaving all feel worse than rereading while you are doing them, and all produce better retention. Bjork and Bjork call this "making things hard on yourself, but in a good way" (2011). If a study session feels comfortable, that is not evidence it worked.

3 The arithmetic of a semester, done honestly

Five modules at three contact hours a week is 45 contact hours a semester. A common planning convention in higher education assumes about two hours of independent study for every contact hour — roughly six hours a week per module. That convention is a planning aid, not a UNZA regulation; your own module outlines are the authority.

What matters is the shape of the number. Six hours a week is not one long evening; it is three two-hour contacts, or six 50/10 blocks across three days.

The honest totals	Week	Semester
Contact hours (5 modules × 3 h)	15 h	225 h
Independent study at the common 2× assumption	30 h	450 h
Six 50/10 blocks a week — a realistic plan	5 h	75 h
Gap you are deciding how to close	—	375 h

WHY THIS MATTERS A 375-hour gap cannot be closed by intending to work harder. It is closed by one repeatable block that you actually keep.

4 Six ways the plan is lost before the exam

■ **Reading as revision.** No recall, no retrieval benefit.

■ **Blocked practice.** Trains repetition, not selection.

■ **One subject per day.** Spacing collapses; four modules wait until the last week.

■ **No error log.** Mistakes repeat because they were never collected.

■ **Coursework read as optional.** Unsatisfactory CA can bar you from the exam — page 3.

■ **Hours, not activities.** The decision is remade when you are tired.

**5 Build the weekly grid in five moves**

- 1 Block what you cannot move**
Lectures, labs, tutorials, placements, worship, family duty, work — in first, and in grey.
- 2 Give every module a "next action"**
Not "study Chemistry" but "rework Tutorial 4, questions 2, 5 and 7 without notes".
- 3 Put retrieval before new reading**
Begin with ten minutes of closed-book recall of last week. Retrieval first, reading second.
- 4 Spread each module across three days or more**
Two short contacts on Tuesday and Friday beat one long block on Saturday.
- 5 Leave one evening and one half-day empty**
A schedule with no slack breaks in the first week it is tested. The gap is where you catch up.

THE 50/10 BLOCK, WRITTEN DOWN

Minutes	What happens
0-5	Closed-book recall of the last session. Write, don't reread.
5-25	Work three mixed problems or one exam question, fully.
25-45	Only now consult notes, textbook or marking key.
45-50	Write the two things you got wrong and the rule behind each.
50-60	Break, away from the screen. "Scroll" is not a break.

NOTE Three of these blocks is a serious study day. Six is not.

6 Worked example — a five-module semester week

A real pattern, not a template to copy exactly: five modules, two of them quantitative. Shaded cells are fixed teaching commitments. No module appears on fewer than three days.

Time	Mon	Tue	Wed	Thu	Fri	Sat
08:00-10:00	Micro lecture	Maths lecture	Chem lecture	Micro lecture	Maths lecture	Rework the week's errors
10:00-12:00	Chem lab	Maths: 3 mixed problems	Chem lab	Chem: recall + problems	Physics: exam question	Two past-paper questions, timed
14:00-16:00	Micro: recall, then problems	Physics tutorial	Maths: worked examples	Physics lab	Open — buffer	Free
19:00-20:00	Physics: recall, 20 min	Chem: 10-mark question	Micro: mixed MCQ set	Maths: recall, 20 min	Free	Free

WHAT THIS GRID GETS RIGHT

Every module is touched on three or more days; every session opens with closed-book recall; quantitative topics get mixed problem sets rather than blocks of identical questions; Friday afternoon is deliberately empty.

WHAT TO AVOID IN YOUR OWN VERSION

A "study" block with no stated activity. A whole Saturday on one subject. A plan so tight that one missed lecture destroys the week. Reading as the main activity for a subject you will be examined on numerically.

7 When the week goes wrong — the twenty-minute recovery

- 1 Do not rebuild the whole timetable**
Rebuilding is procrastination that feels like discipline. Change one thing.
- 2 Find the first missed block**
Whatever that block was protecting is now the priority — not the newest task.
- 3 Protect retrieval, drop reading**
A missed reading costs comprehension; a missed recall session costs retention.
- 4 Write one line in the error log, then start**
The week is recovered when the next session begins on time, not when the plan is perfect.

THREE THINGS TO NOTICE ABOUT THE GRID

- Nothing is longer than two hours.** Long blocks get postponed; short blocks get done.
- Recall comes first.** Ten minutes of closed-book writing changes what the next hour is worth.
- Sunday is empty.** A plan with no unallocated day has no room for the week that does not go to plan.



8 The three-week countdown to the paper

THREE WEEKS OUT

- List every topic the syllabus names and mark each **can do / shaky / not started**.
- Start with **shaky**, not with what you like.
- One full past paper under time, open book. You are calibrating, not training.

TWO WEEKS OUT

- One timed paper per subject, closed book, marked against the key.
- Keep one **error log**: question, mistake, rule, fix. Re-read only the log.
- Alternate subjects within a day. No subject gets a whole day.

FINAL WEEK

- Retrieval only. No new material, no new chapters.
- Redo the error log cold.
- Sleep is the priority. An all-nighter buys hours and loses consolidation.

EVIDENCE Spacing gains grow with the retention interval (Cepeda et al., 2006); retrieval practice produces durable learning where restudying does not (Karpicke & Blunt, 2011); sleep actively consolidates memory (Rasch & Born, 2013).

9 Anxiety, and what actually reduces it

Test anxiety is not a character flaw and it is not fixed by being told to calm down. It tracks reliably with weaker outcomes, and structured interventions measurably reduce it.

AN HONEST NOTE ON MINDSET

Believing ability can grow is linked to motivation, and Dweck's work is widely quoted — but the largest independent meta-analysis found the average effect of mindset interventions on achievement was *small* and concentrated in struggling students (Sisk et al., 2018). Treat mindset as a helpful attitude, not a substitute for the four rules.

THREE THINGS THAT HELP

- Rehearse the conditions** — timed, closed book, no phone. Much of the fear is fear of an unfamiliar format.
- Write the worry down** before the paper. Naming it frees working memory.
- Breathe slowly for two minutes** before reading anything.

EVIDENCE von der Embse, Jester, Roy & Post (2018), *Journal of Affective Disorders*, 227, 483–493; Ergene (2003), *School Psychology International*, 24(3).

10 Two institutional rules that override any timetable

CONTINUOUS ASSESSMENT CAN BAR YOU FROM THE EXAM

UNZA's quality assurance framework states that a student whose continuous assessment is unsatisfactory will not be allowed to sit the final examination. Coursework is not a warm-up for the exam; in some modules it is the gate to it.

SOURCE University of Zambia, *Quality Assurance Framework*, Directorate of Quality Assurance, 2018, §6.3.8.

DIARISE THE SESSIONAL DATES

Examination windows, result publication and the deadline for result appeals are published in advance. Put the appeal deadline in your calendar the week term starts.

SOURCE University of Zambia, *Sessional Dates 2025/26*, Office of the Registrar — “Friday 20th November, 2026 Deadline for Appeals for Examination Results for Regular Students”

11 Printable — the blank weekly grid and the error log

Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun
07:00–09:00							
09:00–11:00							
11:00–13:00							
14:00–16:00							
16:00–18:00							
19:00–21:00							

Question	What I did	The rule I missed	The fix
e.g. Test 2, Q4	Read the price off MR	Price is read off the AR/D curve, never MR	Circle the curve before reading any value



The essay that answers the question that was set.

An essay is not a place to show everything you know. It is an argument built to a stated purpose, marked against stated outcomes. This document shows how the marking works, how one paragraph is built, and it includes a complete short model answer with a marker's annotation of every paragraph.

1 Why essays are marked the way they are

An essay mark is not a reward for effort or for length. It is a judgement of how well the work meets the outcomes the module has already published. Biggs, Tang and Kennedy call this *constructive alignment*: the outcomes state what you should be able to do, and the assessment is built to find out whether you can do it (Biggs, Tang & Kennedy, 2022). What the outcomes ask for is what the marker is looking for.

That has a practical consequence. If the outcome says "evaluate", a summary of the reading will not earn the marks however accurate it is: evaluation means weighing evidence and reaching a defended judgement. If it says "apply", an abstract discussion without examples will fall short.

Source Biggs, J., Tang, C., & Kennedy, G. (2022; ©2023). *Teaching for quality learning at university* (5th ed.). Open University Press / McGraw-Hill Education.

2 The anatomy of one paragraph

Toulmin's account of practical argument has three moving parts, and they map cleanly onto a paragraph of academic writing: a **claim** (what you are asserting), the **grounds** (the evidence for it), and a **warrant** (the reasoning that shows why the grounds support the claim) (Toulmin, 1958). A paragraph with grounds but no warrant is the commonest weakness in an undergraduate essay.

ONE PARAGRAPH, THREE MOVES

Claim. A credible inflation target does most of its work through expectations rather than through the interest rate itself. **Grounds.** Where expectations are anchored, wage and price setters respond to the announcement before any policy meeting. **Warrant.** Because expectations, not just current rates, drive future prices, a target that is believed is more powerful than one that is merely published — so credibility, not the size of the target, is what should be judged.

3 A twenty-minute planning routine

1 Underline the command word and the limit

"Discuss", "compare", "evaluate", and any word count or source limit. These decide the shape.

2 Write the outcomes in your own words

What must this essay demonstrate to satisfy them? Two lines at most.

3 Draft the thesis in one sentence

Your position plus the reason. If you cannot finish it, you have no thesis yet.

4 List three or four claims

Each becomes a body paragraph. One claim per paragraph; no paragraph carries two.

5 Attach evidence to each claim

Name the source, example or figure you will use — before you write.

6 Plan the counter-argument

Say what the strongest objection is and where you will answer it. This is what "discuss" rewards.

WHAT THE TWENTY MINUTES BUYS YOU

- **A fixed centre of gravity.** Every paragraph is checked against the thesis before it is kept.
- **No empty paragraphs.** If a claim has no evidence, you find out now, not at 2 a.m.

4 The thesis statement, written to a formula

A workable formula: *Although* [the counter-position], *this essay argues that* [your position], *because* [reason one] *and* [reason two].

WEAK — TOO VAGUE TO MARK

"Inflation targeting is a good framework for small open economies like Zambia because it keeps prices stable."

No concession and no comparison, and a reason any framework could claim: the marker cannot tell what the position defends.

STRONG — ARGUABLE AND CONFINED

"Although inflation targeting has anchored expectations in several emerging economies, it is not the best framework for Zambia, because a copper-dependent fiscal position and high exchange-rate pass-through mean the central bank cannot control the shocks that drive measured inflation."

**5 The centrepiece — a complete model answer**

Question: *Using examples from Zambia, discuss whether inflation targeting is the best framework for a small open economy.* Specimen answer, APA in-text style throughout. Read it, then read the marker's annotation below it.

- 1 Small open economies are price-takers in world markets and are therefore exposed to shocks they do not control: shifts in the terms of trade, movements in global interest rates and swings in commodity prices. Inflation targeting — a framework in which the central bank commits to a published numerical inflation goal and sets policy to meet it — has been widely adopted on the argument that a clear target anchors expectations. Whether it is the *best* framework for such an economy, however, depends on conditions that Zambia only partly satisfies. This essay argues that inflation targeting is a workable discipline for Zambia, but not an outright best framework: its success depends on exchange-rate flexibility, fiscal restraint and the quality of the inflation data, and it performs poorly when those supports are absent.
- 2 The framework rests on a chain of reasoning. If the central bank can credibly commit to a target, households and firms will form their expectations around it, and wages and prices will settle more predictably. Lower and more stable inflation then supports investment and long-run growth.
- 3 Zambia's own record offers some support. In periods when inflation has been held in single digits, the kwacha has been steadier, real interest rates have been positive, and firms have planned over longer horizons. When inflation has accelerated, the currency has weakened and the cost of imported inputs has risen sharply. On this reading a credible target could break the expectation of continuous depreciation and give the private sector a firmer basis for contracts.
- 4 The complications are equally clear. Zambia is a copper exporter, so the terms of trade and the fiscal position move together with the metal price; a monetary framework cannot offset a large fiscal deficit. A target met only by very high interest rates may draw in short-term capital, strengthen the currency and hurt non-mining exports. Because a large share of consumption is imported, exchange-rate pass-through is high, so a depreciation the central bank did not cause can push measured inflation above the target.
- 5 Any verdict must also attend to how the result is measured. Inflation is an estimate derived from a price index and, like any measured quantity, it carries an uncertainty that should be reported rather than suppressed (JCGM, 2008), and comparisons across years are only as firm as the definitions behind them (BIPM, 2019).
- 6 None of this shows that the alternatives are better. Exchange-rate targeting would import foreign inflation and surrender control of domestic interest rates, and a money-supply rule is unreliable when the demand for money shifts. The real choice is therefore not between inflation targeting and a perfect substitute, but between it and a weaker form of the same discipline.
- 7 Inflation targeting is therefore not the best framework for a small open economy in the abstract, but it is the most defensible one available to Zambia provided it is supported by fiscal discipline and exchange-rate flexibility. Its value lies less in the number it names than in the constraints it imposes: it obliges the authorities to state an objective, explain deviations and accept judgement on the result. A framework that makes failure visible serves a small open economy better than one that conceals it.

REFERENCES Bureau International des Poids et Mesures (BIPM). (2019). *The International System of Units (SI)* (9th ed.). BIPM.
JCGM. (2008). *Evaluation of measurement data — Guide to the expression of uncertainty in measurement (GUM)*. JCGM/BIPM.

6 The same essay, read by a marker

Paragraph	What it does	Marker's note
¶1	Defines the terms, then states a thesis with a qualification.	A confined position is easier to defend than a sweeping one. The concession ("workable... but not best") is signposted early.
¶2	Sets out the framework's own theory before judging it.	Shows the mechanism rather than asserting a verdict. Needed before any evaluation.
¶3	The case in favour, using Zambian examples.	Examples carry the paragraph. Could be strengthened by naming the period, not just describing it.
¶4	The case against; the strongest objections.	Meets "discuss" properly - weighs both sides instead of listing.
¶5	A methodological caveat, with two real citations.	Marks are awarded for this level of care. One source per claim; style consistent.
¶6	Counters the alternatives, not just the topic.	Avoids the false choice that weakens most answers to this question.
¶7	Restates the judgement and its conditions.	Answers the exact question. No new material in a conclusion.

NOTE The essay is about 620 words. It cites only sources that exist. Where a claim rests on general knowledge and no source is available, it is stated plainly and left uncited rather than supported by an invented reference.



7 Ten things that quietly cost marks

- **Answering a different question.** A good essay on the wrong topic scores as the wrong topic.
- **No thesis.** Topic sentences that only announce a subject, not a position.
- **Claim without warrant.** Evidence dropped in with no reasoning linking it to the point.
- **One side only.** "Discuss" and "evaluate" require the counter-argument.
- **Quote dumps.** Long verbatim passages with no comment of your own.

- **Orphan citations.** A source cited in text but missing from the list, or the reverse.
- **Mixed referencing styles.** A different format in every third entry.
- **Padding.** Restating the introduction in the conclusion to reach the word count.
- **Over-length.** Material that pushes past the limit, or under-length brevity.
- **Presentation faults.** No thesis contrast, inconsistent spelling, unformatted headings.

