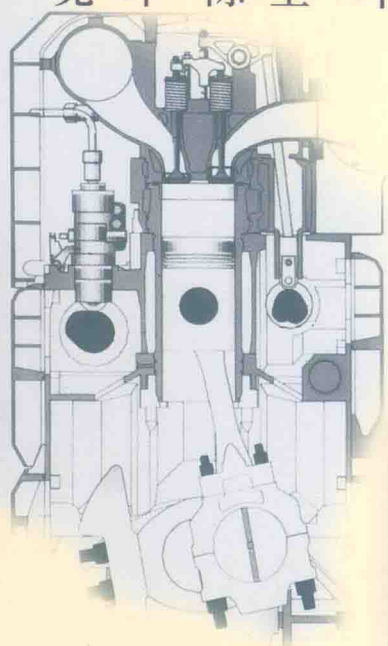


轮机专业

海船船员适任考试自学教材

轮机英语

党坤 陈坚 叶伟强 郭军武 主编



大连海事大学出版社
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出版前言

本书为海船船员参加“轮机英语”科目适任考试培训的辅导教材,由大连海事大学出版社组织国内轮机英语教学领域有丰富经验的专家编写。本书内容严格按照《海船船员适任考试大纲》编写,练习题按照考试大纲的顺序定位排列。

本书由大连海事大学党坤、集美大学陈坚、广州航海高等专科学校叶伟强、上海海事大学郭军武主编。其中,党坤负责原有习题和大连地区新增习题的收集、定位,郭军武负责上海地区新增习题的收集、定位和注释,陈坚负责第一章、第二章和第六章的注释,叶伟强负责第三章、第四章和第五章的注释,最后由陈坚负责全书统稿和定稿。以下人员参加了本书的编写工作:大连海事大学张洪朋、蒋福伟、宋永欣、孙德平、沈岩,集美大学林洪贵、庄学强、廖海峰,广州高等航海专科学校游雪清、杨其观、卓玉兰,青岛远洋船员职业学院陈蓓、刘蓓、吴万千,江苏海事职业技术学院吴雪花,上海远洋培训中心潘盛洪,上海海事职业技术学院潘艳萍,南通航运职业技术学院范丽,浙江国际海运职业技术学院颜天明。

本书可供海船二/三管轮、大管轮、轮机长适任考试自学使用。由于轮机英语科目各级别考试大纲重叠比例较高,编写本书时没有对各级别考试内容加以区分,读者可根据书后附的考试大纲选择本级别考试内容学习。

2011年6月

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第一部分 单选题

第 1 章 船舶主推进装置

1.1 船舶动力装置概述

1.1.1 船舶动力装置的组成和类型

1. _____ are increasingly used as main engine on merchant vessels, because they have a high Hp/Weight ratio.

- A. Slow speed diesel engines B. Medium-speed diesel engines
C. Steam engines D. Gasoline engines

注:【中速柴油机】越来越多地被用作商船主机,因为它们的功率重量比大。

2. There are four main types of marine engines: _____ and the marine nuclear plant.

- A. the diesel engine, the steam turbine, the dual-fuel engine
B. the diesel engine, the steam turbine, the gas turbine
C. the gas-diesel engine, the gasoline engine, the diesel engine
D. the gasoline engine, the diesel engine, the steam turbine

注:船用发动机有四大主要类型:【柴油机、汽轮机、燃气轮机】和船舶核动力装置。

3. When a ship in loaded condition floats at arbitrary water line, its displacement is _____ to the relevant mass of water displaced by the ship.

- A. equal B. larger
C. smaller D. equivalent

注:载货船舶以任意吃水漂浮在水面上时,它的排水量【等于】船体置换掉的相应质量的水。

4. The displacement of a ship is _____ to the total weight, all told, of the relevant loaded ship.

- A. larger B. equal
C. smaller D. equivalent

注:船舶的排水量【等于】相应装载货物船舶的总重量。

5. Which one is not true?

- A. Two main areas of skill are involved in the construction of ship.
B. There are distinct divisions in responsibilities between naval architects and marine engineers.
C. Each ship will assume varying proportions according to its type.

D. Ships can be divided into different categories from different perspectives.

注:哪句话不正确?【造船工程师与轮机员在职责上有截然不同的区分】(应该是在一些范围内有所重叠)。

6. Why a gearbox is needed in a ship driven by a medium-speed diesel engine?

- A. To reduce the main engine speed. B. To increase the main engine speed.
C. To govern the main engine speed. D. To fix the propeller shaft.

