ACCTING 2503 Accounting Systems and Analytics

UNIVERSITY OF ADELAIDE · SEMESTER 2, 2026 · SECOND-YEAR ACCOUNTING

CLOSED-BOOK MEMORY SHEET · Side 1 of 2 · what must be in your head

Full guide + ask Sia about ACCTING 2503

Test 1 · 25% | Test 2 (Analytics and Power BI) · 25% | Final Examination · 50%

EXAM MAP "This is a Closed Book examination." *(ACCTING 2503 Accounting Systems and Analytics primary exam paper instructions (PDF_Accounting_Systems_and_Analytics_Primary_Exam_...))*

180 min · 100 marks · 6 compulsory main questions · case/discussion · **XBRL in · Power BI out**

1 · Case-Answer Engine

COURSE OVERVIEW

EVERY OPEN-ENDED RESPONSE

```
UNPACK facts → STATE exact theory →
APPLY each fact → EVALUATE trade-
off/control → CONCLUDE with a
justified recommendation + example.
```

Do not stop at a label. A case mark usually sits in the because-clause: identify the symptom, name the concept, show its managerial relevance, then connect the control or decision to the scenario.

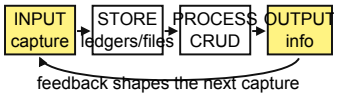
IF ASKED…	DELIVER
Define/distinguish	Both definitions + decisive difference + one example
Evaluate	Mechanism + benefit + mirror risk + mitigation
Recommend	Binding constraint → option → trade-off → verdict
Control weakness	Threat → objective → named control → why it works

2 · AIS & Information

CH 1

Data = raw recorded facts. *Information* = processed, organised data that improves a decision. Produce it only while benefit > cost; beyond a usable amount, information overload lowers decision quality.

AIS six: people · procedures & instructions · data · software · IT infrastructure · internal controls & security.



Input → storage → processing (CRUD) → output; feedback closes the loop. Ch 2 fig 1

USEFUL INFORMATION	MISSING-SYMPTOM CUE
Relevant	does not help the decision
Reliable	errors/bias; cannot depend on it
Complete	something material omitted
Timely	arrives after action point
Understandable	user cannot interpret it
Verifiable	independent users cannot agree
Accessible	authorised user cannot obtain it

FIVE CYCLES: SAY THE GIVE-GET

CYCLE	FIRM GIVES → GETS
Revenue	goods/services → cash
Expenditure	cash → goods/materials
Production	labour/materials/machine use → finished inventory
HR/payroll	cash → employee time

3 · Files, ERP & Audit Trail

CH 2

Master file = persistent standing records; *transaction file* = period activity that updates the master, never the reverse. Audit trail runs source document → journal → ledger → reports and back.

CODE	TELL / BEST USE
Sequential	consecutive; gaps reveal missing items
Block	number ranges reserved to categories
Group	positions carry sub-field meaning
Mnemonic	letters/digits suggest the item

ERP: one integrated database, capture once, real-time cross-functional reporting, embedded workflow/access control. Mirror risks: cost, disruption, complexity, resistance, over-standardisation and a single point of failure. A full answer gives both sides and mitigation.

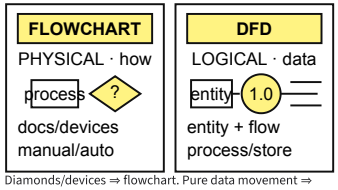


One entry becomes visible across modules: the integration benefit is also the failure concentration. Ch 2 fig 2

Capture/storage detail: source-data automation records event, resource and participants at the activity point; pre-numbering, prompts and mandatory fields improve completeness. General ledger holds control accounts; subsidiary ledgers carry detail. Storage hierarchy runs field → record → file → database.

4 · Draw the Right System

CH 2 · EXAM DISTINCTION



Diamonds/devices ⇒ flowchart. Pure data movement ⇒ DFD. Ch 2 figs 3–4

TOOL	USE
Document flowchart	documents across people/areas; evaluate internal control
System flowchart	input → process → output for design
Program flowchart	logic inside one program
BPD/BPMN	who/what/when in a business process

5 · Fraud Logic

CH 3

Fraud requires: materially false statement · intent to deceive · justifiable reliance · resulting loss. Forms: misappropriation of assets versus fraudulent financial reporting.



