

102年第二次專門職業及技術人員高等暨普通考試航海人員考試【舊案補考】

代 號：3302

類科名稱：一等管輪

科目名稱：輪機工程（包括推進裝置、輔機與輪機英文）

考試時間：1小時

座號：_____

※注意：本試題可以使用電子計算器

1. 下列何者為白合金艀軸承最主要的優點？
 - A. 耐磨性好
 - B. 抗壓强度高、散熱快
 - C. 製造修理方便
 - D. 使用海水潤滑冷卻
2. 螺槳產生的推力經由下列何者傳至船體？
 - A. 艀軸承
 - B. 主軸承
 - C. 中間軸承
 - D. 推力軸承
3. 以酒精為燃料探測燈作氣密探漏時，若有冷媒洩漏，其火焰轉變為何種顏色？
 - A. 粉紅色
 - B. 藍色
 - C. 紅色
 - D. 綠色
4. 下列何者不是冷凍系統中壓縮機排出壓力過低之原因？
 - A. 冷媒系統中有空氣
 - B. 冷卻水溫度過低
 - C. 安全閥洩漏
 - D. 冷媒不足
5. 下列何者維持低壓（真空）式淡水製造機之真空度？
 - A. 空氣抽射器（Air ejector）
 - B. 空氣壓縮機
 - C. 汽水分離器
 - D. 除氧器
6. 淨油後之乾淨燃油經由淨油機內之何種設備排出？
 - A. 比重盤（Gravity disk）
 - B. 刮油盤（Oil paring disk）
 - C. 刮水盤（Water paring disk）
 - D. 有翼轉盤（Winged bowl disk）
7. 淨油機中，若發生燃油跑油現象（出水口有油），因油水界面位置移動，需如何重新選取比重盤？
 - A. 油水界面太內側，比重盤選小號
 - B. 油水界面太外側，比重盤選小號
 - C. 油水界面太內側，比重盤選大號
 - D. 油水界面太外側，比重盤選大號
8. 往復泵設排出空氣室之目的為何？
 - A. 降低輸出流量的脈動率
 - B. 減小吸入壓力脈動
 - C. 降低排出壓力脈動率
 - D. 儲存液體幫助自吸
9. 柱塞式液壓泵初次使用時，不向泵殼內灌油最大的危害是：
 - A. 容積效率低
 - B. 自吸能力差
 - C. 摩擦面會嚴重磨損
 - D. 產生噪音和震動
10. 適用較低壓力的油壓馬達是：
 - A. 連桿活塞式
 - B. 五星輪式（柱塞式）
 - C. 葉片式
 - D. 軸向柱塞式
11. 船用鍋爐採用何種安全閥？

- A.槓桿式
 - B.重力式
 - C.彈簧式
 - D.節流式
- 12.下列有關警報系統的敘述，何者錯誤？
- A.不需連續供應電源
 - B.在電源供應中斷時，應自動轉換，由備用電源供應
 - C.警報系統正常電源供應失效時，應以警報指示之
 - D.駕駛台應設有能引起當值船員的警示
- 13.冷藏間警報系統的電鈴常裝於何處？
- A.冷凍間
 - B.冷凍間外通道
 - C.廚房
 - D.輪機操作人員住艙
- 14.The term compression-ignition refers to the fact that the fuel is ignited only by the high temperature of the compressed charge, and is one characteristic of the diesel engine cycle. Based on this description, which statement is correct?
- A.When the fuel is ignited by the high temperature of expansion stroke, the engine is referred to as the compression ignition engine.
 - B.When the ignition of fuel is provided by the spark, the engine is referred to as the compression ignition engine.
 - C.When the fuel is ignited by the temperature of compressed stroke of a reciprocal engine, it is called the compression ignition engine.
 - D.When the compression charge could provide the high temperature for ignition, the fuel can not be automatically ignited in a compression ignition engine.
- 15.Which type of pollutant discharged to the atmosphere is tended to deplete ozone?
- A.Chlorofluorocarbons
 - B.Volatile organic compounds
 - C.Sulfur oxides
 - D.Dusts
- 16.Which device is used to control the speed of the prime mover of a-c generator in order to ensure the frequency of a electrical system is not influenced by various load?
- A.Governor
 - B.Solid-state power converter
 - C.Uninterruptible power supply
 - D.Variable injection timing system
- 17.The heating value of a fuel is related chiefly to its specific gravity and its sulfur content. As the specific gravity of oil increases, the carbon-to-hydrogen ratio increases, which results in the relatively less hydrogen and a consequent decrease in the heat released during combustion. Therefore,
- A.the increase of specific gravity of fuel increases the heat released during combustion
 - B.the increase of specific gravity of fuel reduces the heat released during combustion
 - C.the increase of carbon-to-hydrogen ratio of fuel increases the heat released during combustion
 - D.the increase of carbon-to-hydrogen ratio of fuel increase the hydrogen content in oil fuel
- 18.螺槳在加工完成或修理過後，應實施下列何種試驗？
- A.非破壞性試驗
 - B.運轉試驗
 - C.平衡試驗
 - D.材質試驗
- 19.裝有減速齒輪箱之推力軸系，主機在起動前多少分鐘，需對減速齒輪預作潤滑？
- A.15
 - B.20
 - C.25
 - D.30
- 20.船用真空蒸餾式淡水機，真空不足、蒸發溫度過高，將造成淡水機產生下列何種情形？
- A.蒸發器內易結水垢
 - B.蒸發器內沸騰加速
 - C.淡水含鹽量增加