8 Word count and the three editing passes

Treat the limit as a rule, not a target to exceed. Most modules allow a small tolerance — often ten per cent either way — and that tolerance is general university practice, so confirm your own module's figure. Count the body text only, unless you are told otherwise, and state the count.

If you are...	Do this, not this
Over	Cut a whole example or a whole paragraph, not a word per sentence.
Under	Add a counter-argument with evidence, not adjectives.

PASS 1 — STRUCTURE

Does every paragraph serve the thesis? Is the argument in the order it must be read? Read only the first sentence of each paragraph.

PASS 2 — EVIDENCE

Does every claim have grounds and a warrant? Is every source in text also in the list? Is any source cited but not actually read?

PASS 3 — LANGUAGE

One idea per sentence. Consistent British spelling. No contractions, no filler. Read it aloud.

9 Referencing inside an essay

Choose one method and apply it without exception — in the text, in the list, and in every entry. The reason is not decoration: a marker must be able to trace every claim to a source. The University of Zambia's postgraduate regulations state the principle directly for dissertations:

"One of the following methods should be used for the referencing and citation of published work in the dissertation or thesis"

University of Zambia, Regulations and Guidelines for Postgraduate Studies (2024)

The same principle — one method, applied consistently — is what examiners normally expect of any piece of written work. Note that "Harvard" is not one fixed system: institutions publish their own variant, so follow the variant you are told to use rather than a version remembered from elsewhere.

SOURCES University of Zambia (2024), *Regulations and Guidelines for Postgraduate Studies* (Directorate of Research and Graduate Studies). University of Leeds, *Leeds Harvard introduction* — "The University uses a variation of the Harvard referencing style called Leeds Harvard."

10 The submission checklist

- ✓ The question is answered, not just the topic addressed.
- ✓ One referencing method, used consistently in text and list.
- ✓ The thesis appears in the introduction and is visible throughout.
- ✓ Word count stated and within the limit.
- ✓ Every claim has evidence and a stated warrant.
- ✓ Name, module code, title and page numbers present.

AN HONEST CLOSING NOTE

No essay structure guarantees a mark. Constructive alignment explains what the marker is looking for; Toulmin's paragraph shows how to build an argument a reader can follow. Both make the marking easier to do fairly — neither makes a weak answer strong. The structure earns you nothing on its own; it only ensures that the thinking you did is visible.



The dissertation, from a vague interest to a defended answer.

A dissertation fails for predictable reasons, and almost none of them are about intelligence. This document shows how the genre differs from an assignment, the length rule that applies at postgraduate level, worked examples of a narrowed topic, a chapter skeleton and a full proposal page, and the three published rules that can end a dissertation early.

1 What a dissertation is, and how it differs from the other three genres

A dissertation is an extended piece of independent work in which you define a question, gather evidence yourself, and defend an answer to it. The decisive difference from an assignment is ownership: there the question is set for you; here you narrow it until it can be answered with the time and access you have.

Genre	Typical length	Its purpose	Originality expected
Dissertation	Often 20,000–35,000 words at Master's level	To answer one defined research question with self-collected or systematically analysed evidence.	An original study or an original reading of existing material, to a stated standard.
Thesis	Longer, commonly 60,000–100,000 words	To make a contribution to knowledge in the field, defended before examiners.	A substantial original contribution, examined by viva in most systems.
Research project report	Often 5,000–15,000 words	To show you can carry out a bounded piece of research and report it properly.	Methodological competence rather than a contribution to knowledge.
Long essay	2,000–5,000 words	To argue from published sources, with no data collection.	None in the research sense; the argument must be your own.

Naming conventions differ between institutions; use the term your own programme handbook uses. Length figures here are typical ranges, not rules.

THE ONE-SENTENCE TEST, BEFORE YOU COMMIT

Write it as one sentence: *In [population], this study examines how [relationship], using [method].* If any bracket is vague, you have an interest, not a topic.

- **Population.** Can you list who is eligible, and say roughly how many there are?
- **Relationship and method.** Can you observe, ask about or measure it, in the time and with the access you have?

2 The length rule at postgraduate level

The University of Zambia's postgraduate regulations state a length for one specific award. It is worth reading slowly, because the sentence names both the pathway and the degree:

"Candidates of the Master's degree by Coursework and Dissertation shall submit a dissertation of 20,000 to 35,000 words."

University of Zambia, *Regulations for Postgraduate Training*, March 2015

Two things follow. First, the figure attaches to the Master's by coursework and dissertation — if your programme is structured differently, or is an undergraduate project, confirm the requirement with your school rather than assume this number. Second, a word range is a working space, not a quota: an examiner can tell the difference between a 30,000-word dissertation and a 15,000-word argument inflated to fill it.

SOURCE University of Zambia, Directorate of Research and Graduate Studies. *Regulations for Postgraduate Training* (March 2015). https://graduate.unza.zm/images/files/pg_regulations.pdf

3 The five lines to write before a supervision meeting

Supervision time is short and shared. Arriving with these five lines written turns a vague conversation into a decision.

AGENDA — ONE PAGE, FILLED IN BEFORE YOU KNOCK

1. **What I did since we last met:** piloted the questionnaire on six traders and revised four questions.
2. **What I have decided:** a purposive sample of twelve, drawn from two sections of the market.
3. **What I cannot decide alone:** whether the failed-transaction question becomes a second objective.
4. **What I am asking you to read:** Chapter 3 draft, pages 4–9 only.
5. **What I will do before the next meeting:** complete twelve interviews and transcribe the first six.



4 Twelve months, honestly spaced

Working backwards from the submission date is the only timeline that survives. The middle column is the test of whether you are on schedule; the right-hand column is what usually goes wrong at that point.

Month	What must be finished	The trap
1	Two or three candidate topics, each narrowed to a one-sentence question.	Reading forever without committing to a question.
2	Supervisor agrees the question; a one-page proposal exists.	Treating the supervisor as an approver rather than a reader of drafts.
3	Literature map; the three debates your study sits between.	Summarising every paper found instead of the ones that bear on the question.
4	Methodology fixed — instrument, sample, access, ethics clearance.	Collecting data before the instrument has been piloted.
5	Pilot on a small group; instrument revised.	Discovering ambiguous questions after 200 responses are in.
6-7	Fieldwork or data collection completed.	Under-estimating travel, permissions and call-backs.
8	Data cleaned, coded and described. Tables built.	Leaving cleaning until writing has begun; it always takes longer than expected.
9-10	Full first draft of every chapter, including the discussion.	Writing the introduction first and polishing it repeatedly.
11	Revision from supervisor comments; referencing checked.	Reformatting the document instead of answering the comments.
12	Proof-read, printed and bound, submitted before the deadline.	Binding the day it is due, with no time to correct the printed copy.

THREE WARNING SIGNS, CHECKED EVERY MONTH

- You cannot state the question in one sentence.** The earliest and most reliable sign that the scope is still too wide.
- You have read for a month and written nothing.** Reading without writing notes produces no chapter and no argument.
- Nobody else could repeat your method.** If a reader cannot tell who you sampled and how, you have written a description rather than a method.

5 Narrowing a topic — a worked example

Almost every topic arrives too large to answer. Narrowing is not a loss of ambition; it is a sequence of deliberate cuts until what remains can be defended with the evidence you can actually obtain. Watch three cuts being made on one topic.

FROM A BROAD AREA TO AN ANSWERABLE QUESTION

Broad area. Financial inclusion in Zambia.

Cut 1 — by population. Not "Zambians", but market traders in one named market in Lusaka. A defined group can be sampled and described.

Cut 2 — by relationship. Not "the effect of financial inclusion", which spans everything, but how one service — mobile money — changes the working capital a trader carries.

Cut 3 — by evidence. Not "how it affects traders", which cannot be observed directly, but what traders report changed in their daily cash-holding after they adopted it. That is answerable with interviews and a short questionnaire.

Candidate title	Verdict
"Financial inclusion and economic development in Zambia"	Rejected. A national question cannot be answered from one student project; every claim would be unsupported.
"The effect of mobile money on small businesses in Lusaka"	Workable, but still broad. "Small businesses" and "effect" both need defining.
"Mobile money and working capital among market traders in Lusaka's Soweto Market: a qualitative study"	Chosen. Named population, named relationship, named method — and therefore a defensible scope.



6 Objectives, research questions and a hypothesis — a worked example

These three are not interchangeable, and examiners mark them separately. An **objective** says what the study will do. A **research question** says what must be answered for the objective to be met. A **hypothesis** is a testable statement used when the design is quantitative. Each line below is written for the topic just narrowed, with a note on why it is phrased that way.

THREE OBJECTIVES

- To establish how market traders in Soweto Market use mobile money in their daily trading.
- To determine what traders report changed in their cash-holding after adoption.
- To identify the barriers traders describe when a mobile money transaction fails.

Each opens with a verb the study can deliver — *establish, determine, identify* — not "understand" or "explore", which cannot be shown to have been achieved.

TWO RESEARCH QUESTIONS

- How do traders use mobile money in the course of a trading day?
- What barriers do traders report, and how do they respond when a transaction fails?

Each corresponds to an objective above. If a question has no matching objective, either add one or cut the question.

ONE HYPOTHESIS — AND WHEN YOU NEED ONE

H_1 : Traders who have used mobile money for longer than twelve months report a lower average daily cash balance than those who have not.

A hypothesis is only useful if the design can test it. This one needs a measured daily balance and a comparison group, so it belongs to a quantitative study — it does not belong in the qualitative design chosen above, where the question is answered by description rather than by test. Stating a hypothesis you cannot test is a common and costly error.

7 The chapter skeleton, with a word budget

A dissertation whose chapters are *Introduction, Literature Review, Methodology, Findings, Discussion, Conclusion* tells the examiner nothing, because those titles fit any study ever written. The titles below carry the argument: read only the title column and you still know what the study claims and how it will defend the claim.

Chapter	Words	What belongs in it	What the examiner looks for
1. Why cash-holding matters for market traders	3,000	Problem, context, aim, objectives, the study's boundaries.	That the question is real, and that you have said what the study will not cover.
2. What is known about mobile money and trading capital	6,000	The debates, not a catalogue of summaries; ends with the gap.	A gap that the study's objectives actually address.
3. How the traders were studied	4,000	Design, sampling, instrument, pilot, ethics, limitations.	That another student could repeat the study from this chapter alone.
4. What traders said about cash and failure	7,000	Results only, in a fixed order, with the instrument's wording visible.	Results that have not been argued into the discussion yet.
5. Why the pattern looks the way it does	5,000	Your interpretation, placed against the literature of Chapter 2.	Explanation, alternative explanations, and honest limits.
6. What can be claimed, and what cannot	2,000	Answer to each research question, contribution, further work.	Claims no larger than the evidence in Chapter 4.
Front matter, references, appendices	outside the count	Title page, abstract, contents, tables, sources, instrument.	Usually excluded from a word limit — check your own programme's rule.

ORGANISING THE LITERATURE REVIEW BY DEBATE, NOT BY AUTHOR

The weak version reads: "Author A found X. Author B found Y." The strong version groups the reading into the arguments it belongs to:

- **Where the field agrees.** One dense paragraph, heavily cited, establishing what is settled.
- **Where it disagrees, and what has not been asked.** Paragraphs organised by the disagreement — ending with the gap your objectives address.



8 A one-page proposal, section by section

Most supervisors will not approve a study they cannot see on one page. Every section below is shown as a real sample sentence rather than a description of what to write — substitute your own content, keep the shape.

Section	A sample sentence, written properly
Title	Mobile money and working capital among market traders in Lusaka's Soweto Market: a qualitative study.
Background	Mobile money has spread rapidly in Zambia, but published evidence concentrates on uptake rather than on what changes in a trader's working day.
Problem statement	It is not known whether traders who use mobile money hold less cash, and if so, what that changes in how they buy stock.
Aim	To describe how the use of mobile money relates to the working capital that market traders hold during a trading day.
Objectives	The three objectives in section 6, reproduced in full — not summarised as "to study mobile money use".
Research questions	The two questions in section 6, matched one-to-one to the objectives.
Methodology	A qualitative design using twelve semi-structured interviews with purposively sampled traders, analysed thematically and reported under the themes that emerge.
Expected results	That traders report lower cash-holding but a new dependence on agent availability and network reliability.
Work plan	The month-by-month plan in section 4, compressed to a single line per month.
Ethics	Clearance will be sought before any interview; participants give written informed consent; no trader is named and no transaction data is collected.
Preliminary references	Five to eight entries in the one referencing style you have chosen, formatted in full.

The proposal is a promise, not an outline. Everything you state here — the sample, the instrument, the ethics route — becomes something an examiner can hold you to in Chapter 3. Write only what you are confident you can deliver.

9 Sampling and the instrument

SAMPLING

- Name the population precisely.** "Market traders in Soweto Market who sell vegetables" can be described; "small businesses" cannot.
- Justify the size.** For qualitative work, justify by saturation — the point at which further interviews stop producing new themes.
- State the inclusion rule.** Who was eligible, who declined, and how many were approached.
- Describe access honestly.** How you were allowed in, and who introduced you.

THE INSTRUMENT

Fault	The fix
Double-barrelled question	One idea per question.
Leading wording	Neutral phrasing; test it on a reader.
Unclear terms	Define in the trader's own vocabulary.
No pilot	Pilot on five people, then revise.

10 Research ethics, and the committee that hears misconduct

Any project that involves people — interviews, questionnaires, observation of identifiable individuals — normally requires clearance before you begin, and the exact procedure and forms are set by your own institution. What the university's research policy makes plain is where a case goes if something goes wrong:

"Issues of misconduct in Research should be brought to the attention of the Research Ethics Committee"

University of Zambia, *Research Policy and Intellectual Property Rights*, §4 "Misconduct in Research"

Misconduct is a wide category. It includes fabricated or altered data, presenting another person's work as your own, and failing to obtain consent. A study that collects no data is not automatically exempt; check with your school before you assume it is.

SOURCE University of Zambia, Directorate of Research and Graduate Studies. *Research Policy and Intellectual Property Rights*, §4.
https://graduate.unza.zm/images/files/research_policy.pdf



11 Two published rules that can end a dissertation early

Everything else in this document is guidance. These two carry a formal consequence, and both are published by the University of Zambia.

ONE REFERENCING METHOD, APPLIED CONSISTENTLY

"One of the following methods should be used for the referencing and citation of published work in the dissertation or thesis"

UNZA, *Regulations and Guidelines for Postgraduate Studies*, 2024

The regulation permits a choice of method and requires you to use *one*. Mixing APA and Harvard inside the same reference list is therefore not a stylistic preference — it is a departure from the stated method.

THE SIMILARITY-INDEX GROUND FOR TERMINATION

"plagiarism exceeding the similarity index of 25% excluding tables, figures, references and appendices."

UNZA, *Regulations and Guidelines for Postgraduate Studies*, 2024

Note what the count excludes. Properly attributed and referenced quoted material is not the problem; unattributed copying is. Run the similarity check early enough to fix a chapter, not late enough to panic.