注:为什么中速柴油机驱动的船舶需要齿轮箱?【为了降低主机转速】。

7. Propulsion of the vast majority of contemporary merchant ships (especially containerships and VLCCs) utilizes _____ as prime mover.

- A. gas turbine B. diesel engine
C. steam engine D. gasoline engine

注:大多数现代商船(尤其是集装箱船和超级油轮)的推进装置使用【柴油机】作为原动机。

8. Typical marine propulsion plants include _____ directly coupled to the vessel's single large-diameter, fixed-pitch propeller.

- A. a single, long-stroke, slow-speed, turbocharged, two-stroke diesel engine
B. a single, long-stroke, medium-speed, turbocharged, four-stroke diesel engine
C. two medium-speed, turbocharged, four-stroke diesel engines
D. a variable-speed AC generator

注:典型的船用主推进装置包括能直接与船舶单个大直径定距螺旋桨相连的【单台、长冲程、低速、涡轮增压、二冲程柴油机】。

9. In today's practice, with cylinders of equal diameter of bore and equal revolutions, the two-stroke engine delivers a power about 80 percent _____ than that of the four-stroke one.

- A. larger B. better
C. smaller D. less

注:实际上目前相同缸径和相同转速的二冲程柴油机输出的功率比四冲程柴油机【大】80%左右。

10. A diesel engine is similar to a gasoline engine except that the former has no _____.

- A. piston B. connecting rod
C. cylinder D. spark plug

注:柴油机类似于汽油机,除了前者没有【火花塞】。

11. As a heat engine, _____ energy is the source of power by which the diesel engine can be operated.

- A. electric B. mechanical
C. heat D. exhaust

注:柴油机作为热机,【热】能是其功率的来源。

12. The diesel engine is a type of _____.

- A. turbine engine B. steam engine

C. gas turbine

D. internal combustion engine

注:柴油机是一种【内燃机】。

13. We call a ship equipped with diesel main engine “_____”.

A. a tug boat

B. an oil tanker

C. a salvage ship

D. a motor vessel

注:用柴油机作为主机的船舶称为“【内燃机船】”。

14. The term “medium speed diesel engine” is currently taken to mean an engine with an operating rotational speed _____ r/min.

A. below 300

B. between 300 and 1200

C. above 1200

D. below 1200

注:术语“中速柴油机”是指运行速度【介于 300 ~ 1200 r/min 之间】的柴油机。

15. The majority of medium speed and high speed marine diesel engines for main or auxiliary drive operate in _____ cycle.

A. two-stroke

B. ling-stroke

C. four-stroke

D. short-stroke

注:作为船舶主动力或辅动力的大多数中、高速柴油机是以【四冲程】循环工作的。

16. Gas turbines differ from steam engines in that _____.

A. steam rather than gas is used to turn a shaft

B. vapor rather than gas is used to turn a shaft

C. the former uses gas to turn a shaft

D. the latter uses gas to turn a shaft

注:燃气轮机与蒸汽轮机的区别在于【前者用燃气转动轴】。

17. The _____ engine is used for alternators and some times for main propulsion with a gearbox to provide a propeller speed between 90 to 120 r/min.

A. four-stroke

B. slow speed

C. two-stroke

D. reversible

注:【四冲程】机用作交流发电机的原动机,有时也可用作主推进装置,但需要带减速齿轮箱,以提供螺旋桨 90 到 120 r/min 的转速。

1.1.2 对船舶动力装置的要求

18. Most often _____ is attached to the engine-propeller shaft for efficient electric power generation.

A. a variable-speed AC generator

B. a fixed-speed AC generator

C. an air blower

D. a DC generator

注:最常见的是将【一台变速的交流发电机】连到机桨轴上,可有效地发电。

19. That diesel engines instead of steam engines are used as main engine on board ships is mainly because _____.

A. they have a high mechanical efficiency

- B. they have a high thermal efficiency
- C. they are more reliable
- D. they are simple in construction

注:柴油机替代汽轮机作为船舶主机,主要是因为【柴油机的热效率高】。

20. Hitechi, B&W, two-stroke cycle, single acting direct reversible, cross-head, welding design type, and diesel engine with turbo-charge refer to _____.
- A. the type of a pump
 - B. the type of an auxiliary equipment
 - C. the type of a turbo-charge
 - D. the type of a diesel engine

