Commercial Lines: Marine, Aviation and Energy

Interview preparation summary · IN track

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INT.NZ.1.a · Marine cargo and marine hull

Explain marine cargo and marine hull insurance, including voyage and time policies, the Institute clauses in outline, general average and valuation, and how an insurer limits accumulation in ports.

Marine cargo insurance covers goods in transit, usually warehouse to warehouse. Marine hull insurance covers the physical loss of a vessel and its machinery. A voyage policy covers a named journey; a time policy covers a vessel for a period, commonly twelve months. The Institute Cargo Clauses (A), (B) and (C) are the usual wordings in outline: (A) is all risks subject to exclusions such as inherent vice, delay and insufficient packing, while (B) and (C) name the perils and (C) is the narrowest. Cargo is typically valued at the invoice or CIF value plus about 10%; hull is usually on an agreed value, which also sets the point at which a vessel is a constructive total loss. General average is a deliberate sacrifice or extraordinary expense for the common safety of the voyage, shared across ship, cargo and freight in proportion to their values, so a cargo owner may owe a contribution even when its goods arrive intact. Ports are the accumulation risk: one storm, flood or explosion can hit many insured cargoes and vessels together, so insurers cap values by location.

WORKED EXAMPLE: SHARING A GENERAL AVERAGE LOSS BETWEEN SHIP AND CARGO

A bulk carrier worth USD 30m, carrying cargo worth USD 50m in total, with freight at risk of USD 2m, is saved from sinking after the master jettisons cargo worth USD 3m and pays USD 2m for salvage. A general average is declared. Quaymere Metals, an invented importer, owns USD 4m of the cargo (delivered intact) and is insured under an all risks cargo policy that covers general average contributions. Conventions: contributions are in proportion to values at the end of the voyage, jettisoned cargo is included in the contributing value at its full worth, and the adjustment uses simple proportions.

Answer: The general average loss is 5m, shared at 6.10%. Quaymere's cargo owes about 243,902 dollars, which its cargo insurer pays under the policy.

> **Interview tip:** Say that general average is shared by value, not by who was hurt, then give the rate and the client's contribution, and finish by contrasting it with particular average.

INT.NZ.1.b · P&I clubs and marine liabilities

Explain how protection and indemnity (P&I) clubs insure shipowners' marine liabilities as mutuals, how the International Group pool and its reinsurance work in outline, and why pollution and wreck removal produce the largest claims.

Protection and indemnity (P&I) insurance covers a shipowner's liabilities to third parties that the hull policy does not: injury or illness of crew and passengers, damage to or loss of cargo carried, damage to ports and fixed objects, the share of collision liability left over by the hull policy, fines, pollution and wreck removal. Most of it is written by P&I clubs, which are mutuals: the members are the shipowners, they pay advance calls on their entered tonnage, and if claims exceed calls and reserves the club can levy supplementary calls. The International Group of P&I Clubs is an association of clubs that share large claims through a pooling agreement: each club keeps claims up to its own retention, claims above that share through the pool up to a higher level, and the group buys a collective reinsurance programme above the pool. Figures in this topic are illustrative, so check current practice. Frequent claims are crew injury and cargo damage; the severe ones are oil and bunker pollution and wreck removal, where the cost can exceed the value of the ship. A good answer links mutuality to the pooling idea.

WORKED EXAMPLE: HOW A LARGE P&I CLAIM MOVES THROUGH THE CLUB AND THE POOL

Orrinsford Mutual, an invented P&I club, faces a USD 65m wreck removal and pollution claim on one entered vessel. Illustrative structure: the club keeps the first USD 10m of any claim; claims from 10m to 100m are shared by all the clubs through the pool; Orrinsford bears 14% of the pool's cost. Its members have entered 120m gross tonnes. Convention: any extra cost is met by a supplementary call spread evenly over entered tonnage.

Answer: Orrinsford pays 17.7m of a 65m claim, because the pool shares 55m, which is about 0.148 dollars a tonne if funded by a call.

> **Interview tip:** Describe the layers in order: club retention, pool, then group reinsurance, and say that mutual members stand behind each other, which is why the pool exists.

INT.NZ.1.c · Aviation insurance

Explain aviation insurance for airlines, airports and general aviation, including hull, liability, aviation war, space in outline, limits and fleet rating.

Aviation insurance has several parts. Hull covers physical damage to the aircraft, on the ground and in flight, usually on an agreed value. Liability covers legal liability to passengers, cargo owners and third parties on the ground, usually for a single combined limit that for an airline is very large, because one accident can cause enormous claims; international conventions set the liability regimes for carriers, and details vary by country. Airport operators, ground handlers and manufacturers buy their own liability covers. War and terrorism risks are excluded from the standard cover and bought separately, typically as aviation war cover that can be cancelled at short notice, commonly seven days. Space insurance for launch and satellites in orbit is a small, specialised outline line, where one launch failure can be a total loss. Airlines are usually rated on a fleet basis: hull as a rate on insured values, liability by passengers or seats, adjusted for the fleet's experience, safety record and deductibles. The key feature is low frequency and very high severity, which is why capacity is shared widely.

WORKED EXAMPLE: RATING A SMALL AIRLINE FLEET AND SEEING HOW SEVERITY DOMINATES

Seasprite Air, an invented regional airline, has 4 aircraft insured at USD 60m each and 8 at USD 30m each, with 9m passengers a year. Illustrative rates: hull 0.18% of insured values; liability 0.30 dollars per passenger; war hull 0.03% of insured values. Work out the premiums, then compare one total loss of a USD 60m aircraft with the annual hull premium. Conventions: ignore taxes, brokerage and any experience adjustments.

Answer: Premiums are hull 864,000, liability 2,700,000 and war 144,000, in all 3,708,000 dollars. One 60m total loss is about 69 years of hull premium.