SOURCE University of Zambia, Directorate of Research and Graduate Studies. *Regulations and Guidelines for Postgraduate Studies* (February 2024). https://graduate.unza.zm/images/files/PG_Regulations_Guidelines_rev.pdf

12 Finishing: submission, archiving and the viva

BEFORE YOU BIND IT

- Every in-text citation has a matching entry, and every entry is cited.
- Every table and figure is numbered, captioned and referred to in the text.
- Page numbers, contents page and table of tables agree with the printed copy.
- The abstract states the question, the method and the finding — in that order.
- Your supervisor has read the final version, not an earlier draft.

IN A VIVA, IF YOUR PROGRAMME HAS ONE

- Rehearse a two-minute answer to "what does this study claim?"
- Know your limitations section better than the examiner does.
- Where you cannot answer, say so, and say what you would do to find out.
- Defend the method, not the person. Corrections are normal and expected.

13 The eight commonest reasons dissertations lose marks

Reason	How it shows up	The correction
Question too large	Every claim is hedged; nothing is tested.	Cut the population, the relationship or the method — until it is answerable.
Objectives and questions do not match	A question is answered that was never set.	Map them one-to-one and delete the surplus.
Literature as catalogue	Ten pages of summaries, no debate.	Organise by argument, and name the gap you fill.
Method not repeatable	Another student could not repeat it.	Report sampling, instrument and analysis steps in sequence.
Results argued in the results chapter	Interpretation appears before the findings are complete.	Report first, interpret in the discussion.
Conclusions larger than the evidence	Policy recommendations from twelve interviews.	Scale every claim to the sample that supports it.
Inconsistent referencing	Two styles in one list.	Choose one method and apply it throughout.
Unexplained gaps in the text	Missing pages, blank tables, uncited figures.	Proof-read the printed copy, not the screen.

SOURCES QUOTED IN THIS DOCUMENT University of Zambia, Directorate of Research and Graduate Studies. *Regulations for Postgraduate Training* (March 2015). https://graduate.unza.zm/images/files/pg_regulations.pdf
University of Zambia, Directorate of Research and Graduate Studies. *Regulations and Guidelines for Postgraduate Studies* (February 2024). https://graduate.unza.zm/images/files/PG_Regulations_Guidelines_rev.pdf
University of Zambia, Directorate of Research and Graduate Studies. *Research Policy and Intellectual Property Rights*, §4. https://graduate.unza.zm/images/files/research_policy.pdf



The lab report, written so that **another student could repeat it.**

A laboratory report is not an essay with numbers in it. It is a record that lets a reader judge what you did, decide whether they believe it, and repeat it themselves. This document sets out the nine parts, then works one experiment through completely — including the uncertainty statement — and closes with a marking checklist.

1 Why the standard shape exists — and why it is not an essay

The shape has an origin you can point to. Sollaci and Pereira surveyed medical journals across five decades and found that the familiar order took hold in the middle of the last century: "The IMRAD structure, in those journals, began to be used in the 1940s." It spread because it answers, in the order a sceptical reader asks them, four questions: what was asked, how it was done, what happened, and what it means.

A LABORATORY REPORT

- **Reader:** someone who wants to check or repeat the work.
- **Purpose:** to record what was observed, and how.
- **Dominant tense:** past tense for what you did; present for established theory.
- **Voice:** the passive ("the bob was displaced") or an impersonal first person, used consistently.
- **Opinion:** kept out of Results and confined to Discussion.

AN ESSAY

- **Reader:** someone who wants to be persuaded.
- **Purpose:** to defend a position against alternatives.
- **Dominant tense:** present tense for the argument itself.
- **Voice:** active and authorial, arguing in your own person.
- **Opinion:** present throughout by design — that is the point.

SOURCE Sollaci, L. B., & Pereira, M. G. (2004). The introduction, methods, results, and discussion (IMRAD) structure: A fifty-year survey. *Journal of the Medical Library Association*, 92(3), 364–371.

The order is the argument. A reader who cannot see what was done before being told what it means will not trust the result. If you find yourself explaining a number in the Results section, that explanation belongs in the Discussion.

2 The nine parts, and what does not belong in each

Part	What belongs in it	What does not
1. Title	What was measured, and by what method — specific enough to be found again.	"Physics practical 3". The marker already knows the course.
2. Aim	One or two sentences: the quantity to be determined, and to what precision.	A description of the apparatus, or background theory.
3. Introduction and theory	The relation you are testing, derived or stated, and the assumptions it rests on.	A history of the topic; material copied from the manual.
4. Apparatus and materials	Each instrument with its range and its smallest division.	"Standard laboratory equipment".
5. Method	Numbered steps, in the order performed, with the quantities varied and the readings taken.	A copy of the handout; a list of steps you did not actually follow.
6. Results	Tables and graphs of what was observed, to the precision the instruments justify.	Any explanation of why the numbers look as they do.
7. Sample calculation	One full worked substitution, with units carried through, from which the rest follow.	Arithmetic for every row of the table.
8. Discussion	What the result means, how it compares with the accepted value, and what limits it.	New measurements, or claims the data cannot support.
9. Conclusion	The value obtained, with its uncertainty, and whether the aim was met.	Speculation, or a restatement of the method.

TWO SECTIONS THAT FOLLOW, IF YOUR PROGRAMME ASKS FOR THEM

- **References** — only works you actually consulted, in the one style your school requires, applied consistently throughout.
- **Appendix** — the raw readings, the instrument's specification, or a full derivation. Nothing essential belongs here; if a reader needs it to follow the argument, it belongs in the body.



3 One experiment, written through completely

Everything below is a specimen of the nine parts in use, on a single experiment. The numbers are internally consistent, so the arithmetic can be followed from the table to the result.

1. TITLE

Determination of the acceleration due to gravity using a simple pendulum.

2. AIM

To determine the acceleration due to gravity, g , from the period of a simple pendulum, and to state the result together with an expanded uncertainty.

3. THEORY

For small angular displacements the period T of a simple pendulum of length l is $T = 2\pi\sqrt{l/g}$. Squaring gives $T^2 = (4\pi^2/g)l$, so a plot of T^2 against l is a straight line through the origin whose gradient is $4\pi^2/g$. The relation assumes a point mass on a massless, inextensible thread, and a swing amplitude small enough that the small-angle approximation holds.

4. APPARATUS

Retort stand and clamp; brass bob of mass 50 g; inextensible thread; metre rule, range 1 m, smallest division 1 mm; digital stopwatch, resolution 0.01 s; protractor, smallest division 1°.

5. METHOD

1. The thread was clamped and the bob attached. 2. The length l was measured from the clamp to the centre of the bob. 3. The bob was displaced through less than 10° and released without a push. 4. The time for 20 complete oscillations was measured with the stopwatch and repeated three times. 5. Steps 2 to 4 were repeated for $l = 0.200, 0.400, 0.600, 0.800$ and 1.000 m.

6. RESULTS

Length l / m	Time for 20 oscillations $t/20$ / s	Period T / s	T^2 / s ²
0.200	17.95	0.898	0.806
0.400	25.38	1.269	1.610
0.600	31.08	1.554	2.415
0.800	35.88	1.794	3.219
1.000	40.12	2.006	4.024

Units are carried in the column headers rather than repeated in every cell. The period column is the measured time divided by 20, which is why it carries more figures than the raw timing. Each timing above is the mean of three runs; the three individual readings are kept in the laboratory notebook and summarised here, because a table of fifteen raw timings would obscure the pattern rather than show it.

7. SAMPLE CALCULATION, FOR $l = 0.400$ M

$$T = t/20 = 25.38 \text{ s} / 20 = 1.269 \text{ s}; \quad T^2 = (1.269 \text{ s})^2 = 1.610 \text{ s}^2;$$

$$g = 4\pi^2 l / T^2 = 4\pi^2 (0.400 \text{ m}) / (1.610 \text{ s}^2) = 15.79 \text{ m} / 1.610 \text{ s}^2 = 9.81 \text{ m/s}^2.$$

The gradient of the graph of T^2 against l is $4.02 \text{ s}^2/\text{m}$, giving $g = 4\pi^2 / 4.02 \text{ s}^2 \text{ m}^{-1} = 9.81 \text{ m/s}^2$.

8. UNCERTAINTY

The dominant contribution is reaction time when starting and stopping the stopwatch, taken as ± 0.2 s over 20 oscillations, which is ± 0.01 s in T — a relative uncertainty of 0.8% at $l = 0.400$ m. The length contributes 0.25%, and the gradient fit approximately 0.15%. Combining these in quadrature gives a standard uncertainty of about 0.01 m/s^2 . The expanded uncertainty, using a coverage factor $k = 2$ for approximately 95% confidence, is 0.02 m/s^2 . The result is therefore $g = 9.81 \pm 0.02 \text{ m/s}^2$ ($k = 2$).

9. DISCUSSION

The value agrees with the accepted 9.81 m/s^2 to within the stated uncertainty, so the small-angle approximation is adequate for the amplitudes used. The largest systematic risk is the definition of l : measuring to the centre of the bob assumes the bob behaves as a point mass, which slightly overstates the effective length. Thread stretch under load and air resistance act in the opposite direction, and both are small at these lengths.

10. CONCLUSION

The acceleration due to gravity was found to be $9.81 \pm 0.02 \text{ m/s}^2$ ($k = 2$), consistent with the accepted value. The aim was met, with the precision limited chiefly by the manual timing.

SOURCES BIPM (2019), *The International System of Units (SI)*, 9th ed. — units and symbols. JCGM (2008), *Evaluation of measurement data — Guide to the expression of uncertainty in measurement* — standard, combined and expanded uncertainty, coverage factor k .



4 Tables and figures

TABLES

- Number and caption above the table; the caption must be readable on its own.
- Units in the column header, never repeated in each cell.
- One measurement per column; the independent variable on the left.
- No vertical rules. Horizontal rules at the head and foot are enough.
- Values rounded to the precision the instrument justifies, and aligned on the decimal point.

FIGURES

- Number and caption below the figure; axes labelled with quantity, symbol and unit: T^2 / s^2 against l / m .
- Plot the quantity that gives a straight line, then fit it — do not join points dot to dot.
- State the gradient with its unit, and show the line of best fit.
- Error bars where the uncertainty is visible; say what they represent.
- Every table and figure must be referred to in the text, by number.

5 Significant figures and rounding

The authority for quantity and unit conventions is the IUPAC *Green Book* — there is no separate standalone standard on significant figures, so cite the Green Book. Two rules cover most of what a report needs: multiplying or dividing keeps the significant figures of the least precise input; adding or subtracting keeps its decimal places.

Value	To 3 significant figures	Why
4.5678	4.57	Fourth figure is 7, so round up.
0.0045678	0.00457	Leading zeros are not significant.
9.9965	10.0	Rounding carries into the next power of ten.
0.099955	0.100	Trailing zeros after a decimal point are significant.
0.000010234	1.02×10^{-5}	Standard form keeps the significant figures visible.

The commonest rounding error is not arithmetic. It is reporting a result to more figures than the instrument can support: the mean of three stopwatch readings does not gain precision by being averaged.

6 Pre-lab, safety, and the fifteen-point checklist

BEFORE YOU ENTER THE LABORATORY

- Read the protocol and write the method in your own words.
- Draw the results table in advance, with headers and units.
- Identify the hazards and the control for each one.
- Know the smallest division of every instrument you will use.

AS YOU WORK

- Record raw readings immediately, in ink, and never overwrite.
- Repeat the reading that disagrees, rather than deleting it.
- Note the conditions: temperature, time, anything unusual.
- Ask before improvising a change to the stated method.

FIFTEEN CHECKS BEFORE YOU SUBMIT

- Title names the quantity and the method.
- Aim states the quantity and the precision sought.
- The relation to be tested is stated, with its assumptions.
- Every instrument has its range and smallest division.
- The method is in numbered steps, in the order performed.
- Units appear in table headers, not in cells.
- Tables and figures are numbered, captioned and referred to in the text.
- One complete sample calculation is shown, with units.
- Significant figures match the instruments used.
- A graph is plotted where the relation permits one.
- The gradient is quoted with its unit.
- The uncertainty is stated, with the coverage factor.
- The result is compared with the accepted or expected value.
- Sources of error are distinguished from mistakes.
- The conclusion answers the aim in one sentence, with the uncertainty.

A source of error is not a mistake. A reaction time of ± 0.2 s is an inherent limit of the method and belongs in the report as a source of error. Writing 25.38 s where the clock showed 25.83 s is a mistake — correct it transparently, and never present it as an uncertainty.



The assignment, presented the way it will be marked.

Most marks lost on assignments are lost before the first sentence is written — the wrong question is answered, the wrong shape is used, or the work arrives in a form the marker cannot easily read. This document covers command words, a cover page laid out properly, three assignment shapes, and a submission checklist.

1 What the question is actually asking

The first verb in the question is an instruction, not decoration. The University of Bolton's study-skills guidance makes the point plainly:

"Command words, also known as instructional or directive words, are often verbs that explain how you should answer the question."

University of Bolton, LEAP Online, *Planning your assignment* (2023)

Command word	What it demands	What it does not ask for
Define	The precise meaning of a term, with its boundaries.	Examples, or an argument for or against.
Describe	An account of what something is or how it works.	A judgement on whether it is good.
Explain	Reasons and mechanism — it answers "why".	A list of features with no causal link.
Compare	Similarities <i>and</i> differences, organised by criterion.	Two separate descriptions placed side by side.
Contrast	Differences only, drawn out explicitly.	A balanced account of both sides.
Discuss	More than one position, then a defended conclusion.	A neutral summary that decides nothing.
Evaluate	Weighing against stated criteria, ending in a verdict.	Criteria invented after the verdict.
Analyse	Breaking a whole into parts and showing how they relate.	Simply listing the parts in sequence.
Apply	Using a rule, concept or method in a new situation.	Restating the rule in the abstract.
Critically review	Assessing the strengths and limits of a body of work.	Finding only faults, or only merits.
Justify	Giving reasons strong enough to defend a choice against objection.	Merely describing the choice you made.

2 Marks follow the outcomes, not the effort

Biggs, Tang and Kennedy describe the principle that governs how every assignment is marked: the outcomes state what you should be able to do, and the assessment is constructed to find out whether you can do it (Biggs, Tang & Kennedy, 2022). An assignment that demonstrates something other than the stated outcome will be marked as such, however much work it represents.

IF THE OUTCOME SAYS "APPLY"

A general discussion with no worked case will lose the marks reserved for application, even if the theory is stated perfectly.

IF THE OUTCOME SAYS "EVALUATE"

An accurate summary of the reading earns description marks only. Evaluation requires criteria, evidence and a defended judgement.

SOURCES Biggs, J., Tang, C., & Kennedy, G. (2022; ©2023). *Teaching for quality learning at university* (5th ed.). Open University Press / McGraw-Hill Education. — constructive alignment. University of Bolton, LEAP Online (2023). *Planning your assignment*. — command words.

3 Group assignments, and how the group deliverable differs

WHAT IS MARKED

- **One document, one voice.** If four sections read like four different writers, that is a group failure, not a style choice.
- **Consistent format.** Headings, fonts, citation style and spacing must match throughout.
- **Contributions are usually recorded.** Most programmes require a contribution sheet; keep it accurate, and agree it early.
- **Peer assessment is normally visible and evidenced.** "He did not help" is not evidence; a dated log is.