Pressure + opportunity + rationalisation; only opportunity is created by the system. Ch 3 fig 1

GIVEAWAY	CLASSIFY / RESPONSE
Human is tricked	social engineering; verify identity, train
Harmful software	malware; patch, filter, isolate, restore
Machine/network exploited	technical attack; harden, monitor, restrict
Virus	host file + human action
Worm	stand-alone, self-propagates

HUMAN	MALWARE	TECHNICAL
phishing pretexting tailgating shoulder surf	virus/worm ransomware Trojan keylogger	DoS/DDoS spoofing SQL injection pwd crack

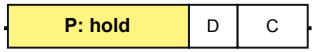
Classify by what is manipulated: person, harmful software, or machine/network. Ch 3 fig 2

6 · Controls, COSO & Security

CH 3

Internal control gives reasonable, not absolute, assurance over assets, records, reliable information and compliance. Two separate axes: function = preventive / detective / corrective; scope = general / application.

COSO (5)	EXAM CUE
Control environment	tone at the top; foundation
Risk assessment	identify/analyse risks
Control activities	authorisation, segregation, physical controls
Information & communication	capture/share relevant information
Monitoring	ongoing and separate evaluation



SECURE when P > D + C

Break-in time must exceed detection plus correction/response time. Ch 3 fig 4

7 · Trust Services & Access

CH 4

Security is the management-level foundation; above it sit confidentiality (organisation's sensitive information), privacy (personal information), processing integrity (complete/accurate/authorised/timely) and availability (up and recoverable).

Confid. org data	Privacy personal	Process integrity	Avail. recover

SECURITY management foundation

The four reliability outcomes depend on the security foundation. Ch 4 fig 1

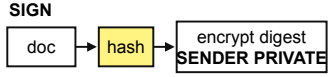
AUTHENTICATION	AUTHORISATION
Who are you? First gate.	What may you do? Second gate.
Know / have / are; multifactor combines categories	Access-control matrix grants/restricts permissions

SCHEME	KEYS / TRADE-OFF
Symmetric	one shared key; fast; distribution risk
Asymmetric	public/private pair; slower; enables signatures
Hybrid	symmetric bulk data; asymmetric key exchange
Hash	one-way fixed digest; integrity, not secrecy

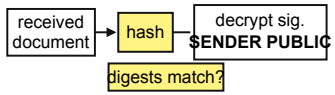
8 · Key Direction

CH 4 · SIGNATURE TOPIC

SIGN



VERIFY



Sign with your private key; verify with sender's public key. Ch 4 fig 2

SECRECY IS THE OPPOSITE DIRECTION

```
Encrypt message with RECIPIENT'S
public key → only recipient's
private key decrypts.
```

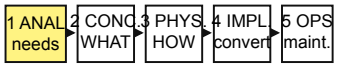
INTEGRITY BY STAGE

Input: field/type, sign, limit, range, size, completeness, validity, reasonableness; batch/hash totals. **Processing:** matching, recalculation, record locking. **Output:** review, reconciliation, transmission checks.

AVAILABILITY PAIRS

9 · SDLC & Planning

CH 5–6



All phases: planning + change

Five phases in order; planning and change management are not phases. Ch 5 fig 1

Master plan: steering committee; long-range priority list of all projects. **Project-development plan:** project team; people, hardware, software, budget for one build.

PERT shows dependencies; critical path = longest path = minimum project duration. Shorter paths have slack. **Gantt** shows schedule/progress but dependencies weakly.

ECONOMIC FEASIBILITY

```
Payback = initial cost / annual net
savings
NPV = PV(benefits) - initial cost;
NPV > 0 ⇒ economically feasible
IRR = rate making NPV = 0; compare
with hurdle rate
```

TELOS	QUESTION
Technical	Can available technology do it?
Economic	Do benefits justify cost?
Legal	Does it comply?
Operational	Can/will people run and use it?
Scheduling	Can it be delivered in time?

10 · Design, Test, Convert

CH 6–7

Conceptual = WHAT: alternatives, general specifications, report. **Physical = HOW:** Output, File/DB, Input, Program + Procedures + Controls (OFIP + PC).

Tests: walk-through = review logic; test data = valid plus every error condition; acceptance = whole system with real transactions against user-set criteria. Users accept, not analysts.

CONVERSION: match the constraint

DIRECT	one cut-over · cheap/risky
PARALLEL	run both · safest/costliest
PHASED	module by module
PILOT	one site, then propagate

Risk tolerance, budget, system size and number of sites decide the strategy. Ch 6 fig 3

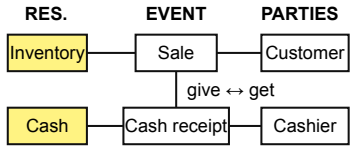
11 · Relational Method

CH 8–9

Relation/table = one entity; **tuple** = row/record; **attribute** = column/field. Degree = attributes; cardinality = tuples. DBMS separates external user views → conceptual enterprise schema → internal storage, giving data independence.