> **Interview tip:** Say that aviation is low frequency and high severity, give the three premium parts, and use the years-of-premium figure to show why capacity is shared.

INT.NZ.2.a · Energy insurance

Explain energy insurance, onshore and offshore, upstream and downstream, in construction and operational phases, and how large single risks are limited, shared and priced.

Energy insurance covers the oil, gas, power and petrochemical industries. Upstream means finding and producing hydrocarbons: drilling rigs, platforms, subsea equipment and the cost of regaining control of a well and cleaning up, sometimes called operators extra expense. Downstream means refining, petrochemicals, processing and storage, usually onshore property with business interruption. Offshore risks add weather, marine and hurricane exposure. In construction a project is covered by construction all risks and delay in start-up cover, which protects the income lost when a new plant opens late; once operating, cover moves to property damage, business interruption and energy liability, including pollution. A single plant can be worth billions, so the loss from one fire or explosion can be larger than any insurer wants to carry. The answer is a programme of layers, each insurer writing a line, meaning a share, of the layers, with large buyers keeping a retention, sometimes through a captive. Pricing uses exposure rating, loss history and the rate on line of each layer. Check current practice.

WORKED EXAMPLE: A LAYERED REFINERY PROGRAMME AND ONE INSURER'S SHARE

Quillhaven Refining, an invented refiner, buys a layered property programme with a retention of USD 20m. Layer A is USD 100m excess of 20m at a rate on line of 3.0%; layer B is USD 200m excess of 120m at 1.2%; layer C is USD 300m excess of 320m at 0.6%. An explosion causes a USD 250m loss. Cairnwell Re, an invented insurer, writes a 10% line on each layer. Convention: rate on line is premium as a percentage of the layer's limit; ignore reinstatements and expenses.

Answer: The layers pay 230m of the 250m loss. Cairnwell's line earns 0.72m and pays 23.0m, about 32 years of premium.

Interview tip: Say it in order: retention, layers, line size, then why a single energy loss is too large for any one insurer to carry alone.

INT.NZ.2.b · London market and Lloyd's: the subscription market

Explain how the London market and Lloyd's place marine, aviation and energy risks as subscription business, including leader and follower, lines and slips, and the roles of syndicates and managing agents.

Large marine, aviation and energy risks are too big for one insurer, so the London market writes them on a subscription basis: one risk, several insurers each taking a share. A broker presents the risk on a slip, a document setting out the cover, terms and the lines, which are the percentage shares each insurer writes. The leader sets the price and terms and usually agrees claims; followers accept them for their own share. When the slip is oversubscribed the written lines are scaled down to the signed lines so they add up to 100%. Each subscriber is liable only for its own share, not for anyone else's. Lloyd's is a market, not one insurer: syndicates write the business, each run by a managing agent that underwrites for capital providers, with Lloyd's overseeing standards and a chain of security behind claims. Company-market insurers also subscribe in London. This is UK-specific structure, though subscription is used elsewhere. A good answer notes the risk of followers copying a leader without forming their own view.

WORKED EXAMPLE: SIGNING DOWN AN OVERSUBSCRIBED SLIP

Tarnfell Shipping Fleet, an invented risk, is placed on a slip with a total premium of USD 4.2m for 100%. The written lines are: leader 25%, followers 30%, 25%, 20%, 20% and 10%, so the slip is 130% subscribed. The underwriters sign down proportionally. A USD 36m loss then occurs. Work out the leader's signed line, premium and loss share, and the shares of the largest follower.

Answer: The leader signs 19.23%, earns 0.808m and pays 6.92m of a 36m loss; the largest follower signs 23.08%.

Interview tip: Explain written versus signed line, say that liability is several, and add that a follower must still form its own view of the price.

INT.NZ.2.c · London market and Lloyd's: war, sanctions and aggregation

Explain how war and terrorism risks, sanctions exposure and the aggregation of large losses are handled for marine, aviation and energy business written in the London market.

War and terrorism risks are usually excluded from standard marine, aviation and energy policies and bought separately. Marine war and aviation war covers typically allow the insurer to cancel at short notice, commonly seven days, so the price and the cover can move as a conflict develops; vessels entering areas of heightened risk usually need prior notice and an additional premium. Political violence and terrorism cover is written for energy and port assets in the same way. Sanctions are a legal limit: policies carry a sanctions clause under which an insurer need not provide cover or pay a claim where doing so would breach applicable sanctions law, and a London underwriter has to consider UK law and often the laws of other countries too. Aggregation is the danger that one event hits several lines at once. A conflict in one region can touch cargo, hulls, energy sites and aviation. Lloyd's asks managing agents to model realistic disaster scenarios and to report them, which is UK-specific practice; most insurers run similar stress tests. Check current practice.

WORKED EXAMPLE: ADDING A PORT WAR SCENARIO ACROSS FOUR LINES

Lindowe Syndicate, an invented Lloyd's syndicate, has its share of exposures in one port region: marine cargo in storage 18m, hulls alongside 12m, an energy terminal 25m and political violence cover 10m. In a port attack scenario the damage ratios are 50% for cargo, 30% for hulls, 60% for the terminal and 100% for political violence. It buys a USD 15m excess of 20m reinsurance on this class. Its appetite for any single scenario is 25m net. Convention: ignore reinstatement premiums and recoveries from other sources.

Answer: The gross scenario loss is 37.6m, the reinsurance recovers 15.0m, and the net 22.6m is inside the 25m appetite.

> **Interview tip:** Say that the danger is one event across lines, that you add exposures by location and scenario, and that war cover can be repriced at short notice.

Summary of the Charta interview-preparation topic. Companies and figures in the examples are invented. Draft content, not yet expert reviewed.