AGREE THESE FIVE THINGS IN THE FIRST MEETING

- Who writes which section, and by which date.
- Which citation style, which font, which heading numbering.
- Who holds the master copy — one file, one owner.
- When the sections are merged, leaving time for one editor to unify the voice.
- What happens if a section is late: the escalation, agreed in advance.



4 A cover page, laid out as it should appear

Every field below earns its place: the marker must be able to identify the module, the student and the question without turning to another page. Use your own programme's required wording if it differs.

THE UNIVERSITY OF ZAMBIA

School of Humanities and Social Sciences

ECN 2110 — INTERMEDIATE MACROECONOMICS

Assignment 2: Price controls in a developing economy

Student name	Chanda Mwansa
Computer number	2023345678
Programme	BA Economics, Year 2
Lecturer	Dr M. Banda
Date due	Friday 13 November 2026
Date submitted	Thursday 12 November 2026
Word count	1,480 words (excluding cover page and references)

Declaration. I declare that this assignment is my own work. All sources used have been acknowledged in the reference list, and I have not submitted this work for assessment elsewhere. *Signed:* C. Mwansa *Date:* 12 November 2026.

The declaration above is a specimen, not a prescribed wording. Use the exact wording your own school requires, and never sign a declaration you cannot stand behind.

5 Presentation rules that apply to any assignment

THE PAGE

- Font: one serif or sans-serif face, 11–12 pt, used throughout.
- Line spacing: 1.5 lines for prose; single spacing inside long quotations and tables.
- Margins: at least 25 mm all round; a wider left margin if the work will be bound.
- Alignment: justified or ragged-right — but pick one and keep it. Do not centre body text.
- Page numbers: every page except the cover, in the same position throughout.

THE DOCUMENT

- Headings: numbered or bold, consistently; no heading for a single sentence.
- Paragraphs: one idea each, with the claim in the first sentence.
- Tables and figures: numbered, captioned, and referred to in the text.
- Spelling: British spelling, and set the language of the document so the spell-checker agrees.
- Binding: staple for a few pages, spiral or tape binding for a report; check the rule before you print.

6 Three assignment shapes

Shape	Skeleton	Use it when
Essay-style	Introduction → three or four body sections → conclusion → references. Continuous prose; headings optional.	The command word is <i>discuss</i> , <i>evaluate</i> or <i>compare</i> , and no data is collected.
Report-style	Summary → Introduction → Method → Findings → Discussion → Recommendations → References → Appendices.	You have collected or analysed something, or the brief asks for recommendations.
Problem-set style	Question restated → Given → Find → Equations → Substitution → Answer with unit → Check.	The command word is <i>calculate</i> , <i>determine</i> or <i>solve</i> .

Do not mix the shapes. A report with a discursive introduction, or an essay that suddenly presents a findings table with no explanation of where it came from, reads as two documents stapled together — and is marked as such.



7 Deadlines, extensions and late penalties

Rules on extensions, allowable grounds and penalties for late submission differ between institutions, schools and even modules. What follows is the shape these rules usually take — treat it as general practice and check your own module handbook before relying on any of it.

Situation	The usual position	What protects you
Submitted on time	Full marks available.	Submitting a day early, so a printing problem is not fatal.
Extension requested in advance	Often granted for documented reasons — illness, bereavement, a documented emergency.	Asking <i>before</i> the deadline, in writing, with evidence.
Extension requested after the deadline	Usually refused, or granted only for strong documented reasons.	A dated record that the problem began before the due date.
Late submission	Commonly a fixed deduction per day, with a cut-off after which nothing is accepted.	Knowing the exact penalty and the cut-off in your own module handbook.
Technical failure	Rarely accepted on its own — it is judged on whether the work genuinely could not be submitted.	Saving the file early, and keeping a copy of the submission receipt.
Late beyond the cut-off	Usually no marks are recorded for that assessment at all.	Submitting something, however imperfect, rather than nothing.

Keep one dated copy of everything. A submission receipt, a screenshot of the upload confirmation, and the file itself, kept until the results are published. In almost every dispute, the student with a dated copy wins.

8 Appendices, the checklist, and a specimen declaration

APPENDICES

- Supporting material only — raw data, the instrument, a long derivation.
- Never place argument there. Markers are not obliged to read appendices to follow your case.
- Number them, list them in the contents, and refer to each one in the text.
- Excluded from the word count in most programmes, but confirm the rule.

SIX STEPS BEFORE YOU SUBMIT

1. Re-read the question and the outcomes; tick each one off.
2. Check the command word has been answered at that level.
3. Verify the word count against the limit stated.
4. Check every in-text citation against the reference list, both ways.
5. Read the printed copy aloud once, slowly.
6. Confirm format, cover page and file name, then submit.

"I confirm that this submission is my own work. It has not been submitted for assessment elsewhere, and all sources consulted have been acknowledged. Where I have used the work of others, it is quoted or paraphrased and cited in full. No part of this work was generated by an automated tool and presented as my own."

Specimen declaration — adapt the wording to the one your school requires

9 CS Tutorials — help with any of this

FREE STUDY PACKS, AND COACHING IF YOU WANT IT

The SMARTprep study packs on our site are free to download and use — past papers, worked solutions and subject notes. Coaching is available if you want a person to work through it with you:

- K120 per month** — online, or in a group of up to ten.
- K180 per month** — one-to-one tuition, physical or online.

Based at the University of Zambia, and open to students at other universities and colleges.

CONTACT

- Phone / WhatsApp:** 0978110840 · 0765370490
- International WhatsApp:** 260978110840
- Email:** CSTutorials03@gmail.com
- Site:** cs-tutorials.pages.dev
- Hours:** Monday to Saturday, 08:00–20:00



Reference once, reference properly.

A reference list is not decoration added after the argument. It is how a reader verifies your claims, how you give credit for work you did not do, and how the reading behind your argument becomes visible. This document gives the APA 7 patterns, a three-style comparison, and a checking routine to run before you submit.

1 Three reasons to reference, kept separate

Referencing is usually taught as a single idea — "do not plagiarise". It is at least three separate ideas, and keeping them apart makes the practice much easier to remember and to defend.

SO A READER CAN VERIFY

A reader who doubts a claim needs the source to find the page and check it. A citation is a route back to the evidence, not a name-drop.

TO GIVE CREDIT

The idea belongs to the person who published it. Using it without acknowledgement takes their work while leaving them the risk of being wrong.

TO SHOW THE READING

The list is evidence of what you actually read. It shows an examiner the depth behind the argument and where your position sits among others.

All three purposes are served by one short act: naming the source, in the text and in the list. A reader who can follow the trail back to the evidence is satisfied on all three counts at once — which is why the mechanics on the next pages matter more than they look.

2 The one-style rule — and why mixing fails

"One of the following methods should be used for the referencing and citation of published work in the dissertation or thesis"

UNZA, *Regulations and Guidelines for Postgraduate Studies* (2024)

The operative words are **one of the following**. You may choose a recognised style, but you apply it throughout the document. A piece of work that cites in two styles is not "nearly right": the inconsistency is itself an error, and it reads as carelessness about the origin of every claim. Choose the style in your first week and keep it to the last page.

Inconsistency shows up in small ways: an APA citation in one paragraph, a numbered marker in the next. Each is minor; together they suggest the writer did not know what they were doing.

SOURCE The University of Zambia. *Regulations and Guidelines for Postgraduate Studies*. Directorate of Research and Graduate Studies, February 2024. This rule is stated for the dissertation or thesis; for coursework, treat consistency as what examiners normally expect.

3 What "Harvard" actually is

"The University uses a variation of the Harvard referencing style called Leeds Harvard."

University of Leeds, *Leeds Harvard introduction*

"Harvard" is not one fixed system. It is a family of author–date styles, and individual institutions publish their own variant — with their own punctuation, their own handling of online sources, and their own layout of the list. "Harvard" on its own tells you very little; you need the variant your department names. APA 7 is a different author–date system, with its own fixed rules and its own published manual.

Practical consequence: do not trust a generic "Harvard" template from the internet. Find the sheet your school or department publishes, or the style your supervisor names, and copy its exact punctuation. Where none is named, any recognised style is defensible — provided you apply it consistently from start to finish.

SOURCE University of Leeds, *Leeds Harvard introduction*. The same logic holds for every named style: the institution, not the word "Harvard", fixes the details.

4 Two things that are not the same

IN-TEXT CITATION

A short pointer inside the sentence or at its end. In author–date styles it carries the author and the year so the reader can find the full entry in the list. Form: (*Dunlosky et al.*, 2013).

REFERENCE-LIST ENTRY

The full description of the source, given once at the end and arranged alphabetically. It carries everything a reader needs to locate the item: author, year, title, source and locator.

NOTE Every in-text citation must have a matching list entry, and every list entry must be cited in the text. A source that appears in only one of the two places is a fault on both sides: a claim with no route to its evidence, or a list padded with items you never used.



5 APA 7 — one worked pattern for each source type

The entries below use real items from the toolkit's source register wherever a matching type exists; where the register holds no example of a type, the standard APA form is shown with its required fields in place. Copy the details from your own source — never fill a gap with something plausible.

Source type	Reference-list entry
Book	Mayer, R. E. (2009). <i>Multimedia learning</i> (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511811678
Chapter in an edited book	Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. In <i>Psychology and the real world</i> (pp. 56–64). Worth Publishers.
Journal article with a DOI	Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. <i>Psychological Science</i> , 17(3), 249–255. https://doi.org/10.1111/j.1467-9280.2006.01693.x
Web page	University of Leeds. (n.d.). <i>Leeds Harvard introduction</i> . https://library.leeds.ac.uk/info/1402/referencing/50/leeds-harvard-introduction
Corporate or organisational report	American Psychological Association. (2020). <i>Publication manual of the American Psychological Association</i> (7th ed.). https://doi.org/10.1037/0000165-000
Thesis or dissertation	Surname, A. A. (Year). <i>Title of the thesis</i> [Doctoral dissertation / Master's thesis, Name of University]. Name of repository or archive. URL
Statute or Act	Name of the Act, Source volume § Section number (Year). URL — in the APA legal-reference form, the title is not italicised.
Personal communication	Not listed at all. Cite it in the text only: (A. A. Surname, personal communication, Month Day, Year).

NOTE In a full APA chapter entry the editors' initials and surnames sit before the book title; take them from the book's own title page rather than guessing them.

6 Where the DOI or URL goes

"The DOI or URL is the final component of a reference list entry."

APA Style, DOIs and URLs

Nothing follows it — no full stop after the DOI, no "retrieved from". If an item has a DOI, give the DOI; give a URL only when there is no DOI. A reference that ends with something else has its terminal element in the wrong place.

7 In-text rules you will use most

Context	Rule	Example
Paraphrase	Give the author and the year; no page number is needed for a paraphrase.	(Cepeda et al., 2006)
Two authors	Name both, joined by & inside brackets or "and" in the running text.	(Roediger & Karpicke, 2006)
Three or more authors	First author then "et al.", from the very first citation onwards.	(Dunlosky et al., 2013)
Direct quotation	Add the page where the exact words appear; a quotation without a page is incomplete.	(Surname, Year, p. 00)
Source read at second hand	Cite the source you actually read, and name the original with "as cited in".	(Original, Year, as cited in Secondary, Year)
No author, no date	Use the title in place of the author and "n.d." for the year.	(<i>Leeds Harvard introduction</i> , n.d.)
Same author, same year	Add a lower-case letter to each, and match it in the list.	(Kobayashi, 2006a)

NOTE The letter that resolves two works from one year attaches in both places — the citation and the list entry. If it appears in one and not the other, the reader cannot tell the two items apart.



8 The same four sources in three styles

This is what actually changes when the style changes. APA 7 and Leeds Harvard are both author–date systems but punctuate differently; the numeric style, in the ICMJE tradition, replaces the author–date cue with a number that points to a numbered list.

Source	APA 7	Leeds Harvard	Numeric (ICMJE)
Book	Mayer, R. E. (2009). <i>Multimedia learning</i> (2nd ed.). Cambridge University Press.	Mayer, R.E. (2009) <i>Multimedia learning</i> . 2nd ed. Cambridge: Cambridge University Press.	1. Mayer RE. <i>Multimedia learning</i> . Cambridge University Press.
Journal article	Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. <i>Psychological Science</i> , 17(3), 249–255.	Roediger, H.L. and Karpicke, J.D. (2006) 'Test-enhanced learning: taking memory tests improves long-term retention', <i>Psychological Science</i> , 17(3), pp. 249–255.	2. Roediger HL, Karpicke J. Test-enhanced learning: taking memory tests improves long-term retention. <i>Psychological Science</i> . 2006;17(3):249–255.
Web page	University of Leeds. (n.d.). <i>Leeds Harvard introduction</i> . https://library.leeds.ac.uk/info/1402/referencing/50/leeds-harvard-introduction	University of Leeds (no date) <i>Leeds Harvard introduction</i> . Available at: https://library.leeds.ac.uk/info/1402/referencing/50/leeds-harvard-introduction (Accessed: date).	3. University of Leeds. <i>Leeds Harvard introduction</i> . Available from: https://library.leeds.ac.uk/info/1402/referencing/50/leeds-harvard-introduction [cited: date].
Chapter	Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way. In <i>Psychology and the real world</i> (pp. 56–64). Worth Publishers.	Bjork, E.L. and Bjork, R.A. (2011) 'Making things hard on yourself, but in a good way', in <i>Psychology and the real world</i> . pp. 56–64.	4. Bjork EL, Bjork RA. Making things hard on yourself, but in a good way. In: <i>Psychology and the real world</i> . pp. 56–64.

NOTE Punctuation varies between published guides, so a detail that differs from your department's sheet is not necessarily wrong — but the *order of elements*, the italics and the position of the DOI are consistent. Follow the guide you were told to use.

THE SAME SOURCES AS IN-TEXT CITATIONS

Source	APA 7	Leeds Harvard	Numeric (ICMJE)
Book	(Mayer, 2009)	(Mayer, 2009)	[1]
Journal article	(Roediger & Karpicke, 2006)	(Roediger and Karpicke, 2006)	[2]
Web page	(University of Leeds, n.d.)	(University of Leeds, no date)	[3]
Chapter	(Bjork & Bjork, 2011)	(Bjork and Bjork, 2011)	[4]

9 Common errors a marker sees every session

Error	What is wrong, and the fix
Wrong order in the list	Entries are not alphabetised by the author surname. Arrange A–Z by the first element of the entry.
Missing italics	Journal name, volume number and book title take italics; article titles and chapter titles do not.
Initials instead of full first names	Author–date styles use initials (Mayer, R. E.), but never write a full first name where initials belong.
A stray full stop after a DOI	The DOI or URL is the terminal element; adding a full stop breaks it.
Citing a citation	You cite the source you read. If that source quoted another, name the original with "as cited in".
Alphabetising wrong	Sort letter by letter, ignore "Mc" spacing claims, and alphabetise an unknown author by its title.
et al. misuse	Two authors are always both named; "et al." is for three or more, and then from the first citation.
Hyphens in page ranges	A page range takes an en dash (249–255), not a hyphen.
Capitalisation in titles	Article and book titles use sentence case — only the first word and any proper noun are capitalised.
Lecture slides cited as published	Slides are not a published source. Cite the underlying reading, or treat the slides as unpublished teaching material.
Text and list out of step	A citation with no matching entry, or an entry that is never cited. Check both directions.
Reference list versus bibliography	A reference list holds only the works you cited; a bibliography may list everything you read. Give the one the assessment asks for.
Volume or issue missing	Journal entries need the volume in italics and, where given, the issue in brackets; without them the item is hard to find.



