OFFSHORE SUPPORT INDUSTRY

November 2024

EXAMINERS REPORT

Question 1.

(a) Students were expected to provide a sketch with sufficient detail to demonstrate understanding of the basic structure.
ie. sketches showing pontoons, columns, deck, derrick and topside modules.
Most rigs comprise 2no. pontoons and 4no. columns, however large modern units are constructed with 6 or 8 columns.
Usually 1 derrick, but 2 on large modern units .
Detail should include mooring arrangements and that some rigs can be self-propelled with thrusters.

(b) Students were expected to describe floating structure, that can be ballasted to obtain optimum draft between transport and operational modes.
Describe self-propelled and towing between locations.
Towed to location or transported by Heavy Lift vessels.
Anchoring arrangements.
Anchors deployed/recovered by AHTS.
Deepwater operations/DP
Operational features/depths compared to Jack-up rigs/Drillships.

Question 2.

Students should demonstrate an understanding of the options for production installations and export facilities, and what the key factors are in determining which options to choose.
Awareness that the key drivers of commercial viability will be the size of the field and the cost of the production/export options and recognize the importance of:
Anticipated field life (Size of the field/production rate).
Location relative to existing infrastructure (production and export).
Water depth.
Environmental conditions.
Demonstrate basic understanding off:

Tie-back to existing facility.
Fixed Platform - Steel Jacket or Concrete Gravity Base Structure (GBS).
Compliant tower.
Tension Leg Platform.
Floating Production Systems. (FPSO/FSU/FPU)
Export facilities.
Pipeline infrastructure.
Shuttle tankers.

Question 3.

Students should show awareness that most OSV chartering involves some form of competitive tendering including:

- Fully written ITT
- Telecon + email

Time allowed may vary from a few hours (or less) to several months.

No standard format

Awareness of different vessel specifications and need to assess capacities/capabilities objectively.

Comments/clarification welcomed in tender returns.

On 'spot market' broker will generally run whole process with final vessel selection by charterer.

Formal ITT:

Majority of long term charters (plus many shorter ones)

Owner will often do most of the work – broker advising and submitting tender.

Broker may however run whole process – no fixed rules.

Format can vary from:

One or two pages including vessel spec, contractual comments, commercial proposal.

Large document requiring:

- Safety statistics;
- Operating manuals;
- Performance bonds;
- Historical operating data;
- References;
- Crew CVs;
- Financial records;
- Parent company guarantees;
- Risk Assessments & Method Statements

National Oil Cos and many Major Intl Oil Cos highly prescriptive re format.

Prequalification (pre-tender) documents used to assess capability and technical specification to short list suitable tenderers.

Question 4.

Students are expected to provide a brief description of each term.

<u>Stinger</u>

A long extension section (up to 100m) protruding from the stern of a rigid pipelaying vessel.

The stinger angle controls curvature and bending stress in the pipeline where it exits the stern of the pipelayer.

'S' Lay – Shallower waters - small stinger angle.

'J' Lay – Deeper waters –large stinger angle.

<u>Waiver of Subrogation</u>

An agreement that prohibits an insurance company from seeking reimbursement from a third party for damages paid out.

Without such a waiver an insurer is generally entitled to recover costs from a third party responsible for the damages.

Used to protect against lengthy litigation with the potential to cause conflict and breakdown of business relationships.

Insurers will typically charge an additional fee for such a waiver.

J-Hook
A chaser used for recovering anchor chain/cable.
Carried by AHT/AHTS vessels.
Similar to a Grapnel Hook.
Example of use would be recovering anchor whose surface buoy had been lost by dragging across and hooking the anchor chain.

Shark Jaws
Chain/wire securing mechanism.
Otherwise referred to as Chain Stoppers/ Karm Forks.
Located on aft deck of AHT/AHTS vessels.
Retract into the deck, used in conjunction with towing pins.
Inserts of varying sizes to suit chain/wire dimensions.

Dodging

Steaming slowly back and forth within a certain area/location waiting for the next operation to commence.
Often referred to as Waiting on Weather (WoW)
Term often applied when holding general position in rough weather.
Usually orienting vessel head to wind/waves.

