

中央警察大學 107 學年度碩士班入學考試試題

所 別：水上警察研究所

組 別：海洋科技組

科 目：自然科學概論

作答注意事項：

1. 本試題共 10 題，每題各占 10 分；共 2 頁。
2. 不用抄題，可不按題目次序作答，但應書寫題號。
3. 禁用鉛筆作答，違者不予計分。

一、What is the content of 「Integrated Bridge System」 onboard commercial vessels ?

二、What is the content of 「Exhaust Gas Economizer」 onboard commercial vessels ?

三、What is the content of IMO-MARPOL conventions governed by Port State Control ?

四、What is the content of Main Engine System of commercial vessels ?

五、試述「可控螺距推進器 (Controllable pitch propeller, C.P.P.)」相較於「固定螺距推進器 (Fixed pitch propeller, F.P.P)」之優、缺點。

六、「殼管式熱交換器 (Shell and tube heat exchanger)」大多裝設有「擋板 (Baffle)」，其作用為何？

七、柴油機噴油嘴針閥落座後，高壓油管中壓力波動強烈，波幅大於針閥開啟壓力時，針閥又再次升起，稱為「二次噴油」，為何高速柴油機極少發生「二次噴油」？

- 八、What assumptions are made in developing an equilibrium model of the tides?
- 九、If you watch waves coming in to a beach, the wave crests are almost always parallel to the shoreline, regardless of what direction they were coming from when they entered shallow water. Explain.
- 十、What dangers do marine fish face because they live in a medium (seawater) that is more concentrated than their bodily fluids? How do they counteract that danger?