10 A specimen reference list (APA 7)

Twelve entries, alphabetised, in the hanging-indent layout APA 7 expects. Each is a real item from this toolkit's source register.

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). <https://doi.org/10.1037/0000165-000>

Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. In *Psychology and the real world* (pp. 56–64). Worth Publishers.

Bureau International des Poids et Mesures. (2019). *The International System of Units (SI)* (9th ed.). <https://doi.org/10.59161/AUEZ1291>

Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin*, 132(3), 354–380. <https://doi.org/10.1037/0033-2909.132.3.354>

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques. *Psychological Science in the Public Interest*, 14(1), 4–58. <https://doi.org/10.1177/1529100612453266>

International Union of Pure and Applied Chemistry. (2023). *Quantities, units and symbols in physical chemistry* (Green Book, 4th ed., abridged). RSC Publishing. <https://doi.org/10.1039/9781839163180>

Karpicke, J. D., & Blunt, J. R. (2011). Retrieval practice produces more learning than elaborative studying with concept mapping. *Science*, 331(6018), 772–775. <https://doi.org/10.1126/science.1199327>

Kobayashi, K. (2006). Combined effects of note-taking/-reviewing on learning and the enhancement through interventions. *Educational Psychology*, 26(3), 459–477. <https://doi.org/10.1080/01443410500342070>

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511811678>

Rasch, B., & Born, J. (2013). About sleep's role in memory. *Physiological Reviews*, 93(2), 681–766. <https://doi.org/10.1152/physrev.00032.2012>

Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17(3), 249–255. <https://doi.org/10.1111/j.1467-9280.2006.01693.x>

University of Leeds. (n.d.). *Leeds Harvard introduction*. <https://library.leeds.ac.uk/info/1402/referencing/50/leeds-harvard-introduction>

ONE ENTRY, REPAIRED

Weak: Roediger, Henry L. and Karpicke, J. Test-enhanced learning. *Psychological Science* pp 249–255. doi 10.1111/j.1467-9280.2006.01693.x

Faults: full first name; "and" where the list needs an ampersand; missing volume and issue; hyphen instead of en dash in the page range; DOI not written as a full link.

Repaired: Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17(3), 249–255. <https://doi.org/10.1111/j.1467-9280.2006.01693.x>

11 The same twelve, cited in running text

Retrieval practice improves long-term retention (Roediger & Karpicke, 2006) and produces more learning than concept mapping (Karpicke & Blunt, 2011), while practice testing and distributed practice earn the highest utility ratings among study techniques (Dunlosky et al., 2013; Cepeda et al., 2006). Notes contribute to learning when they are both taken and reviewed (Kobayashi, 2006), and extraneous material hinders it (Mayer, 2009). Hard, effortful study is worth it (Bjork & Bjork, 2011), and sleep consolidates what was learned (Rasch & Born, 2013). Report units and significant figures to the agreed standards (Bureau International des Poids et Mesures, 2019; International Union of Pure and Applied Chemistry, 2023), and remember that "Harvard" itself is an institution's variant (University of Leeds, n.d.). Formatting follows the published manual (American Psychological Association, 2020).

NOTE Every one of the twelve list entries above appears here as a bracketed citation, and every citation here has an entry. That two-way match is the test to apply to your own work.

12 Twelve checks before you submit the list

- **One style throughout.** No second style has crept in on any page.
- **Alphabetical.** Entries sort A–Z by the first element.
- **Every citation has an entry** — check the text, not just the list.
- **Every entry is cited** somewhere in the text.
- **Italics correct.** Journals and book titles italic; article and chapter titles not.
- **DOIs complete and terminal.** No full stop after a DOI.

- **Authors formatted right.** Initials, ampersand, and "et al." used correctly.
- **Years present,** with "n.d." only where there genuinely is no date.
- **Page ranges use en dashes** and the right pages.
- **Titles in sentence case,** with proper nouns preserved.
- **Sources you did not read** are handled as secondary citations.
- **No lecture slides** presented as if they were published sources.

SOURCE FOR THE STYLES APA 7: American Psychological Association (2020). Leeds Harvard: University of Leeds, *Leeds Harvard introduction*. Numeric: International Committee of Medical Journal Editors, *Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals* (current version updated January 2026).



An exam is a performance **under time**.

Knowing the material and scoring on it are two different skills. This document covers reading the paper, allocating time by marks, two answer frameworks with worked plans, multiple-choice strategy, and an honest table of the small errors that quietly lose marks.

1 Performance under time, not a memory test

An examination rewards what you can produce accurately in the time available, not everything you know. The mechanics that make studying work — bringing answers back from memory and working at the edge of your ability — are the same mechanics an exam calls on.

"Testing is a powerful means of improving learning, not just assessing it."

Roediger & Karpicke (2006)

Rehearsing a real paper under time is therefore training, not just testing. Bjork and Bjork call the conditions that feel harder but produce more durable learning *desirable difficulties* (2011). A past paper answered cold teaches far more than the same paper answered with the book open.

EVIDENCE Roediger & Karpicke (2006), *Psychological Science*, 17(3), 249–255; Bjork & Bjork (2011), in *Psychology and the Real World* (pp. 56–64).

2 The first five minutes

Spend the opening minutes on the paper, not on question one. This is the cheapest time you will buy.

1 Read the instructions and the mark allocation

Number of questions, whether there is a compulsory section, and how the marks are split.

2 Note the marks beside every question

A 5-mark part and a 25-mark part are different jobs and need different time.

3 Choose by marks per minute, not by familiarity

The question you "like" is not always the one you can finish well in the time.

4 Decide the order before you write

Some students bank the sure marks first; some start on the hardest while fresh. Pick deliberately.

3 Choose by marks per minute

Divide the marks by the minutes you would spend to earn them well. A question you can answer thoroughly is worth more than a favourite topic you can only half-finish. The table works the arithmetic on a three-hour paper worth 100 marks — about 1.8 minutes per mark.

Question	Marks	Suggested time	Minutes per mark
Section A (compulsory, 4 short parts)	20	34 min	1.7
Section B, Q4 (essay)	25	47 min	1.9
Section B, Q5 (essay)	25	45 min	1.8
Section B, Q7 (numeric)	30	52 min	1.7
Reading the paper and checking	—	12 min	—

NOTE The allocation shown is an illustration of the method, not a rule. Read your own paper's totals and split its clock the same way before you write a word.

4 A marks-to-minutes sheet you can draw in ten seconds

Write the total marks, the total minutes and one line per question. Fill suggested time as $(\text{marks} \div \text{total marks}) \times (\text{total minutes} - 12)$, then round to the nearest five minutes. Keep the sheet on the corner of your desk and tick each block as you finish it.

Q	Marks	Minutes	Done
1	20	34	☐
4	25	47	☐
5	25	45	☐
7	30	52	☐

**5 Essay question — the 10 / 75 / 15 framework**

For a discursive question, spend roughly a tenth of the answer on the introduction, three-quarters on the argument, and the rest on the conclusion. The introduction states the position and the scope; the body earns the marks, paragraph by paragraph, each with a point and the evidence that supports it; the conclusion answers the exact question that was asked. Plan on the rough sheet first, so the proportions are decided while you are calm rather than discovered as you run out of time.

WORKED PLAN — "DISCUSS THE CASE FOR AND AGAINST PRICE CONTROLS IN A DEVELOPING ECONOMY." (25 MARKS)

Part	Skeleton	Evidence and link
Introduction ≈10%	Define a price control (a legal floor or ceiling). State the thesis: controls can protect the vulnerable in the short run but tend to create shortages, queues and informal markets unless enforced supply and targeting accompany them.	Set the scope: one or two staple goods; a low-income economy. No evidence yet — the reader only needs the position and the route.
Body 1 For	Controls hold down the price of a staple and protect the poorest households from a spike.	Link to affordability of basic food; note that a ceiling only helps those who can actually obtain the good.
Body 2 Against	A binding ceiling below the market price discourages supply and produces shortages.	Explain the shortage mechanism and its symptoms: queues, rationing, a parallel market at a higher price.
Body 3 Conditional	Outcomes depend on enforcement and on whether supply can respond.	Compare a price floor for producers (which can raise supply) with a ceiling for consumers (which can suppress it).
Conclusion ≈15%	Take a stance: controls are a blunt instrument; a targeted transfer or a supply-side measure usually serves the same goal with fewer distortions.	Return to the question's words ("for and against") and state the balance you judge correct. No new argument here.

Two failure modes are worth naming. The first is an introduction that narrates: "In this essay I will first discuss... then...". Examiners already know the structure; they want your position. The second is a conclusion that introduces a fresh argument the body never prepared — it reads as an afterthought and earns nothing.

NOTE The plan above uses ordinary economic reasoning, so it carries no citations. Where your answer relies on a published study, cite it (Document 06 covers how).

6 Numeric question — given → find → equations → substitute → answer → check

A numeric answer is marked for its method as much as its final number. Lay the work out in the same order every time, so a marker can follow it and award part marks even when the arithmetic slips.

- Given**
List the data with units, exactly as the question gives them.
- Find**
State the quantity requested, and the unit you will answer in.
- Equations**
Write the relationship before substituting any number.
- Substitute**
Insert values with units; carry units through the working.
- Answer**
Give the value, the unit and the significant figures.
- Sanity check**
Is the size and direction of the result reasonable?

SPECIMEN ANSWER AS A MARKER READS IT

Question. A sample has a mass of 5.00 g and a volume of 2.00 cm³. Calculate its density in kg/m³, to an appropriate number of significant figures.

Given. $m = 5.00 \text{ g} = 5.00 \times 10^{-3} \text{ kg}$; $V = 2.00 \text{ cm}^3 = 2.00 \times 10^{-6} \text{ m}^3$.

Find. ρ in kg/m³.

Equation. $\rho = m / V$.

Substitute. $\rho = 5.00 \times 10^{-3} \text{ kg} \div 2.00 \times 10^{-6} \text{ m}^3$.

Answer. $\rho = 2.50 \times 10^3 \text{ kg/m}^3$ (3 significant figures — the data carry 3).

Check. Denser than water (10³ kg/m³), which fits a solid sample of this mass and volume.

Two habits carry most of the marks here. Carry the unit through every line rather than attaching it at the end — a unit that has been tracked cannot go missing. And round only at the final step, choosing the number of significant figures the data themselves justify rather than the number the calculator displays.

STANDARDS Units and their conversion follow the SI (BIPM, *The International System of Units*, 9th ed., 2019). Rounding and significant figures follow IUPAC, *Quantities, Units and Symbols in Physical Chemistry* (Green Book, 4th ed., abridged, 2023).



7 Multiple-choice strategy and the final ten minutes

MULTIPLE CHOICE

- Answer the **easy ones first** and mark the rest; momentum and a fair score come early.
- Read the **stem to the end**. "Which is NOT..." changes the whole question.
- Eliminate before you choose**. Two wrong options removed is often enough to decide.
- Change an answer **only for a reason**, not because you have looked at it a third time.

THE LAST TEN MINUTES

- Check every question is attempted — an unanswered part scores nothing.
- Check units and significant figures on numeric answers.
- Finish half-written sentences. A clear closing line earns more than an unfinished idea.
- Make sure the number in your answer matches the number in the question.

Multiple choice runs on the same time budget as everything else — about a minute per mark and no more. If an item is taking longer than its share, choose your best option, mark it for review and move on; one stubborn question should not cost you three others.

8 What actually loses marks

The habit	Why it costs marks
Leaving parts unanswered	Blank space cannot be credited, even when the rest of the question is strong.
No units, or the wrong ones	A correct number with no unit is an incomplete answer, and frequently wrong in meaning.
Unsupported assertion	A claim with no reason and no evidence cannot earn reasoning marks.
Answering the question you hoped for	A well-written answer to a different question scores little; return to the exact wording.
Planning only in your head	Structure that was never written down is lost two paragraphs in.
Wrong verb level	"Describe" where the question says "evaluate" misses the higher marks — match the command word.
Illegible working	A marker cannot award what cannot be read; show steps clearly and in order.
Rounding too early	Rounding at each step changes the final answer; keep full precision until the last line.
Method with no stated result	A page of equations and no final value is not an answer; state the result with its unit.

NOTE Command words such as "describe", "explain" and "evaluate" set the level of thinking required. This is the instructional-word point made by the University of Bolton, LEAP Online (2023): "Command words, also known as instructional or directive words, are often verbs that explain how you should answer the question."

9 A blank plan, and the exam morning

ANSWER-PLAN TEMPLATE — COPY THIS ONTO YOUR ROUGH SHEET

Line	Fill in before you write
Q and marks	Question number · marks · minutes allowed
Command	Describe / explain / evaluate / calculate / discuss
Thesis / plan	One line: the position or the method
Body points	Point — evidence — link, one row each
Close	The sentence that answers the question
Check	Units · sig figs · all parts answered

EXAM-MORNING ROUTINE

- Eat and hydrate.** A long paper is a physical task as well as a mental one.
- Skim one summary sheet** — not new material — for confidence, not cramming.
- Arrive early** with everything laid out: pens, calculator, student card.
- In the room, write your plan** for each chosen question before writing prose.

NO TECHNIQUE SUBSTITUTES FOR KNOWING THE MATERIAL

Timing, frameworks and multiple-choice tactics protect the marks you have earned; they do not manufacture marks you have not. The work that produces the marks happens in the weeks before — see Document 01. Nothing in this document promises a grade.



Notes you can actually study from.

There is a difference between notes you take and notes you make. One is a transcript of the room; the other is a tool you can test yourself with weeks later. This document covers the Cornell layout, a lecture method, the shorthand that saves time, and how to read a chapter with a purpose rather than from the top.

1 Note-taking versus note-making

Note-taking records what was said. **Note-making** reworks it into your own structure and your own words. Only the second gives you something to study from, because only the second forces you to process the material rather than copy it. The published evidence points the same way: the benefit comes from the combination of the two activities, not from writing alone.

A useful test is what the page looks like a week later. A transcript of slides reads like someone else's lecture and invites nothing but rereading. Notes you made read like a set of answers you can cover up and reconstruct — which is the whole point.

"the combination of taking and reviewing notes contributes to school learning."

Kobayashi (2006), a meta-analysis of note-taking and note-reviewing studies

EVIDENCE Kobayashi, K. (2006). Combined effects of note-taking/-reviewing on learning and the enhancement through interventions. *Educational Psychology*, 26(3), 459–477. "doi:10.1080/01443410500342070"

2 Why transcribing slides fails

Copying a slide verbatim feels like work and produces nothing to retrieve from. You have recorded words you were already being shown, in an order you did not have to think about — so little storage strength is built and there is not much to test yourself against later.

■ **The words are already on the slide.** Copying them adds nothing you did not have.

■ **No processing.** Deciding what matters and rewording it is where the learning is.

■ **Make notes instead.** Reduce, restructure, and write the cue questions you will test yourself with.

3 Building notes so they can be used for retrieval

Notes earn their keep when they can be used to bring answers back from memory. That means leaving a way to ask yourself questions, and keeping the material in a form you can check your recall against.

