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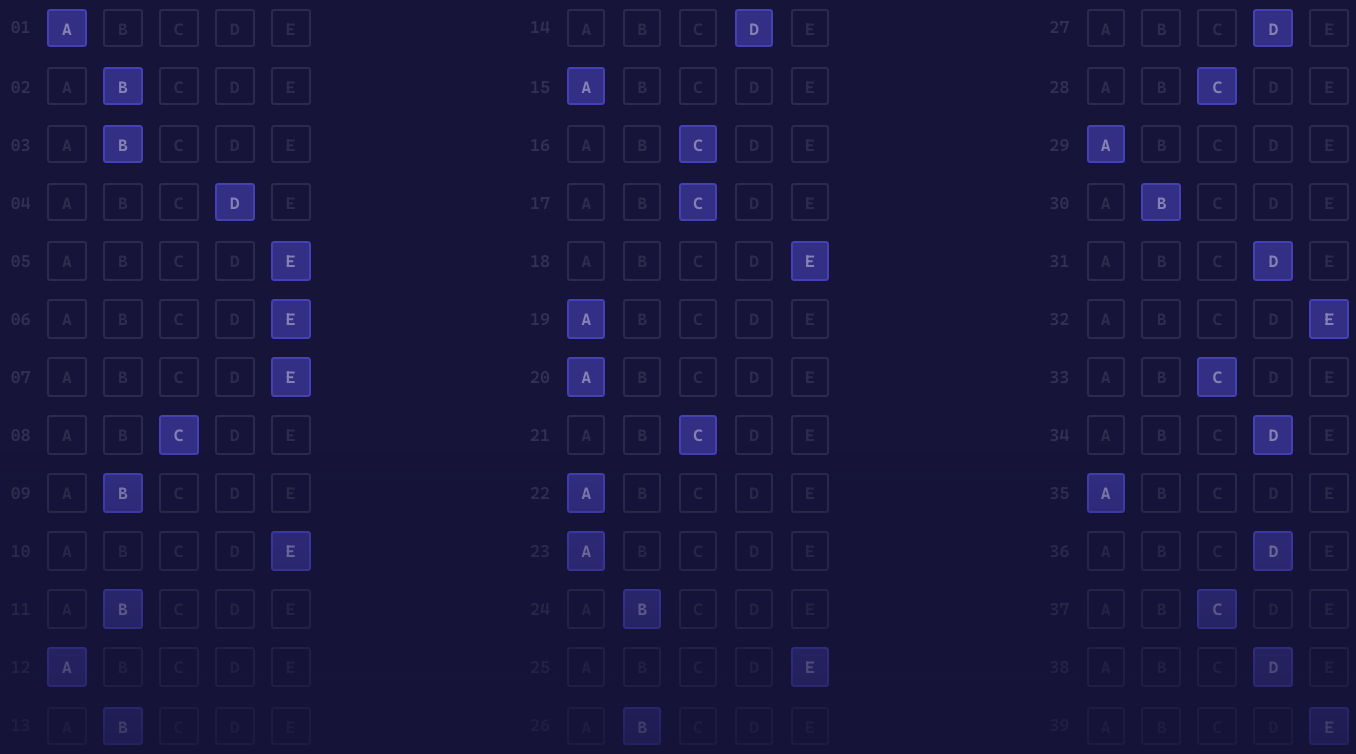

PRACTICE QUESTIONS

Certified Catastrophe Risk Analyst

CCRA

Certified Catastrophe Risk Analyst

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for Certified Catastrophe Risk Analyst `CCRA`, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, `CCRA`
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1 MULTIPLE CHOICE

Which of the following characteristics are most useful for distinguishing a tropical cyclone (hurricane/typhoon) footprint from a European winterstorm footprint when interpreting a vendor cat model? (Choose two.)

A **Tropical cyclones typically have a warm-core, symmetric structure with a clear eye, while European winterstorms are typically cold-core extratropical cyclones associated with frontal systems.**

B Tropical cyclones only occur in the Southern Hemisphere, while European winterstorms occur in the Northern Hemisphere.

C European winterstorms are smaller in spatial extent than tropical cyclones and rarely affect multiple countries simultaneously.

D **Tropical cyclone wind fields decay rapidly over land, whereas European winterstorms can sustain damaging winds far inland across continental Europe.**

ANSWER **A · D**

WHY (A) is correct: tropical cyclones are warm-core systems with a symmetric circulation and a defined eye, whereas European windstorms are extratropical (cold-core) cyclones tied to fronts and jet-stream dynamics. (D) is correct: TC winds typically weaken quickly after landfall due to loss of the warm-ocean energy source, while extratocyclones can retain damaging winds well inland over Europe. (B) is wrong — tropical cyclones occur in both hemispheres, and (C) is wrong — European winterstorms commonly span multiple countries (e.g., Kyrill, Lothar).

QUESTION 2 MULTIPLE CHOICE

A modeler is estimating insured losses from a major metropolitan earthquake. Which two of the following factors are components of post-event loss amplification (PELA) that the analyst should explicitly account for? (Choose two.)

A **Demand surge, where reconstruction costs rise sharply due to a shortage of labour, materials and skilled contractors after a large event.**

B **Long-term climate-change trend adjustments applied to the stochastic event set.**

C Loss amplification from policyholder-induced moral hazard following the event.

D Reinsurance treaty exhaustion leading to ceding commissions being repriced in the aftermath of the event.