RULE	TEST
Primary key	unique row identifier; cannot be null
Foreign key	borrowed key linking another table
Entity integrity	PK is unique and non-null
Referential integrity	non-null FK matches an existing PK

Normalise: identify entities → one table per entity → place each fact once → assign PKs → link with FKs. Diagnose: update anomaly = repeated fact diverges; insert = cannot add one entity alone; delete = removing a transaction destroys another entity's facts.



REA revenue cycle: give inventory through Sale; get cash through Cash Receipt. Ch 9 fig 3

REA rules: each event links to ≥1 resource, ≥1 other event and ≥2 participants (one internal, one external). Relationship type comes from maximums only; minimum 0/1 means optional/mandatory. M:N gets its own junction table with composite PK; 1:1 and 1:N use an FK.

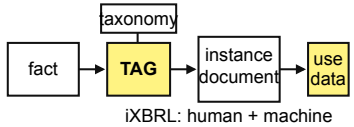
12 · ETL & XBRL

CH 10 · FINAL SCOPE



ETL is usually the most time-consuming analytics stage. Ch 10 fig 1

Structures: structured = database-ready; semi-structured = consistent fields/CSV; unstructured = images/free text. **Stores:** warehouse = integrated/structured; mart = subject subset; lake = raw structured + unstructured.



Taxonomy defines concepts; tags mark facts; the filing is the instance document. Ch 10 fig 3

Forward this to your tutorial group

V2 · 2026-10-24

Your exam is closed book: nothing printed goes in. Use this sheet to revise and self-test, not to carry.

University of Adelaide Semester 2 examination period, November 2026 (check your personal exam timetable).

ACCTING 2503 Accounting Systems and Analytics · Self-Test Drills

UNIVERSITY OF ADELAIDE · SEMESTER 2, 2026 · ANSWERS MUST RUN TO A CONCLUSION

CLOSED-BOOK MEMORY SHEET · Side 2 of 2 · retrieve, calculate, judge

Full guide + ask Sia about ACCTING 2503

DRILLS 5 worked answer paths · judgement cards · classic traps · exam-morning retrieval plan

Final: case-study/discussion · XBRL included · Power BI excluded

13 · Worked: Feasibility

COURSE WORKED EXAMPLE · 10 MARKS

Torrens Freight: outlay $240,000 now; annual net savings $80,000 for 5 years; discount rate 10%; 5-year PV annuity factor 3.791. Tight scanning window; freezer scanners misread stock.

```
Payback = 240,000 / 80,000 = 3.0 years
PV(savings) = 80,000 × 3.791 = $303,280
NPV = 303,280 - 240,000 = +$63,280
```

NUMBER → VERDICT → OTHER TELOS

Payback 3.0 y | 3 of 5 years

NPV +$63,280

Economic ✓ Scheduling ✗ Ops ✗

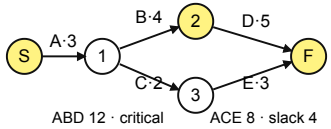
Positive NPV proves only economic feasibility; the facts still break TELOS. Course example

1. **Economic:** positive NPV ⇒ economically feasible.
2. **Scheduling:** scanning cannot reliably fit the shift window.
3. **Operational** (arguably technical): freezer misreads mean the process/environment cannot use the design accurately.

SELF-TEST → *Can you say all five TELOS dimensions, then explain why a positive NPV is not an overall go decision?*

14 · Worked: PERT

CH 5 EXAMPLE · 4 MARKS



ABD 12 · critical ACE 8 · slack 4

Total every complete route; the longest is critical and sets minimum duration. Ch 5 fig 2

Working: list complete routes before adding. A–B–D = 3+4+5 = 12; A–C–E = 3+2+3 = 8. Therefore minimum completion time is 12 weeks and the shorter route has 12−8 = 4 weeks slack. Any delay on A, B or D delays the whole project.

14b · Foundational Traps

CH 1–3 RETRIEVAL

- **Data ≠ information:** processing and decision usefulness create the distinction; more can cause overload.
- **Relevant ≠ reliable:** right content can still contain errors.
- **Transaction updates master**, never master updates transaction.

15 · Worked: Fraud Triangle

CH 3 EXAMPLE · 9 MARKS

Torrens Manufacturing: Marco creates a fictitious supplier and pays it $2,600/week for ≈5 months. Failed property investment; he can add suppliers and approve invoices; "company owes me".