WRITE CUES, NOT JUST FACTS

A question in the margin turns a page of notes into a self-test. Cover the notes, answer the cue, then check. This is the step that turns a transcript into a study tool.

RETRIEVE BEFORE YOU REREAD

Testing is a means of improving learning, not just of assessing it (Roediger & Karpicke, 2006) — and it beats elaborative studying such as concept mapping (Karpicke & Blunt, 2011).

EVIDENCE Roediger & Karpicke (2006), *Psychological Science*, 17(3), 249–255; Karpicke & Blunt (2011), *Science*, 331(6018), 772–775.

4 The Cornell layout, drawn out

Three zones on one page. The cue column is filled after the lecture; the summary strip is written last, in your own words, from memory.

CUE COLUMN

Key words, dates, formulas and the questions you want to ask yourself. Written or completed *after* the lecture, so it tests the notes rather than repeats them.

NOTES COLUMN

The main body: reduced points, diagrams, worked steps and definitions — in your own words and shorthand, not full sentences copied from the screen.

SUMMARY STRIP

Two or three lines at the foot of the page, written from memory at the end: what this page is actually about. This is the layer you revise from.

NOTE The proportions are a convention, not a rule. What matters is that there is always a column of questions and a closing summary — the two parts that make the notes retrievable.

**5 The lecture method: three zones, then ten minutes**

During the lecture, work only in the notes column: reduce, use shorthand, and leave the cue column and the summary strip empty. Both are filled afterwards, which is precisely what forces the review that Kobayashi's meta-analysis points to. Speed comes from a small, fixed set of symbols you never have to think about.

Mark	Meaning	Mark	Meaning
→	leads to / therefore	w/	with
∴	therefore	w/o	without
≈	approximately equal	Δ	change in
≠	not equal to	def.	definition
↑ / ↓	increase / decrease	e.g.	for example
> / <	greater / less than	cf.	compare with
Q:	question to answer later	*	examiner favourite — learn it
!	check this / unsure	ref.	source to cite later
⇒	it follows that	viz.	namely
+ve / -ve	positive / negative	incl.	including

The set should stay small enough to use without thinking. If a symbol has to be looked up, it is slowing you down rather than saving time.

THE TEN-MINUTE CONSOLIDATION, STRAIGHT AFTER THE LECTURE**1 Fill the cue column**

Turn the main headings into questions and the key terms into prompts. Do not copy notes sideways.

2 Repair the gaps

Mark anything you cannot read or follow, and check it against the reading now, while you remember the room.

3 Write the summary strip

Two or three lines, from memory, with the notes covered. This is the layer most students never write.

4 Test yourself once

Answer the cues aloud, then check. One cold pass now beats rereading the notes the night before.

6 Worked example — one page of notes on price elasticity of demand

The cues below are questions the notes can answer; the notes column shows how little text is actually needed once the material is reduced. Read the cues, cover the notes, and answer aloud.

Cue column (questions)	Notes column (shorthand)
What is PED?	$PED = \% \Delta \text{ quantity demanded} \div \% \Delta \text{ price}$. Responsiveness of demand to a price change.
What sign?	Negative for normal goods ($P \uparrow \rightarrow Qd \downarrow$). Judge by <i>magnitude</i> ; ignore the minus sign.
Categories?	Elastic: $ PED > 1$ · Inelastic: $ PED < 1$ · Unit elastic: = 1.
What decides it?	Substitutes available · necessity vs luxury · share of income · time horizon.
Where does it bite?	Revenue: elastic $\rightarrow$ price cut raises total revenue; inelastic $\rightarrow$ price rise raises revenue.
Which formula?	Arc (midpoint) for a range; point elasticity for a small change. Read which the question wants.
Common trap?	Quoting the sign as the answer, or dividing by the wrong base percentage.

SUMMARY STRIP — WRITTEN FROM MEMORY, THREE LINES

1. PED measures how strongly quantity demanded responds to a price change.
2. Its sign is negative; only the size decides elastic or inelastic.
3. That size links directly to total revenue and to pricing decisions.



7 Read with a purpose, not from the top

Reading a chapter line by line, from the first word, is the slowest way to find out whether it is even useful. Decide what you want from the text first, then choose the method that gets it. Most of a reading list can be handled with a skim; only the sources you will actually argue with need a close read.

Purpose	Method	What you produce
Is this source relevant at all?	Skim: title, abstract, headings, first and last paragraph of each section.	A yes or no, plus the two sections that matter.
I need one specific fact or figure	Scan: hunt for the term or number and ignore the rest.	The fact, with its page, written into your notes.
I must understand and use the argument	Close read: slow, with notes, following each step of the reasoning.	A summary in your own words and a set of cue questions.
Two sources seem to disagree	Comparative read: read both against the same question.	A short table of where they agree and where they differ.

8 A short, fixed set of annotation marks

Mark	Meaning	Mark	Meaning
vertical line	important — return to this	?	unclear; ask or check
*	key claim or definition	cf.	compare with another source
[]	possible quotation to cite	→	causes or leads to
circle a term	new vocabulary to define	ref.	must be referenced if used

NOTE Keep the set small and identical every time. Marks you have to decode later are worse than no marks at all.

9 Worked example — a long chapter reduced to ten lines

The point is not the ten sentences but the compression: a twenty-page chapter becomes something you can review in a minute and test yourself against.

1. Memory is not a recording; it stores meaning and reconstructs it on demand.
2. What you can retrieve later depends on how effortfully you processed it now.
3. Rereading feels fluent and produces weak, short-lived retention.
4. Bringing an answer back from memory strengthens it — the testing effect.
5. Spacing study across days beats massing it into one long session.
6. Mixing topics forces you to select a method, which is the transferable skill.
7. Sleep after study consolidates memory; short sleep erodes it.
8. Difficulty during study is not failure, and ease is not success.
9. Notes help when they are reviewed; taken alone they are only a transcript.
10. Test yourself cold, from memory, before deciding that you "know" it.

10 A reading log, and how it feeds the weekly grid

When	What	Purpose	Kept	Where it goes
Mon 2 Mar	Module text, Ch. 4	Close read (essay)	6 points, 2 quotes with pages	Essay plan
Wed 4 Mar	Journal article, methods	Scan for method	Sampling approach, 3 limitations	Literature notes
Fri 6 Mar	Two chapters on trade	Comparative read	Where the two disagree	Tutorial answer
Sun 8 Mar	Lecture handout	Skim and cue	Definitions for the quiz	Cue cards

LINK TO DOCUMENT 01 Each row of this log becomes the "next action" in a study block on the weekly grid, so a reading session is never simply "read Chapter 5" but "skim Ch. 5 and log the two sections that matter". The log is how the plan and the reading stay connected.



Integrity is a set of habits, not a single rule.

Most integrity problems are not deliberate cheating; they are confusion about where the line sits. This document names the kinds of plagiarism, distinguishes collusion from collaboration, quotes the rules that apply at UNZA, works through before-and-after examples, and sets out how to use AI tools honestly.

1 What plagiarism actually is

Plagiarism is presenting someone else's work, words or ideas as your own. It is not only copying a whole paragraph; it takes several forms, and several of them are accidental.

Kind	What it looks like
Copying without citation	Text pasted from a source and presented as your own writing, with no acknowledgement.
Close paraphrase without citation	Rewording a source sentence by sentence while keeping its structure and meaning, with no reference.
Mosaic or patchwriting	Stitching together phrases from several sources with a few connective words changed, and no citation.
Reusing your own submitted work	Submitting previously graded work, or a large slice of it, as if it were new.
Collusion presented as individual work	Work divided among a group and then submitted by each person as personal effort.
Fabricated or altered data	Inventing results, or editing them, so the evidence supports the conclusion you wanted.

Notice that only two of the six are deliberate. The rest usually come from working too close to a source, from reusing an old assignment under time pressure, or from not realising that a group discussion must still be written up alone — which is why the habits matter more than the intention, and why the checks at the end of this document are worth running every time.

CHECK If a sentence arrived from somewhere else, it needs a citation, however much it has been reworded.

2 Collusion and collaboration are not the same

LEGITIMATE COLLABORATION

Discussing ideas, comparing approaches, quizzing each other and checking understanding — where the work you submit is written by you and the thinking is yours. Where an assessment permits group work, it will say so.

COLLUSION

Splitting a task so each person's section is dropped into a single submission, or borrowing a classmate's answer and passing it off as your own. The problem is the *submission*, not the discussion before it.

TEST If the marker cannot tell whose thinking produced the submitted words, and the assessment was meant to be individual, it is collusion. Ask before you submit, not after.

A practical rule: discuss freely, write separately. Talking a problem through with classmates is one of the best ways to learn, and the line is crossed only when their words, working or answers arrive in your submission. When an assessment permits group work it will say so; if it does not, treat the submission as individual.

3 Two rules that apply at UNZA

These two are quoted verbatim from UNZA's own documents. They are the institutional floor, not the whole of good practice. The first sets a threshold for the dissertation or thesis; the second says where a suspected misconduct matter is reported.

"plagiarism exceeding the similarity index of 25% excluding tables, figures, references and appendices."

UNZA, *Regulations and Guidelines for Postgraduate Studies* (2024) — stated as a ground for termination of registration

"Issues of misconduct in Research should be brought to the attention of the Research Ethics Committee"

UNZA, *Research Policy and Intellectual Property Rights* — Section 4, "Misconduct in Research"

NOTE The first line is written for the dissertation or thesis, and the threshold is a termination ground, not a number to work up to. For coursework, treat a low similarity figure as what examiners normally expect — and always write in your own words rather than aiming at a figure.

A similarity report is a starting point for a conversation, not a verdict: it matches text, and it cannot tell whether a match has been properly quoted and cited. Read your own report, check every flagged passage, and fix the ones that are not attributed.



4 Three worked examples: source, weak, acceptable, quoted

The source sentences below were written for this exercise, so nothing long is reproduced from anywhere. The citations use (Surname, Year) as a form; substitute your own real source and page.

Version	Text
Example 1 — source	When a cell is placed in a solution whose solute concentration is lower than that of its cytoplasm, water crosses the partially permeable membrane into the cell and the internal pressure rises.
Example 1 — weak	When a cell is put in a solution with less solute than the cytoplasm, water moves across the membrane into the cell and the pressure inside goes up. (<i>Too close to the source wording, and no citation.</i>)
Example 1 — acceptable	Water enters a cell from a more dilute surrounding solution, raising the internal pressure (Surname, Year).
Example 1 — quotation	"water crosses the partially permeable membrane into the cell" (Surname, Year, p. 00).
Example 2 — source	Demand for a good is elastic when a given percentage change in price produces a larger percentage change in the quantity demanded, so a seller who raises the price loses total revenue.
Example 2 — weak	Demand is elastic when a percentage change in price causes a bigger percentage change in quantity demanded, so raising price loses revenue. (<i>Synonym swap, same structure, no citation.</i>)
Example 2 — acceptable	Where demand is price-elastic, a price increase reduces total revenue because quantity falls proportionally more (Surname, Year).
Example 2 — quotation	"a seller who raises the price loses total revenue" (Surname, Year, p. 00).
Example 3 — source	A measured value should be reported to the number of significant figures that the measuring instrument justifies; a burette read as 24.30 cm ³ therefore implies an uncertainty in the second decimal place.
Example 3 — weak	A measured value is reported to the number of significant figures the instrument justifies; a burette reading of 24.30 cm ³ implies uncertainty in the second decimal place. (<i>Barely changed, and no citation.</i>)
Example 3 — acceptable	The precision of a reported measurement is set by the instrument, so a reading such as 24.30 cm ³ carries an implied uncertainty in its last digit (Surname, Year).
Example 3 — quotation	"reported to the number of significant figures that the measuring instrument justifies" (Surname, Year, p. 00).

5 Common knowledge, and how much paraphrase is too much

Common knowledge is a fact so widely established that no reader would ask where you got it — that water boils at 100 °C at sea level, or that demand usually falls as price rises. It needs no citation. The test is simple: if a reasonable reader could ask "says who?", cite it. Ideas, findings, figures, opinions, and anything specific to a particular source all fail that test.

Paraphrase becomes too much when the sentence order is the source's, when the vocabulary is the source's with one or two words swapped, or when a whole paragraph tracks the original step by step. The fix is not better synonyms; it is a different structure. Close the source, write what you understood, then check it against the original — and cite it either way.

A rough guide: if you could lay your sentence beside the original and mark one-to-one correspondences, it is still too close. Summarising three paragraphs into one, from memory, is usually safe — and always cite it.

6 Quoting correctly, and translating a source

QUOTING

- Use the exact words, in quotation marks, with the page number.
- Quote only where the wording itself matters — a definition, a contested claim.
- Do not pad an essay with quotations; the argument still has to be yours.

TRANSLATING A SOURCE

- A translation is still the author's idea, so it is still cited.
- Name the original language and, where applicable, the translator.
- Putting it in your own words does not make the idea your own.

NOTE A direct quotation without a page, and a translation without a citation, are both treated as plagiarism even when the words themselves are accurate.

One further habit: record the page number at the moment you take the note. Reconstructing page numbers days later is where most incomplete quotations begin.



7 Using AI tools honestly

Normally acceptable	Not acceptable
Brainstorming angles and questions to research.	Submitting generated text as your own writing.
Asking for an explanation of a concept, then verifying it against a real source.	Generating references or a bibliography.
Checking the grammar and clarity of text you wrote yourself.	Paraphrasing sources you have not read.
Suggesting a structure you then fill with your own argument.	Using it to answer an assessment meant to be done unaided.

NOTE "Acceptable" here means generally acceptable. Your own course may restrict these uses, so check before you rely on any of them.

The dividing line is simple: the thinking and the wording you submit must be yours. A tool that helps you think is a tool; a tool that replaces the thinking is not.

8 How AI tools fabricate citations

Tools that generate text will also generate references — and a fabricated reference looks exactly like a real one. Both examples below are **FABRICATED**: no such works exist, and they are not attributed to any real author. They are shown only so you can recognise the pattern.

FABRICATED EXAMPLE 1 — A JOURNAL ARTICLE

Doe, J. (2019). The effect of note-reviewing on examination performance. *Journal of Applied Learning Studies*, 14(2), 88–103.
<https://doi.org/10.9999/jals.2019.1402>

FABRICATED. No such article or journal exists; the volume, page range and DOI are all invented.

FABRICATED EXAMPLE 2 — A BOOK

Roe, R. (2021). *Retrieval practice in the wider university classroom*. Example Publishing.

FABRICATED. No such book or publisher exists; the whole entry was generated and would not resolve to anything you could read.

WHY IT MATTERS A plausible author, a plausible journal, a plausible volume and a neat DOI are precisely why these are hard to spot. Never submit a reference you have not located and opened yourself.

9 A specimen disclosure wording

SPECIMEN ONLY — ADAPT IT TO YOUR COURSE'S REQUIREMENTS

"I used an AI writing assistant on [date] to [task, for example brainstorm possible essay structures]. All ideas, analysis and wording in the submitted work are my own. I have verified every source cited, and no text was generated by the tool and submitted as my own."

Keep a copy of the tool's output alongside this statement, so the disclosure can be checked if asked.

