IQM4004

LEVEL 4 · SAMPLE ASSESSMENT

INTO QUALIFICATIONS

Statistics and Data Analysis

Multiple-Choice Test

STAFF ONLY · Staff marking and administration guide

Assessment
IQM4004 A1

Sample set
2026-S

Status
SAMPLE ASSESSMENT

Release timing
exam release

Duration
60 minutes

Response length
Not applicable

Total marks
40

Weighting
20% of module

AI condition
Level 1 – Controlled Assessment: no AI permitted at any stage.

Administration and delivery

Check one response per item and permit only an approved non-programmable, non-graphing scientific calculator.

No notes, books, phones, tablets, smart watches or web-enabled devices. Secure, invigilated room; no AI.

The item set intentionally has a broad sample; before live adoption, technical reviewers should check level coverage and option plausibility against the approved specification.

Check Q29 uses the supplied rough normal critical value 1.96 or ensure that value is included in the question/formula materials; the current test guide does not state a formula booklet for A1.

Mark scheme and indicative content

KEY [40 marks]

1 B; 2 B; 3 C; 4 A; 5 A; 6 C; 7 B; 8 C; 9 C; 10 B; 11 B; 12 A; 13 B; 14 A; 15 A; 16 B; 17 A; 18 C; 19 A; 20 B; 21 A; 22 B; 23 B; 24 C; 25 A; 26 B; 27 B; 28 A; 29 A; 30 A; 31 B; 32 B; 33 A; 34 B; 35 A; 36 A; 37 B; 38 A; 39 C; 40 A.

Mark allocation

1 mark for each keyed option; no negative marking.

Acceptable alternatives

No alternative option; correct single keyed choice only.

Standardisation guidance

For this objective paper, award one mark only for the keyed option; do not apply consequential credit.

No alternative option is creditable; mark only the keyed option.

Confirm that the 40 item marks reconcile to the published total before use.

Item level learning outcome and assessment outcome map

LO basis: LO1 Apply concepts of uncertainty, probability and sampling to business and finance problems; LO2 Analyse and present data using frequency tables, pie charts and bar charts; LO3 Perform statistical calculations and interpret results; LO4 Use software tools to conduct and present quantitative research in a small-scale research project. AO basis: AO1 knowledge, AO2 application, AO3 analysis and interpretation, AO4 evaluation and communication. These descriptions match the current AY2026-27 guide.

The 40 one-mark item total is 40 marks and the key above is reconciled to the revised candidate paper.

Current guide alignment: the verified AY2026-27 guide defines A1 coverage as LO1 and LO3 with AO1, AO2 and AO3. Q4 maps to AO3 because it interprets observed change; Q23 maps to AO1 because it asks for a p-value definition; Q34 maps to AO2 because it applies successive percentage computation. Q12 was rewritten from bar-chart axis interpretation, which is explicitly LO2 content, to interpreting a scatterplot pattern for linear regression fit (LO3/AO3). Q28 and Q39 were rewritten as statistical calculations (LO3/AO2). The revised items retain their original keyed options.

Item	Focus	Key	LO	AO	Objective marking rule
1	Mean of four values	B	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
2	Median of ordered values	B	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
3	Percentage increase	C	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
4	Overall change in a time series	A	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
5	Relative variability	A	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
6	Negative correlation	C	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.

Item	Focus	Key	LO	AO	Objective marking rule
7	Confidence interval and significance	B	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
8	Categorical variable	C	LO1	AO1	1 mark for the keyed option only; 0 for any other or blank option.
9	Probability of two heads	C	LO1	AO2	1 mark for the keyed option only; 0 for any other or blank option.
10	Range	B	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
11	Correlation interpretation	B	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
12	Scatterplot pattern and linear model fit	A	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
13	Effect of scaling on mean	B	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
14	Population parameter	A	LO1	AO1	1 mark for the keyed option only; 0 for any other or blank option.
15	Seasonality	A	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.

Item	Focus	Key	LO	AO	Objective marking rule
16	Forecast error	B	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
17	Percentage discount	A	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
18	Effect of extreme value	C	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
19	Random sampling and selection bias	A	LO1	AO3	1 mark for the keyed option only; 0 for any other or blank option.
20	Complement probability	B	LO1	AO2	1 mark for the keyed option only; 0 for any other or blank option.
21	Centre and spread for symmetric data	A	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
22	Regression slope units	B	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
23	Meaning of p-value	B	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.
24	25 invited; 20 replies; 5 no reply	C	LO1	AO2	1 mark for the keyed option only; 0 for any other or blank option.

Item	Focus	Key	LO	AO	Objective marking rule
25	Systematic sampling	A	LO1	AO2	1 mark for the keyed option only; 0 for any other or blank option.
26	Confidence interval includes zero	B	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
27	Interquartile range	B	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.
28	Mean absolute forecast error calculation	A	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
29	Rough 95% interval	A	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
30	Regression residual	A	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.
31	Mean absolute error	B	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.
32	High-leverage point influence	B	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
33	Mode	A	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.

Item	Focus	Key	LO	AO	Objective marking rule
34	Successive percentage changes	B	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
35	Non-response bias	A	LO1	AO3	1 mark for the keyed option only; 0 for any other or blank option.
36	Standard error	A	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.
37	Near-zero correlation	B	LO3	AO3	1 mark for the keyed option only; 0 for any other or blank option.
38	Volunteer and small-sample bias	A	LO1	AO3	1 mark for the keyed option only; 0 for any other or blank option.
39	Fitted regression prediction	C	LO3	AO2	1 mark for the keyed option only; 0 for any other or blank option.
40	ANOVA null hypothesis	A	LO3	AO1	1 mark for the keyed option only; 0 for any other or blank option.