Joy-Stick
Single stick manoeuvring equipment.
Interfacing a computer with propulsion unis – rudders, main engines and thrusters
Vessel heading maintained automatically by a position reference system and movement determined by position of joystick.
Usually integrated with DP station.

Question 5.
The examiner is looking for a general understanding of the pressure to 'transition' away from O&G production.
Awareness of the 'transition' period – view on how long it will be.
Understanding of established power generation arrangements on offshore O&G installations.
Gas turbines – fuel requirements – transport and storage.
Potential of electrification of installations – potential integration with floating offshore wind
Examples of initiatives - UK North Sea Transition deal – Nett Zero prerequisite for future developments.
Transfer of skills and established practice/procedures between O&G and OREI.
Massive investment in OREI if targets to be met – potential for O&G players to invest.
Also looking for some unique ideas etc..

Question 6.
Marks were split equally per example discussed.
Defining/explaining cabotage

Identifying areas (USA/Brazil/Canada/Indonesia/Malaysia/Australia/Nigeria)
Direct: Jones Act
Indirect: Local content/Tax & Licensing regimes
Aims of a cabotage regime: Protecting national industry/Building up domestic industry
Operation of the specific cabotage regime could include:
USA – Canada – Brazi - Nigeria -
Flagging of vessels
Control by state oil companies
Exemptions: Relaxed in special circumstances (ie. Macondo well blow-out in US Gulf)
Effects/consequences:
Protecting local employment
Increasing local shipbuilding industry
Restricting technological development
Limiting innovation
Increasing costs
Difficulty in sourcing properly skilled crews

Question 7.
Students should show understand the factors forming the original design of OSVs.
Describing the support needs of an offshore installation – potable water, food, fuel, drilling water, drilling fluids, cement, casing, drill string etc. – an isolated unit requiring all supplies to be shipped to it in an efficient and safe manner.
Understand the hazardous nature of the role of the deck crew on an exposed afterdeck and the risk of serious injury - hence protective crash-rails fitted inboard of bulwarks with access holes to get clear of the deck.
Explaining drivers for improved design - how the move further offshore into deeper waters resulted in the need for better protection.
Outline of OSVs currently operating, their function and emphasise on the evolutionary link between the needs of the industry and vessel design a bit more specifically, focussing on the change/event and then how that influenced design.
Consolidation within the industry and the emergence of large marine logistics companies serving numerous clients leading to greater emphasis on economies of scale, and larger capacity vessels.
Examples of specific issues/incidents such as the Piper Alpha disaster and how subsequent Safety Case regulations for offshore installations were hugely influential on the development of ERRV design for North Sea operations, as they exposed significant limitations on the fleet existing at that time.

Question 8.
Students were expected to describe the common type of fixed installation: steel jacket/monopile/gravity base construction.
Understand that fixed foundations are similar in concept to those used in O&G installations but generally very much smaller (around an order of magnitude: 2000t v 20,000t)
Awareness of types of construction/HL vessels used for fixed offshore installations and predominantly jack-ups, but also monohulls, semi-subs and shear leg barges.

Also a description of floater concepts: Spar, Semi-Sub.
Understand concept that floating foundations facilitate:

- Connecting/disconnecting from moorings offshore.
- Full construction onshore or alongside at sheltered readily accessible locations.
- Use of shore cranes – fixed or mobile, with significant cost implications.

Disconnecting units and towing inshore for major servicing operations.
Awareness of significant draft variations between Spar and Semi-Sub floaters.
Recognise that mooring concepts will be similar to O&G experience and AHTs readily adaptable and towing operations of floaters could potentially involve smaller harbour/coastal tugs.

Awareness that in regard to lifting requirements weights are less than O&G generally but considerable height requirements
(rotor diameters now around 250m) so generally specifically designed for offshore windfarm workscopes.
Awareness of Walk to work gangway systems used extensively – likely to be dominant maintenance crew transfer option for units located further offshore.
Awareness of vessel designations:

CTV – Crew Transfer Vessel: Used for units located relatively close to shore.
SOV – Service Operation Vessel: Used for units further offshore or large windfarms.