10 Ten checks before you submit

- Every borrowed idea is cited, and every citation has a list entry.
- Paraphrases are in my own structure and words, not a synonym swap.
- Quotations are exact, in quotation marks, with page numbers.
- Nothing is reused from my own previously submitted work.
- Group discussion did not produce the submitted words.
- No reference was generated without being located and read.
- Any AI use is disclosed and is within the rules for this assessment.
- Figures and data are real, not invented or adjusted.
- Translations carry a citation to the original work.
- I checked the course's own rules before relying on this document.

RULES DIFFER BY INSTITUTION AND COURSE

Only the two quoted lines on page 1 are UNZA rules, and the similarity-index line is written for the dissertation or thesis. Everything else here describes general university practice or what examiners normally expect. Confirm the requirements for your own institution and course with your lecturer before relying on anything in this document.



Numbers, units and data presentation.

Marks are lost in numerical papers for reasons that have nothing to do with the subject: a unit written wrongly, a result quoted to nine figures, a table captioned underneath. This document sets out the conventions examiners apply, and names the sources they come from.

1 One authority for units, and three habits

Every figure you write down is a measurement, and in the physical sciences measurements are expressed in the International System of Units. The authority is the BIPM's *SI Brochure*, ninth edition (2019): it defines the seven base units, the prefixes, and how symbols are written.

Three habits follow. **Leave a space** between number and symbol — 25.4 mm, not 25.4mm. **Keep symbols as defined** — lower case unless the unit is named after a person, so m, s, kg but N, Pa, J — and never pluralise them: 5 km, never 5 kms. **Do not mix names with symbols**: write 20 m/s or 20 metres per second, never "20 m per s".

FOUR THINGS TO FIX BEFORE THE EXAM

- 25.4mm → 25.4 mm
- 5 kgs → 5 kg
- 20 m per s → 20 m/s
- 10 Amps → 10 A

AUTHORITY BIPM, *The International System of Units (SI)*, 9th ed. (2019).

2 The prefixes you will actually use

Multiples	Symbol	Factor	Sub-multiples	Symbol	Factor
tera	T	10^{12}	centi	c	10^{-2}
giga	G	10^9	milli	m	10^{-3}
mega	M	10^6	micro	μ	10^{-6}
kilo	k	10^3	nano	n	10^{-9}
hecto	h	10^2	pico	p	10^{-12}

SOURCE Set in the *SI Brochure*. Note that micro is μ, not u, and kilo is a lower-case k: write km, never Km or KM.

3 Quantity calculus — carry the units through

Treat a unit as an algebraic symbol attached to its number. A conversion factor is a fraction equal to one, because top and bottom describe the same quantity. Carry units through the working and they cancel exactly as the numbers do, so the unit of the answer arrives with the answer — and a unit that refuses to cancel warns you while there is still time to fix the arithmetic.

WORKED EXAMPLE — 72 KM/H IN SI BASE UNITS

$$72 \text{ km/h} \times (1000 \text{ m} \div 1 \text{ km}) \times (1 \text{ h} \div 3600 \text{ s})$$

$$= (72 \times 1000 \div 3600) \text{ m/s} = 20 \text{ m/s}$$

km appears once above and once below, so it cancels; the same happens to h. Only m/s survives.

4 The seven base quantities

Base quantity	Symbol	Unit	Symbol
length	l	metre	m
mass	m	kilogram	kg
time	t	second	s
electric current	I	ampere	A
temperature	T	kelvin	K
amount of substance	n	mole	mol
luminous intensity	I _v	candela	cd

Every other unit is a derived unit built from these seven by multiplication and division. The joule is $\text{kg m}^2 \text{s}^{-2}$, the newton kg m s^{-2} , the pascal $\text{kg m}^{-1} \text{s}^{-2}$. You never have to memorise those: they fall out of the quantity calculus.

The kilogram already carries its prefix. Write masses as mg, g or kg, never as "kkg" or "μkg".

SOURCE The seven base quantities and their units as defined in the *SI Brochure*, 9th ed. (2019).



5 Significant figures — which authority you follow

The conventions for significant figures and rounding are set out in the IUPAC *Green Book, Quantities, Units and Symbols in Physical Chemistry*. That book is the authority to cite when you are asked where a rounding rule comes from.

There is deliberately no separate standalone IUPAC document devoted to significant figures. The rules below are the ones applied in marking keys and journals, and they agree with the Green Book.

THE THREE RULES, IN WORDS

- Non-zero digits count. Zeros between them count too: 1.005 has four figures.
- Leading zeros never count. 0.0045 has two.
- Trailing zeros count only with a decimal point. 1500 has two; 1.500×10^3 has four.

AUTHORITY IUPAC, *Quantities, Units and Symbols in Physical Chemistry* (Green Book), 4th ed. (abridged), RSC Publishing, 2023.

6 Eight numbers, rounded to three significant figures

Number	To 3 s.f.	Rule applied
2.5447	2.54	Fourth digit is 4: round down.
0.004 839 2	0.004 84	Leading zeros never count; next digit 9 rounds up.
47.651	47.7	Third figure 6, next digit 5: round up.
1.005 03	1.01	Zeros between digits count; 5 with digits behind rounds up.
999.6	1.00×10^3	Carries into a new digit, so use standard form.
83 495	83 500	Fourth digit 9 rounds the 4 up to 5.
0.085 047	0.085 0	Third figure is 0, next digit 4: keep it.
12.35	12.4	Bare 5 at the cut: most keys round up.

METHOD Count from the first non-zero digit. Keep that many figures, then decide once, from the first digit you are dropping. Never round twice.

7 Two rules for two different operations

MULTIPLYING AND DIVIDING — COUNT FIGURES

The answer carries as many **significant figures** as the least precise input.

$2.50 \times 3.1 = 7.75$ on the calculator, but 3.1 has two figures, so **7.8**. And $12.0 \div 4.000 = 3.0$, not 3.000.

ADDING AND SUBTRACTING — COUNT PLACES

The answer carries as many **decimal places** as the least precise input.

$1.25 + 0.3 = 1.55$ on the calculator, but one term is known to one decimal place, so **1.6**. $100.0 - 0.5 = 99.5$; a term known to no decimals gives **100**.

STANDARD FORM AND EXPONENTS, INCLUDING NEGATIVE ONES

Standard form writes a number as $a \times 10^n$ with a at least 1 and less than 10. A negative exponent means a small number, not a negative quantity: 4.5×10^{-3} is 0.0045 and has two significant figures. Use the exponent form to remove doubt about trailing zeros: 1.500×10^3 states four figures where 1500 leaves the reader guessing.

8 Common errors in rounding

- Rounding twice.** Round once, from the original number.
- Counting leading zeros.** 0.0025 has two figures, not five.
- Dropping significant trailing zeros.** 2.50 differs from 2.5.
- Quoting the calculator.** Eight digits claim precision the apparatus never had.
- Rounding every intermediate step.** Carry one extra figure and round the final answer only.
- Applying the wrong rule.** Decimal places for a multiplication, figures for an addition.
- Adding the unit to the number alone.** The unit belongs to the whole quantity.
- Writing 1e3 or 10^3 .** Use a real superscript in written work.



9 Reporting a measurement with its uncertainty

A measured value is incomplete without an uncertainty. The JCGM *Guide to the expression of uncertainty in measurement*, the GUM, defines the three quantities below.

STANDARD UNCERTAINTY, U

One standard deviation — from repeated readings, or from the instrument: a stated tolerance divided by a sensible factor.

COMBINED UNCERTAINTY, U_c

Inputs are combined, not added, each in proportion to its effect on the result.

EXPANDED UNCERTAINTY, U

Combined uncertainty $\times$ a coverage factor. With $k = 2$ it corresponds to about 95% confidence.

SOURCE JCGM, *Evaluation of measurement data — Guide to the expression of uncertainty in measurement* (GUM), 2008. A companion, JCGM GUM-1:2023, also exists.

10 How to write the result, and the percentage form

WRITING THE ANSWER

A local value of gravitational field strength might be written:

$$g = 9.81 \pm 0.02 \text{ m/s}^2$$

The unit goes once, after the whole expression. The uncertainty carries the same decimal places as the value; for the expanded form, state it as " $U = 0.02 \text{ m/s}^2$ ($k = 2$)".

WORKED PERCENTAGE UNCERTAINTY

Divide the uncertainty by the value and multiply by 100:

$$(0.02 \div 9.81) \times 100 = 0.20\%$$

For $2.00 \pm 0.01 \text{ s}$ the same step gives 0.5%. Compare percentage uncertainties to see which measurement limits the experiment.

11 Presentation rules for tables

Rule	What it means
Caption above	A table caption goes above the table, numbered "Table 1."; a figure caption goes below.
Units in the header	Quantity, symbol and unit in the heading: "Time t / s ". Never in every cell.
No vertical rules	Horizontal rules only — one under the headings, one at the foot.
Decimal alignment	Equal decimal places, column aligned right; the points line up.

THE TWO MOST COMMON FAULTS

- **"Length (m)" with "0.85 m" in the cell.** The unit appears twice, in the wrong place.
- **A ragged column of decimals.** 0.9 beside 0.85 beside 0.850 reads as three levels of precision.

12 Two tables set out correctly

Length l / m	T / s	T^2 / s^2	$g / \text{m s}^{-2}$
0.400	1.27	1.61	9.79
0.600	1.55	2.40	9.85
0.800	1.79	3.20	9.84
1.000	2.01	4.04	9.77

TABLE 1 Caption above the table. Every heading carries quantity, symbol and unit; every cell carries a number only.

Quantity	Measured	Accepted	Diff.
Gravitational field strength $g / \text{m s}^{-2}$	9.81 ± 0.02	9.81	0.0%
Acceleration $a / \text{m s}^{-2}$	2.34 ± 0.05	2.50	6.4%

TABLE 2 The uncertainty carries the same decimal places as the value; the comparison column is defined in the heading.

13 Presentation rules for figures

- **Label both axes.** Each axis carries quantity, symbol and unit — "Time t / s " — never a bare number.
- **Show error bars where you have uncertainty;** without them a graph claims more than the data supports.
- **Number and title every figure** below it: "Figure 1." then the title.
- **The caption must be readable alone** — what was measured, on what, and in what units.
- **Plot points; join them only** if the theory predicts a continuous line.
- **Label the gradient if it is your result** — the slope triangle and its unit.



Presentations and seminars: structuring a short talk.

A ten-minute presentation is not a lecture read aloud. It is a short argued sequence of ideas that a room can follow once, at speaking pace. This document covers how to structure it, how to design the slides, and how to defend it once the questions begin.

1 The ten-minute talk, timed

A short talk is budgeted the way a short essay is: decide what each minute is for before you write anything. The figures below are a working plan, not an institutional rule — the shape most examiners expect.

Stage	Minutes	What has to happen
Opening	1.0	The hook and the question, in plain words. No title-slide reading.
Question	0.5	State the aim as one answerable sentence, then stop.
Method	2.0	What you did and why, at the level the room needs — no more.
Results	3.5	The one figure that carries the answer, plus the trend around it.
Conclusion	2.0	The answer, its limit, and one next step.
Questions	1.0	Your own buffer, spent inside the ten, not borrowed from it.

METHOD Time the talk against this table in rehearsals. If a stage overruns, cut detail — never the conclusion.

2 The five-slide skeleton

1 Title and the question

Your name, the aim, and the single sentence the talk exists to answer.

2 Why it matters

One reason the room should care. This is where attention is won or lost.

3 Method

A simple diagram of what you did — a flow, not a paragraph of prose.

4 Results

One clear figure or table, captioned so it can be read from the back of the room.

5 Conclusion

The answer, its uncertainty or limit, and what you would do next.

ONE IDEA PER SLIDE

Each slide makes one point, and its title states that point. If a slide needs two headings, it is two slides. A room reads a slide in a few seconds: if the title alone does not carry the message, the slide is a document, not a slide.

THE SLIDE IS NOT THE SCRIPT

The slide is a backdrop; the script is what you say. Text written to be read silently competes with the sentence you are speaking, so the room stops listening. Put statements on the slide and keep the explanation in your voice.

3 A seminar is not a lecture

Dimension	Lecture	Seminar
Who speaks	Mostly the lecturer.	Mostly the students; the tutor steers.
Your preparation	Attend and take notes.	Read set material and come with two written points.
What succeeds	Accurate notes you will review.	A contribution that moves the group's argument on.
Your role	Listener.	Participant — expected to speak, question and respond.

NOTE In a seminar, silence is read as unpreparedness. Bring something to say, and say it early.

4 Six ways a short talk fails

- ❑ **No question.** The talk describes a topic instead of answering one.
- ❑ **Too much method.** Ten minutes spent on a procedure that carries two.
- ❑ **Reading the slides.** The room reads ahead and stops listening.

- ❑ **A hidden conclusion.** The answer arrives only in the last five seconds.
- ❑ **Overrun.** The conclusion is cut because the introduction ran long.
- ❑ **No rehearsal out loud.** A talk read silently is always longer when spoken.



4 Design on evidence, not taste

Slide design has a research literature. Mayer's work on multimedia learning sets out principles for how words and pictures should be combined, and cognitive load theory explains why the same principles hold: the channel through which a room takes in information is narrow, and every unnecessary element competes for it. Three of Mayer's named principles do most of the practical work.

COHERENCE

People learn better when extraneous material is excluded rather than included.

SIGNALLING

People learn better when the essential material is highlighted — a heading, an arrow, a single emphasis.

REDUNDANCY

People learn better from narration and picture together than from the same words also printed on screen.

"People learn better when extraneous material is excluded rather than included."

Mayer (2009), multimedia learning — the coherence principle

SOURCES Mayer, R. E. (2009). *Multimedia Learning* (2nd ed.). Cambridge University Press. Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive Load Theory*. Springer.

5 One slide, before and after

The same slide, two ways. Each fault on the left is fixed by a named principle on the right. This is what the principles look like when they are applied.

BEFORE — CROWDED AND COMPETING

- A decorative background image sits behind the text and eats the contrast.
- Full sentences of explanation are printed on screen and read aloud at the same time.
- Six equal bullets, none marked, so nothing is signalled as the point.
- Clip-art added because the slide looked empty.

AFTER — ONE IDEA, PLAINLY

- **Coherence.** The background and clip-art are removed; only the idea stays.
- **Redundancy.** The printed sentence is cut, so the narration does not compete with it.
- **Signalling.** One heading and one arrow mark the figure that carries the answer.
- **Result.** The slide can be read in five seconds; the room listens to you.

6 Type, contrast and colour

Rule	Why it holds
Type size	Body text large enough to read from the back of the room; if you must shrink it to fit, you have too much on the slide.
Contrast	Dark text on a light ground, or the reverse. Grey-on-grey and text over photographs are read as blanks.
Colour	Two or three colours used consistently. Colour marks structure, not decoration.
Consistency	The same font, size and position for the same kind of content on every slide.

DO NOT READ YOUR SLIDES ALOUD

The audience reads faster than you speak, so a slide of full sentences is finished before you are — and no one is listening. Say the sentence; show the keyword or the figure. If a slide must be read to be understood, it should be a handout, not a slide.

7 Design under load — the case for one template

Cognitive load theory holds that novices learn more from worked examples and clear guidance than from unguided problem-solving. The design advice follows: do not design each slide from nothing. Build one slide you are happy with — title, one idea, one figure — and reuse its layout, so your effort goes on the content rather than on inventing a new look five times over.

EVIDENCE Sweller, Ayres & Kalyuga (2011), *Cognitive Load Theory*, Springer.