ANSWER **A** · **B**

WHY PELA (also referred to as post-loss amplification) commonly includes demand surge — the jump in repair/replacement costs driven by constrained supply of labour and materials after a large event — and climate/non-climate trend adjustments baked into the event set so that exposure is valued under current economic and building-code conditions. Moral hazard is an insurance-fraud concept, not a PELA driver. Reinsurance exhaustion is a financial consequence, not part of the physical/engineering PELA framework used in catastrophe modeling.

QUESTION 3 SINGLE CHOICE

In a typical catastrophe loss model, which module is responsible for translating an event's hazard intensity (e.g., wind speed or ground motion) at a given location into a mean damage ratio for each exposed property?

A Hazard module

B Exposure module

C **Vulnerability (damage) module**

D Financial/insurance module

ANSWER C

WHY The vulnerability (or damage) module contains the damage functions that convert hazard intensity at each location to a mean damage ratio and a full damage distribution for each construction/occupancy class. The hazard module generates the stochastic events and intensities, the exposure module holds the portfolio, and the financial module applies policy terms to the ground-up losses.

QUESTION 4 SINGLE CHOICE

An analyst computes an Average Annual Loss (AAL) for a portfolio by integrating the loss exceedance curve. Which of the following statements correctly describes AAL?

A AAL is the maximum loss expected in any single year of the simulation period.

B AAL equals the loss with a 1-in-200 chance of being exceeded in any given year (the 200-year return period loss).

C AAL is the expected (mean) annual loss across all simulated years, equivalent to the area under the loss exceedance probability curve.

D AAL is a deterministic estimate of the loss from a single design event such as the 250-year return period hurricane.

ANSWER C

WHY AAL is the expected (mean) loss per year, computed as the probability-weighted average of losses across the simulated stochastic event set. Graphically it equals the area under the loss exceedance probability (EP) curve. It is not a single-year worst case, not the 200-year loss, and not the output of a single deterministic design event.

QUESTION 5 SINGLE CHOICE

An insurer quotes a '1-in-100 year' hurricane loss of USD 350 million for its Florida portfolio. In catastrophe modeling terminology, this corresponds to which of the following?

A The loss that is exceeded, on average, once every 100 simulated years — i.e., a 1% annual exceedance probability loss on the Occurrence EP curve.

B The maximum loss occurring in a single year of a 100-year simulation.

C The aggregate loss over a 100-year horizon at a 1% probability of exceedance.

D The expected annual loss divided by 100.

ANSWER A

WHY A '1-in-100 year' loss is the loss with a 1% chance of being exceeded in any given year, equivalent to the 100-year return period point on the Occurrence Exceedance Probability (OEP) curve. (B) confuses it with a deterministic maximum, (C) describes an Aggregate EP (AEP) measure, and (D) is a meaningless calculation.

QUESTION 6 SINGLE CHOICE

Which statement best distinguishes the Occurrence EP (OEP) curve from the Aggregate EP (AEP) curve?

A **OEP considers the largest loss from any single event in a year; AEP considers the total loss from all events in a year.**

B OEP considers all losses in a year summed across perils; AEP considers only the dominant peril.

C OEP is computed per location, while AEP is computed at the portfolio level only.

D OEP and AEP are alternative names for the same statistic and can be used interchangeably.

ANSWER **A**

WHY OEP measures the probability that the largest single-event loss in a year will exceed a given threshold; AEP measures the probability that the aggregate (sum of all events) annual loss will exceed a given threshold. They are computed from the same stochastic set but summarise different quantities, and both are computed at portfolio level.

QUESTION 7 SINGLE CHOICE

Which of the following is a recognised source of secondary (model) uncertainty in catastrophe modeling, as opposed to primary (aleatory) uncertainty?

A The natural randomness of hurricane tracks within a fixed climate.

B **Uncertainty in the choice of vulnerability function used for a given construction class.**

C The natural randomness of earthquake rupture extent for a given fault and magnitude.

D Stochastic variation of peak ground motion within a given footprint.

ANSWER **B**

WHY Primary (aleatory) uncertainty is the inherent randomness of the natural phenomenon — e.g., variation of tracks, rupture extent, or ground motion within an event footprint. Secondary (epistemic/model) uncertainty reflects our lack of knowledge — for example, which damage function is appropriate for a given construction class, parameter choices in the hazard module, or model-form uncertainty. The other options are all expressions of natural randomness.

QUESTION 8 SINGLE CHOICE

A commercial property policy has a deductible of USD 500,000 per occurrence and a limit of USD 5,000,000 per occurrence. A simulated hurricane produces a ground-up loss of USD 3,200,000 at one location. What is the insured (gross) loss for that location under this policy?

A USD 3,200,000

B USD 5,000,000

C USD 2,700,000

D USD 500,000

ANSWER C

WHY Insured loss = max(0, min(ground-up, limit) − deductible) = min(3,200,000, 5,000,000) − 500,000 = 3,200,000 − 500,000 = 2,700,000. The deductible is applied after the limit is enforced; the ground-up is below the limit, so no capping occurs.

QUESTION 9 SINGLE CHOICE

An analyst notices that modeled losses change materially when exposure data is geocoded to the precise street address rather than to the centroid of the postal/ZIP code. Which step in the cat modeling workflow is most directly responsible for this sensitivity?

A The hazard module's stochastic event generation.

B The exposure geocoding and resolution step.

C The financial module's application of policy terms.

D The validation against historical losses.

ANSWER B

WHY The exposure module — and specifically the geocoding step that places each risk at a latitude/longitude versus a postal-code centroid — directly controls which hazard intensity (wind, surge, ground motion) is sampled for that risk. Higher geocoding resolution usually produces a more accurate distribution of hazard intensities and therefore a different loss distribution. The other modules are downstream of, or largely independent of, this step.