Instructions

1. The examination in general engineering knowledge of small vessels consists of sixty (60) multiple-choice questions.
2. The questions are constructed using the subject areas of knowledge that are in the syllabus, as found in TP 2293 Chapter 33.3.
3. Each question is provided with four possible answers. The candidate is to read each possible answer carefully and select the most appropriate answer.

(1) Of the four materials listed below, the preferred material for tubes of a large, tubular heat exchanger for engine cooling water is:
   a) pure aluminium;
   b) pure copper;
   c) aluminium brass;
   d) aluminium zinc.

(2) The termination point of fuel tank vents are often fitted with a fine gauge wire mesh, the principle purpose of which is to:
   a) prevent the entry of dirt into the tank;
   b) prevent the entry of flames into the tank;
   c) prevent the overflow of fuel from the tank;
   d) reduce the contamination of fuel from the sea atmosphere.
(3) The emergency engine stops and emergency fuel shut offs are located:
   a) near the purifiers;
   b) in a space outside the engine room;
   c) in a control cabinet on the bridge;
   d) in a control console in galley

(4) To ensure safety, before beginning the servicing or repair of machinery, the most important point to ensure of the four listed below is:
   a) the auto system is locked out to prevent accidental start-up;
   b) all available repair manuals are the most current;
   c) (3) the machinery has completed the required running hours;
   d) there are sufficient spares onboard the vessel.

(5) Prior to commencing a bunkering operation the most important point to ensure is that:
   a) all crew members are onboard;
   b) that the visibility is in excess of 5 nautical miles;
   c) clear communication is established and able to be maintained between the shore and the vessel;
   d) there are no vessels in the immediate vicinity.

(6) Which of the following statements is true:
   a) Reciprocating pumps are suitable for very high suction heads at a low flow rate.
   b) Reciprocating pumps are very tolerant to contamination and are suitable for pumping fluids containing solid particles.
   c) Reciprocating pumps produce a very smooth linear flow without pulsations.
   d) Reciprocating pumps are not self-priming and require an external method of priming.
(7) When a hot liquid or gas is allowed to flow through a section of steel piping, the length of piping will tend to:
   a) increase in length;
   b) decrease in length;
   c) remain the same, with no tendency to change length or size;
   d) none of the above.

(8) A water-cooled stern tube is found to have a slight leak around the packing gland, allowing a trace of water to enter the bilges. The most correct action for the operator to take would be:
   a) place a small container under the gland, and dispose of the water over the ship’s side when the container is full;
   b) tighten the gland so that all the water stops leaking;
   c) monitor the temperature of the gland, and the flow of water. Adjust the gland as necessary to minimize water flow, while not overheating the gland;
   d) call the shore support Engineer and arrange for a dry-docking of the vessel.

(9) During a round in the steering compartment, the operator notices that the hydraulic lines fitted to the steering gear system are slightly warm to the touch. The corrective action would be:
   a) cool the lines by pouring water over them;
   b) relieve the pressure in the lines;
   c) rid the lines of the entrapped air;
   d) continue to monitor the situation, as some warming is normal.

(10) A fixed pitch propeller is one which:
   a) is constructed from stainless steel only;
   b) is never fitted to a vessel;
   c) has a set pitch which cannot be changed;
   d) has a pitch which must be fixed in place by the operator before leaving the dock.
(11) The level of oil in a hydraulic reservoir for a deck winch is found to be very low. The best course of action for the operator would be to:
  a) isolate the winch and perform a check in the immediate area of the winch and any hoses connected to it to determine if there is an obvious leak;
  b) refill the reservoir immediately;
  c) verify and possibly eliminate the presence of water in the tank;
  d) relieve pressure build up in the tank due to fuel expansion.

(12) Water that contaminates a quantity of fuel will:
  a) if allowed to separate, and settle, will gravitate to the bottom of the fuel;
  b) if allowed to separate, and settle, will float to the top of the fuel;
  c) increase the calorific value of the fuel;
  d) cause the bilge alarm to activate.

(13) Lubricating oil is noticed to have a milky white texture on the dipstick of a diesel engine. This is an indication that:
  a) overheating of the oil has occurred;
  b) the oil has become contaminated with water;
  c) the engine oil is normal;
  d) the fuel has become contaminated.