7 Rehearsal: four runs, not one

Run	When	What it fixes
1	Alone, early	The shape. Speak it aloud, untimed, and cut anything that does not serve the question.
2	Two days later	Time. Run it against the budget and trim to fit.
3	Day before	One listener who is not an expert tells you where they lost the thread.
4	Morning of	Opening two minutes and the closing sentence only. Start and finish well.

THE OPENING TWO MINUTES

- **Sentence one:** the question, in plain words.
- **Sentence two:** why it matters to this room.
- **Sentence three:** the road map — "how we did it, then what we found".
- **Then stop.** No apology, no reading the title slide.

8 Handling questions — a tactics table

Type of question	How to respond
Factual and straight	Answer in one sentence, then stop. Do not pad a complete answer.
"Why did you choose...?"	Give the reason, and name what you gave up by choosing it.
Hostile or challenging	Restate the objection fairly, answer the substance, concede what is true.
Outside your scope	Say so plainly, and say what you would check before answering.
"I don't know"	Say it — then how you would find out, or name it as a limit to test next.
Several at once	Separate them, answer one, and park the rest in writing.

9 Managing time, and the poster version

KEEPING TO TIME

- Put a clock where you can see it, or ask a friend to signal halfway.
- If you are behind, cut detail from Results and Method — never the conclusion.
- Finish on the sentence you planned, even if you dropped material to reach it.

THE POSTER, IF THAT IS THE FORMAT

Open with the size your institution sets for the session — A0 and A1 are common. Use three columns and a reading path that runs top-left, down, then right, as a page is read. Title, author and aim sit in the top band.

Leave out dense paragraphs, the full reference list, decorative images and everything you know. Keep a 60-second and a three-minute version.

10 The handout is not the slides

A handout is read, not watched. Where the slides stay spare, it can carry the sentences, the method detail and a short reference list — the material that would crowd a screen. Give it a title, the one figure, and the conclusion, so a reader who missed the session still has the argument.

WHAT GOES WHERE

- **Slide:** one idea, a keyword, the figure.
- **Handout:** the sentences, the detail, the sources.
- **Voice:** the explanation that joins the two.

11 Twelve things an examiner or judge looks for

- A question stated in one sentence that the talk then answers.
- A structure the room can follow without notes.
- One idea per slide, each title carrying the point.
- Slides readable from the back of the room.
- Extraneous material removed, essentials signalled.
- A results figure that supports the stated answer.
- A conclusion that is not new information.
- Honest limits: uncertainty, assumptions, what was not tested.
- Answers that give the reason, not just the result.
- An honest "I don't know" where it applies, with a next step.
- Finishing within time, on your own planned sentence.
- Eye contact with the room, not with the slides.



Group work, supervision and research ethics.

Three things decided long before a mark is given: how a group organises itself, how you use a supervisor's time, and how you treat the people and data in your project. This document sets out how each works, and where your own institution's rules take over.

1 Who does what — a role allocation

A group fails most often because no one owns anything. Give each role a named person, and write down what it owes the others. Roles may rotate; they should not be abandoned.

Role	What the role owes the group
Coordinator	Owens the plan and the deadlines, chairs the meetings, and makes the call when the group is stuck.
Record-keeper	Keeps the notes and the decisions, so that what was agreed can be checked later.
Researcher	Finds and judges the sources, and records where each claim came from.
Editor	Holds the single voice: assembles the final document and enforces one referencing style.
Presenter	Speaks for the group, owns the delivery, and handles the questions.
Quality checker	Reads the final version against the brief as an examiner would, and flags what fails it.

2 Six ways groups fail

- **No shared brief.** Each member answers a slightly different question.
- **Unclear roles.** Everyone assumes someone else is doing it.
- **No schedule.** Work begins the week it is due.
- **The loudest voice writes it.** The document becomes one person's work.
- **Decisions not recorded.** The same argument is had twice.
- **The silent member.** One contribution never arrives until the end.

3 A project charter, on one page

GROUP PROJECT CHARTER — SPECIMEN

Title: the working title of the deliverable, in one line.

Members and roles: each name against a role from the table above.

Deliverable: exactly what is handed in — format, length, and the single question it answers.

Milestones: dated checkpoints — research complete, first draft, review, final submission.

Decision rule: how the group decides when members disagree — for example, a majority, with the coordinator breaking a tie.

Escalation: what happens when a member misses a deadline, and at what point the matter goes to the tutor rather than staying in the group.

PRACTICE Signing a charter is general university practice, not an institutional rule. It is the quickest way to make the group's expectations visible before they are tested.

4 Free-riding, and how groups handle it early

Free-riding is a design fault more than laziness: if a member's contribution cannot be seen, no one has a reason to make one. Make it visible from the first week — a named task with a date for every member, and a record of who agreed to what. Raise a missed deadline with the person first, in private and early: a problem named in week two is a schedule change; the same problem in week twelve is a complaint after the fact.

HOW PEER ASSESSMENT USUALLY WORKS

Where a module uses it, each member privately rates the others' contribution, and the tutor adjusts the group mark. It rewards those who did the work and records those who did not. Treat the record-keeper's notes as evidence, not as late point-scoring.

5 Make the work visible

Agree in week one who wrote each section, who checked it and who presented it. That record is the evidence if contributions are marked separately, and the fairest way to divide the work if they are not.



5 Preparing for a supervision meeting

A supervisor's time is short and shared. Arrive with an agenda you have already filled in, so the meeting is about decisions rather than a status report.

AGENDA TEMPLATE — FILL IN THE FIVE LINES

1. **Progress.** What I did since we last met.
2. **The problem.** What I am stuck on — stated as one exact question.
3. **What I need.** The decision, reading or sign-off I want today.
4. **Next actions.** What I will do before we next meet.
5. **Next meeting.** The date and time we agree before we part.

WHAT SUPERVISION IS NOT

- **Not proofreading.** A supervisor reads for argument and direction, not to correct your commas.
- **Not ghost-writing.** They will not write sections, supply the analysis, or fill gaps you have left.
- **Not a deadline rescue.** Material sent the night before cannot be read in time to help.

6 A meeting log

Keep a running log. It reminds you what was agreed, and it is the record if a question arises about progress.

Date	What was discussed	Action agreed	By
04 Mar	Draft research question; two candidate sources rejected.	Rewrite the question; find two better sources.	Student
18 Mar	Method outline; sample too small.	Widen the sample; resend the method section.	Student
01 Apr	Draft introduction read; structure agreed.	Rewrite the opening; send full draft by 15 Apr.	Student

PRACTICE A log of three lines a meeting is enough. It is also the fastest way to see whether the work is actually moving.

7 Email etiquette, and one worked example

- **Use your university address** and a subject line that names the module and the topic.
- **Write to one named person**, not to a group, and use their correct title.
- **Be specific.** One question per email is better than five.
- **Say what you have already tried** before asking for help.
- **Do not send at midnight.** Expect a reply in working hours, not instantly.
- **Attach the right file**, named clearly, and check it opens.

WORKED EXAMPLE — ASKING FOR FEEDBACK

Subject: BI0210 project – draft method, feedback please

Dear Dr Mwamba,

I have attached the draft method section for my BI0210 project. I have rewritten the sampling plan since we last met, and widened the sample as you suggested.

Could you tell me whether the sampling plan is now sound enough to begin data collection? If it is not, I would be glad to know which part to fix first.

I can send the results section by 15 April.

Thank you,
C. Phiri (student number 20/1234)

8 Using the feedback before you meet again

A supervisor's comments are directions, not a verdict. Read them twice: once while you are annoyed, and once the next day. Sort them into three piles — fix now, clarify, and disagree with evidence. Answer each one before the next meeting, and argue a point only with a reason, never with "I think it is fine".

9 When a supervisor is hard to reach

Busy supervisors are normal near deadlines. Agree the next meeting date before you leave, put every decision in writing, and send one polite reminder if a question sits unanswered for a week. If the work is genuinely blocked, say so early: that is a scheduling problem, not a complaint.



8 Informed consent

Informed consent means a person agrees to take part knowing what the project is, what it will ask of them, what you will do with the information, and that they may stop at any time without giving a reason. Consent is not assumed from silence, nor signed away by a tick on a form the person did not read.

Give the information plainly, in a form the participant keeps, and let them ask questions first.

SPECIMEN CONSENT STATEMENT

"I have read the information about this study. I understand what I am being asked to do, and that my answers will be used only for this project. I understand that taking part is voluntary, that I may stop at any time, and that I need not give a reason. I agree to take part."

Name: Date: Signature:

9 Anonymity, confidentiality and safe storage

ANONYMITY

No one, including you, can link a response to a person. Best for questionnaires and sensitive topics, but it limits follow-up questions.

CONFIDENTIALITY

You can identify the person, but you do not reveal it. Names are replaced by codes and kept separately from the data.

SAFE STORAGE

Keep data on a password-protected device, not a shared drive or a personal phone gallery. Dispose of identifiers when the project ends, as your institution requires.

10 Ethics clearance

A student project that involves human participants — interviews, questionnaires, observations of people, or their data — normally requires ethics clearance before any data is collected. The exact procedure is set by your own institution and school; ask your supervisor which committee and which form apply to you, and do this at the planning stage, not after the first interview.

"Issues of misconduct in Research should be brought to the attention of the Research Ethics Committee"

University of Zambia, *Research Policy and Intellectual Property Rights*, §4

SOURCE University of Zambia, *Research Policy and Intellectual Property Rights*, Directorate of Research and Graduate Studies. Section 4 is "Misconduct in Research".

11 The participant information sheet

Consent is only informed if the person had the information. Whatever form your institution uses, a participant should find, in plain language:

- Who you are, and which institution the project belongs to.
- The purpose of the study, in one or two sentences.
- What taking part involves, and how long it takes.
- What will happen to the information, and who will see it.
- That participation is voluntary, and that they may withdraw.
- How to contact you, and how to raise a concern.

12 Data protection in practice

COLLECT ONLY WHAT YOU NEED

Every extra field is another thing to protect. If it is not needed, do not collect it.

SEPARATE IDENTIFIERS

Keep the list linking codes to names in a different file from the data.

KEEP IT AS LONG AS YOU MUST

Set a date to delete identifiers, as your institution requires.

13 Vulnerable participants and extra care

Some groups need more care: children and young people, patients, and anyone whose position makes it hard to refuse — students you teach, or people answering for an organisation. Expect a heavier consent process and a need for clearance before you begin. Ask your supervisor and the committee, and ask early.

14 Ethics checklist

- Clearance obtained before the first contact with a participant.
- Participants told the purpose in plain language.
- Consent recorded and kept, away from the data.
- Voluntary participation stated, with the right to withdraw.
- Identifiers removed or coded before analysis.
- Data stored securely, and disposed of at the end.
- Findings reported honestly, without trimming what does not fit.
- Any concern about misconduct raised with the committee — not ignored.



The A+ Reference Desk: the toolkit index.

Everything in the series, in one place, with the master checklists you will come back to. The other twelve documents teach one skill each; this one tells you which to open, and when.

1 The thirteen documents

01 Study Schedule and Revision System A timetable your memory can keep.	02 Essay Writing and the Model Essay Question analysis, argument, a model essay.
03 Dissertations and Research Projects From proposal to submission, without drift.	04 Laboratory Reports Aim, method, results, discussion — the expected form.
05 Assignments, Cover Pages and Formats Cover pages, word counts, formats, submission.	06 Referencing and Citation Master Guide One style, applied consistently.
07 Exam Technique and Answer Frameworks Reading the paper, timing, frameworks.	08 Note-Making and Active Reading Notes you can actually revise from.
09 Academic Integrity and Plagiarism Quoting, citing and paraphrasing safely.	10 Numbers, Units and Data Presentation Units, significant figures, uncertainty.
11 Presentations and Seminars Structuring, designing, delivering, defending.	12 Group Work, Supervision and Ethics Roles, meetings, and research ethics.
13 The A+ Reference Desk This index and the master checklists.	

2 Reading it by need, not by number

If this is where you are	Open
Just registered, and not sure how to organise the term	01 • 08
A written assignment, a test or an examination is close	02 • 05 • 06 • 07 • 09
A practical or laboratory report is due	04 • 10
You must present, work in a group, or start a project	03 • 11 • 12

3 How to use this in your first two weeks

- Day one — read Document 01 and build the weekly grid**
Put the fixed commitments in first, then one repeatable study block per module.
- Before your first assignment — read 06, then 02 and 05**
Fix the referencing style before you write, not after. Format is marks you can bank early.
- Before your first practical — read 04 and 10**
Learn the report structure and the units conventions before you handle the equipment.
- Before your first seminar or group task — read 11 and 12**
Know how a short talk is structured, and how a group divides the work and records it.
- Before you submit anything — run the checklist on page 2**
Fifteen checks, two minutes. It catches more lost marks than any last-minute rewrite.

4 What this toolkit is not

It is not a substitute for your module outline, your lecturer's instructions, or your institution's own regulations. Where a rule belongs to your institution we point to it; where the toolkit does not cover a topic, we say so rather than pad it out.



5 Before you submit anything

- The question is **answered**, not just the topic described.
- Every part of the task has been covered.
- The word count is within the stated range.
- The structure is visible: introduction, body, conclusion.
- Every claim from a source carries a citation.
- The reference list matches the in-text citations.
- One referencing style is used throughout.
- Quotations are marked, and within the similarity rules.
- Tables and figures are numbered and captioned.
- Units and significant figures are consistent.
- The cover page is complete: name, number, module, date.
- The file is named as required, and opens.
- Spelling and grammar are checked — not just spell-checked.
- It has been read aloud once, or read by someone else.
- It is submitted before the deadline, with the receipt kept.

6 Around the examination

THE WEEK BEFORE

- List every topic; mark each **can do / shaky / not started**.
- Two timed past papers, marked against the key.
- Retrieval only in the final days — no new chapters.
- Sleep is protected; an all-nighter costs consolidation.

THE NIGHT BEFORE AND THE MORNING OF

- Pack what is allowed; check the venue and time.
- Review the error log, not the whole module.
- Eat, arrive early, breathe slowly for two minutes.
- Read the whole paper before writing anything.

TWO-MINUTE CALIBRATION

- When a marked script comes back, note **where** marks were lost.
- Separate lost knowledge from lost presentation.
- Write one rule per mistake in your error log.
- Adjust the next answer, not your view of yourself.

7 Where the advice comes from

Every recommendation in the series rests on one of four kinds of source, and each is named where it is used.

- **Official documents** — quoted only where a rule genuinely belongs to the institution.
- **Learning-science evidence** — peer-reviewed studies on how memory and practice work.

- **Writing and measurement standards** — style guides and metrology authorities.
- **General practice** — what examiners normally expect, labelled as such, never as a rule.

8 Three habits that carry the whole series

SPACE THE WORK

Short, repeated sessions across days beat one long block.

TEST YOURSELF

Retrieval beats rereading, and beats re-copying your notes.

KEEP AN ERROR LOG

Collect every mistake and the rule behind it, and re-read the log.

9 CS Tutorials — SMARTprep

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- **WhatsApp** 260978110840 · 260765370490
- **Email** CSTutorials03@gmail.com
- **Site** cs-tutorials.pages.dev
- **Hours** Mon–Sat 08:00–20:00



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