FACT	LEG + EXPLANATION
failed investment	**Pressure**: financial motive
add supplier + approve	**Opportunity**: incompatible duties let him commit and conceal
"owes me"	**Rationalisation**: self-justification

```
Loss ≈ 22 weeks × $2,600 = $57,200
```

Control: segregate supplier-master maintenance from payment approval; independently review new suppliers and match invoice to purchase order and receiving report. This attacks opportunity.

one person does both → segregate duties → remove opportunity

Control removes opportunity.

Scenario fact → control weakness → specific control → affected fraud leg.

16 · Worked: Signed Tender

CH 4 EXAMPLE · 8 MARKS

1. **Symmetric:** one shared secret key; fast; distribution risk. **Asymmetric:** public/private pair; slower; solves distribution and enables signatures.
2. Hash tender → fixed digest. Any change alters digest: **integrity**.
3. Encrypt digest with Coorong's private key; GulfPort verifies with Coorong's public key: authenticity/non-repudiation; re-hash and compare.
4. For secrecy, encrypt tender with **GulfPort's public key**; only GulfPort's private key decrypts.

TRAP → *Never say "decrypt the hash". Hashing is one-way and proves integrity; encryption is reversible and supplies confidentiality.*

16b · Integrity & Recovery Drill

CH 4

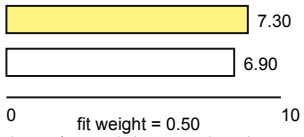
SYMPTOM	BEST NAMED CONTROL
letters entered in numeric rate	field/type check
negative hours	sign or range check
unknown customer code	validity check against master
batch lines missing	record count; financial/hash total
concurrent overwrite	record locking
wrong report transmitted	output review/reconciliation and transmission check

17 · Worked: Vendor Score

CH 7 EXAMPLE · 8 MARKS

Weights: functional fit 0.50; total cost 0.30; vendor support 0.20. Scores: P = 8/5/9; Q = 6/9/6.

```
P = 8(.50)+5(.30)+9(.20) = 4.00+1.50+1.80 = 7.30
Q = 6(.50)+9(.30)+6(.20) = 3.00+2.70+1.20 = 6.90
```



P wins because fit carries the heaviest weight, not because it tops every raw score.

Recommend P: 7.30 > 6.90; its stronger fit outweighs Q's cost advantage. **Evaluate:** point-scoring cannot capture strategic risk, culture or lock-in, and results depend on chosen weights.

18 · Conversion Judgement

CH 6 EXAMPLE · 8 MARKS

Larkspur Grocers: 14 similar stores; checkout errors matter; low risk tolerance; tight budget. Define all four strategies, then identify constraints.

```
many similar sites + low error tolerance + tight budget ⇒ PILOT one representative store → prove → propagate
```

Direct has no fallback; full parallel at 14 stores costs too much; phased fits modules, not the many-site constraint. Pilot contains errors to one site and provides live training. A short parallel run inside the pilot is a strong addition.

IF THE FACTS SAY…	CHOOSE
single, mission-critical; budget available	parallel
many similar locations	pilot
large modular system	phased
simple, cheap, low stakes	direct

19 · Source/Method Chooser

CH 7

WHAT DIFFERS IN THIS PROCESS?

Standard need + speed	**BUY**
Distinctive + capability	**BUILD**
Need outside expertise	**OUTSOURCE**

Always state fit/control versus time/cost/project-risk trade-off. Ch 7 fig 1

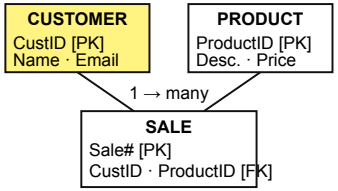
TRAP → *Do not choose the highest raw criterion. Compute Σ(weight × score), explain why weighting drives the winner, then test intangibles: strategic risk, cultural fit and lock-in.*

20 · Worked: Normalise It

CH 8 EXAMPLE · 8 MARKS

Flat columns: Sale#, Customer, CustEmail, Rep, Product, Price. A customer's email repeats across sales.

ANOMALY	CONCRETE CONSEQUENCE
Update	change email on every row; one miss creates inconsistent emails
Insert	cannot add a customer without a sale row/Sale#
Delete	delete only sale and customer facts disappear



Store each entity's facts once; the transaction table carries the foreign keys.

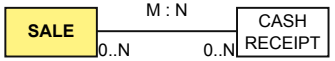
Rules: entity integrity = PK unique/non-null; referential integrity = each non-null FK matches an existing PK. For M:N, create a junction table with composite PK of both entity keys plus relationship attributes such as Quantity.