- D.淡水產量增加
- 21.下列何者是泵的有效功率？
- A.電機的額定輸出功率
 - B.泵排出的流體實際所得到的功率
 - C.泵軸所接受的功率
 - D.電機傳給泵的功率
- 22.下列有關水位計的敘述，何者錯誤？
- A.平板玻璃水位計是由一片玻璃板所構成的
 - B.圓形玻璃水位計是由玻璃管所構成的
 - C.遙視水位計之水位顯示於儀錶板，且置於控制室內
 - D.平板玻璃水位計適用於低壓及高壓鍋爐
- 23.鍋爐停爐後，下列何項措施最爲重要？
- A.關燃油閥停止供油
 - B.關給水閥停止供水
 - C.關蒸汽閥停止供汽
 - D.開鼓風機淨氣清爐
- 24.What devices are used to support the shafting in essentially a straight line between the main propulsion engine and the desired location of the propeller?
- A.Flange couplings
 - B.Reduction gears
 - C.Clutches
 - D.Bearings
- 25.Which devices have a mechanism in the propeller hub that can be operated remotely to change the propeller pitch from a maximum design ahead pitch to a maximum design astern pitch?
- A.Fixed angle propellers
 - B.Fixed pitch propellers
 - C.Detachable-blade propellers
 - D.Controllable-pitch propellers
- 26.Which operation is taken periodically as a means of checking main bearing alignment for a diesel engine?
- A.Crankshaft deflection measurement
 - B.Thrust bearing clearance measurement
 - C.Main bearing clearance measurement
 - D.Eccentricity measurement of main bearing
- 27.當螺距有變動之螺槳通常以何處作爲量取其螺距之基準點（R：螺槳半徑）？
- A.1.0 R
 - B.0.3 R
 - C.0.5 R
 - D.0.7 R
- 28.船舶淡水製造裝置在真空良好情況下，產水量逐漸下降，最大的可能原因爲何？
- A.排鹽量過大
 - B.給水量過少
 - C.冷卻水量過大
 - D.裝置內結垢量增加
- 29.下列何者具有類似泵的作用，亦可稱之爲熱量泵（Heat pump）？
- A.空氣壓縮機
 - B.舵機
 - C.冷凍機
 - D.惰氣系統當中的送風機
- 30.若有必要進行二種不同燃油的拌合（Blending），下列何者是最需要關切的問題？
- A.不相容性（Incompatibility）
 - B.黏稠性（Viscosity）
 - C.溶解性（Solubility）
 - D.水分比例（Water content ratio）
- 31.船舶燃油艙之通氣管，開口應朝向何方？
- A.向左舷
 - B.向下
 - C.向右舷

- D.向上
- 32.通常大口徑壓力管路，都採下列何種方式連接？
- A.法蘭（Flange）接頭
 - B.焊接或熔接（Welding）
 - C.螺紋（Thread）接頭
 - D.膨脹（Expansion）接頭
- 33.欲上緊船舶主機重要部位之螺栓，均須使用何種工具？
- A.油壓扳手
 - B.扭力扳手
 - C.剪力扳手
 - D.螺旋扳手
- 34.船舶在航行中，操舵裝置一旦失靈，應立即報告船長“舵機失靈”，並起動備用舵機，如仍失靈，則應立即通知機艙做何種處置？
- A.起動緊急舵機
 - B.減俾或停俾
 - C.檢查故障之所在，設法立即修復
 - D.用電話聯絡，以下達舵令及控制方向
- 35.機艙警報系統中，監視盤面除了聲響外尚規劃有故障警示燈，伴隨閃爍的燈號以吸引當值人員的注意。當值人員應如何處理所發生之故障警示，才是合理的作法？
- A.終止聲響，終止閃爍按鈕，再去處理該故障
 - B.終止聲響，確實了解警示狀況並處理故障後，再按下終止閃爍按鈕
 - C.處理故障，然後終止聲響，並按下終止閃爍
 - D.同時終止聲響與終止閃爍，再處理該故障
- 36.What does the International Safety Management (ISM) Code stand for?
- A.The international management code for safety operation of ships and accident prevention
 - B.The international management code for safety operation of crews and accident prevention
 - C.The international management code for safety operation of ships and pollution prevention
 - D.The international management code for safety operation of crews and pollution prevention
- 37.Which type of pump is used to transfer sea water?
- A.Rotaty pump
 - B.Centrifugal pump
 - C.Impeller pump
 - D.Screw pump
- 38.What is the volume above the piston in a cylinder when the piston is positioned at the TDC?
- A.Top volume
 - B.Clearance volume
 - C.Cylinder volume
 - D.Expansion volume
- 39.粉狀或細片狀的鈉、鉀、鎂及鈣等金屬，應該使用下列何種警告標語？

A.



B.



C.



D.



40. For diesel engines, fuel is injected into the cylinder toward the end of which stroke?

- A. Compression stroke
- B. Expansion stroke
- C. Ignition stroke
- D. Exhaust stroke