(14) The water temperature of the cooling system fitted to main engine is noticed to be increasing to a higher than normal temperature. From the list of answers, which is the most probable source of this problem.
  a) the oil level in the engine sump is low;
  b) the main thermostat is malfunctioning;
  c) the fuel viscosity is high;
  d) the ambient air temperature in the engine room is low.
(15) If the ship service generator becomes overloaded, the first thing that is likely to occur is:
   a) all emergency lights will illuminate.
   b) the main breaker will reset.
   c) the bridge lights will flash intermittently.
   d) the non-essential breaker, (if fitted) will open.

(16) The master of a vessel reports that the steering system is acting erratically, and the controls feel “spongy.” This condition is an indication that:
   a) the system is operating correctly;
   b) the Master is unfamiliar with the controls;
   c) there is air entrained in the system;
   d) there is a correct level of fluid in the system.

(17) Starting Air Compressors are arranged to start up with the:
   a) compressor drains open slightly;
   b) air relief valve on air receiver opened;
   c) air receiver drains opened;
   d) compressor unloaded.

(18) The master of the vessel reports to the operator that the exhaust coming from the main engine appears to be black. The most probable cause of this occurrence would be:
   a) the cylinder head gasket has failed and water is entering the engine cylinder;
   b) the engine has shut down;
   c) the engine is overloaded;
   d) the engine is operating normally.
(19) Under normal conditions, it is advisable to verify the oil level in the main engine crankcase:
   a) prior to start-up of the engine;
   b) at the end of a voyage;
   c) at regular intervals throughout the voyage;
   d) all of the above.

(20) Dirty waste, cleaning rags, and other rubbish contaminated with oil, if lying around, is likely to:
   a) choke fuel tank filters;
   b) be thrown overboard;
   c) ignite spontaneously;
   d) create an electrical hazard.

(21) Fire doors onboard a ship:
   a) keep extinguishers safe;
   b) make fire detection possible;
   c) prevent theft of fire hoses;
   d) prevent fires from spreading.

(22) The purpose of using distilled water for boilers is to:
   a) reduce the heat transfer properties in the furnace;
   b) extend the working life of exhaust chimney;
   c) reduce corrosion in the water tubes;
   d) allow lower operating pressure in the boiler.
(23) The engine fuel settling tanks have their vents located:
   a) in the engine room;
   b) inside the bunker tanks;
   c) inside double-bottom tanks;
   d) on the upper deck.

(24) If the bilge pump is unable to pump out the engine room bilges, the LEAST likely cause will be:
   a) dirt under suction valve;
   b) damaged pump elements;
   c) suction valve strainer clogged;
   d) air leaking into system.

(25) An ammeter is a device for measuring:
   a) voltage;
   b) frequency;
   c) current;
   d) resistance;

(26) The letters A, B, C, and D displayed in symbols on portable fire extinguishers, indicate the:
   a) class of fires on which they are effective;
   b) type of liquid propellant used;
   c) deck levels where they are located;
   d) relative cost of the extinguishers.
(27) A copper-based alloy such as bronze, which has anti-corrosive property used for valve bodies, can most likely be found onboard ships in:
   a) sea water circulating systems;
   b) boiler feed circulating systems;
   c) air starting systems;
   d) lubricating systems.

(28) The PRIMARY concern before entering an enclosed or confined space is to ensure:
   a) there is enough room to work;
   b) that tools are not left behind;
   c) the atmosphere is life supporting;
   d) that “SAFETY FIRST” notice is posted.

(29) Upon startup of a diesel engine, the most important point to verify is:
   a) engine cooling water pressure;
   b) engine lubricating oil pressure;
   c) engine fuel oil pressure;
   d) engine vibrations.

(30) In a routine inspection of the steering gear, which one of the following conditions requires your immediate attention:
   a) low illumination due to defective lights;
   b) jerky movement of rudder;
   c) slight drop in level of hydraulic oil reservoir;
   d) slight oil leakage from the rudder actuator.
(31) When you begin duties in the engine room of your vessel for the first time, two of the FIRST things you should do are:
1. learn the machinery systems;
2. locate the position of overboard discharges;
3. locate the engine room escape routes;
4. use the communication system:
   a) 3 & 4;
   b) 2 & 4;
   c) 1 & 4;
   d) 2 & 3.

(32) If you need to dispose of a large amount of degraded lubrication oil, you should:
  a) order an incinerator;
  b) arrange shore reception;
  c) store in settling tank;
  d) pump to a ballast tank.