21 · Worked: REA Cardinality

CH 9 EXAMPLE · 10 MARKS

Torrens Timber: customer may settle several invoices with one transfer; one invoice may be paid in two instalments.

1. **Resources:** Inventory, Cash.
2. **Events:** Sale (give inventory), Cash Receipt (get cash).
3. **Participants:** salesperson/cashier internally; customer externally.
4. **Duality:** give Inventory via Sale ↔ get Cash via Cash Receipt.
5. **Maximums:** many invoices per receipt AND many receipts per invoice ⇒ Sale–Cash Receipt is M:N. Minimum on receipt side is commonly 0 because a sale can precede payment.



type comes from maximums only

Never memorise the type: quote the business rule that forces each maximum.

21b · Database Fast Recall

CH 8–9

PROMPT	ANSWER SPINE
Advantages?	less redundancy/inconsistency; integration/sharing; independence; flexible querying

22 · Worked: Read iXBRL

CH 10 EXAMPLE · 8 MARKS

```
<ix:nonFraction name="ifrs-full:CurrentAssets" contextRef="e2027" unitRef="AUD" decimals="-3" scale="3">58,640</ix:nonFraction>
```

58,640 × 10³ = $58,640,000 AUD

name	concept: CurrentAssets
contextRef	entity + period
unitRef	currency = AUD
scale	3 ⇒ ×10³ (thousands)

Decode value first, then explain the meaning carried by each attribute.

Benefits by stakeholder: investors = automatic comparison/risk analysis; preparers = efficient reporting and lower compliance/audit cost; regulators = automated monitoring; auditors = population testing and continuous auditing.

FINAL BOUNDARY → *A PDF is presentation; XBRL attaches machine-readable meaning to each fact. iXBRL keeps human and machine views in one file.*

23 · Worked: Parse + ETL

CH 10 EXAMPLE · 8 MARKS

Record: `"Okafor, Chidi"|"Prospect SA"|7|248.55`. Pipe is delimiter; double quote is text qualifier.

Four fields: Okafor, Chidi · Prospect SA · 7 · 248.55. The comma inside quotes is data, not a break. This is **semi-structured**: consistent delimited fields, not a database table.

name | suburb | 7 | 248.55

name	location	qty	price

quotes protect comma in name

State the parsing rule, then list fields; do not split punctuation inside qualifiers.

ETL answer: Extract and quality-check → Transform (trim spaces, standardise suburb, cast 7 integer and 248.55 decimal, validate) → Load to target and update data dictionary.

24 · Analytics-Type Reflex

CH 10

QUESTION WORD	TYPE
What happened?	descriptive
Why?	diagnostic
What might happen?	predictive
What should we do?	prescriptive

25 · If You See X → Do Y

ALL CHAPTERS

CASE FACT / VERB	YOUR MOVE
codes unreadable	understandable information failure
diamond/device/manual step	flowchart, physical model
incompatible duties	opportunity; segregate + review
secret to recipient	recipient public encrypts; private decrypts
positive NPV but people/time fail	economic ✓; other TELOS ✗
many similar branches	pilot; explain containment/cost
unclear requirements	prototype; iterate; harden
facts repeated in one table	three anomalies → normalise
(min,max) relationship	minimum optionality; maximums type
machine-readable reporting	tag + taxonomy + instance document

STATE rule → APPLY facts → EVAL. trade-off → CONCL. justify

Rule → facts → reason → verdict

The reusable answer path for every six-question case paper.

26 · Exam-Morning Plan

CLOSED-BOOK RETRIEVAL

1. **Without notes:** write the six AIS parts, seven information qualities, fraud triangle, COSO 5, trust-service stack, SDLC 5, TELOS 5, four conversions, three sourcing routes, REA rules, ETL and XBRL trio.
2. **Recompute:** payback/NPV, PERT longest path, weighted vendor score, one XBRL scale, one anomaly/normalisation.
3. **Say aloud:** authN/authZ; hash/encrypt; sign/secrecy; incremental/differential; conceptual/physical; DFD/flowchart; PK/FK.
4. **In the exam:** divide time by marks; underline command verb and binding facts; outline before prose; name the rule; apply facts; finish with a conclusion. Six compulsory questions means do not leave a main question untouched.

FINAL CHECK → *Can you retrieve it without looking? Recognition is not closed-book recall. Cover each answer, speak the rule, then reproduce the working and conclusion.*

27 · Blank-Page Reconstruction

TWO-MINUTE RETRIEVAL GRID

WRITE FIRST	EXACT SET
AIS	people · procedures · data · software · IT infrastructure · controls/security
Fraud/control	P-O-R · prevent/detect/correct · COSO 5 · P>D+C

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