注:日立、B&W、二冲程循环、单作用直接换向、十字头、焊接结构、涡轮增压式等,显然介绍的都是【主机的类型】。

21. The slow speed main propulsion diesel engine operates on two-stroke cycle. The low speed engine requires no reduction gear box between it and _____.
- A. thrust blocks
 - B. flying wheel
 - C. propeller
 - D. rudder

注:低速主推进柴油机按二冲程循环工作。低速柴油机和【螺旋桨】之间不需要减速齿轮箱。

22. When the piston is pushed down, it forces the engine to do work on the crankshaft which drives _____.
- A. the ship's rudder
 - B. the turning gear
 - C. the ship's propeller
 - D. the thrust bearing

注:当活塞下行时,它迫使发动机对曲轴做功,曲轴再驱动【船舶螺旋桨】。

1.2 船舶柴油机

1.2.1 基本特性指标

23. The most important factor in engine performance is the actual power output at the end of the crankshaft available for doing work, which is known as _____.
- A. indicated horsepower
 - B. brake horsepower
 - C. net horsepower
 - D. friction horsepower

注:发动机最重要的性能参数是在曲轴末端用来做功的实际输出功率,即【制动马力】。

24. The _____ is the power available at the output shaft of the engine and can be measured using a torsionmeter or with a brake.
- A. electric power
 - B. shaft power
 - C. indicated power
 - D. mechanical power

注:【轴功率】是发动机输出轴上可以获得的功率,可以使用转矩表或刹车来测量。

25. A four cylinder, four-stroke, single acting diesel engine has a 740 mm bore and a 1500 mm stroke. What indicated power will be developed if the average mean effective pressure is 18 kg/cm^2 at a speed of 90 r/min?

A. 3416 kW.

B. 4644 kW.

C. 7296 kW.

D. 9290 kW.

注:一台四缸四冲程单作用柴油机缸径 740 mm,冲程 1500 mm。请问平均有效压力为 18 kg/cm^2 和转速为 90 r/min 时指示功率为多少?【3416 kW】。

26. A seven cylinder, two-stroke, single acting diesel engine with a cylinder indicated horsepower calculated as 1350 kW and brake horsepower measured at 7466 kW has a mechanical efficiency of _____.

A. 18%

B. 55%

C. 79%

D. 83%

注:一台七缸二冲程单作用柴油机,一个缸指示马力计算为 1350 kW,制动马力计算为 7466 kW,其机械效率为【79%】。

27. The average pressure exerted on a piston during each power stroke is termed _____.

A. indicated horsepower

B. mean effective pressure

C. exhaust back pressure

D. compression pressure

注:在做功冲程,施加在活塞上的平均压力称为【平均有效压力】。

28. A diesel engine which is rated for normal operation at a crankshaft speed of 800 r/min is commonly classed as a _____.

A. slow-speed diesel

B. medium-speed diesel

C. high-speed diesel

D. constant-speed diesel

注:曲轴转速 800 r/min 以额定功率正常运行的柴油机称为【中速柴油机】。

29. The abbreviation "MIP" stands for _____.

A. middle indicating pressure

B. mean indicated pitch

C. mean indicated pressure

D. middle indicated power

注:缩写“MIP”代表【平均指示压力】。

30. Which of the following can be obtained by means of an indicator card?

A. Power.

B. Mean pressure in a cylinder.

C. Maximum pressure in a cylinder.

D. All of the above.

注:【功率、气缸的平均压力、爆炸压力】都可通过测取示功图获得。

31. Which of the following can be obtained by means of an indicator card?

A. The peak pressure in a cylinder.

B. The fuel consumption.

C. The temperature of the cooling water.

D. None of the above.

注:【气缸的爆炸压力】可通过测取示功图获得。

32. The distance between TDC and BDC of the diesel engine is called a _____.

A. gap

B. radius

C. clearance

D. stroke

注:柴油机上止点和下止点之间的距离称为【冲程】。

1.2.2 船舶柴油机的工作原理和基本结构

33. Fuel oil begins injecting into the cylinder of a four-stroke diesel engine during the _____.

- A. intake stroke
- B. exhaust stroke
- C. power stroke
- D. compression stroke

注:对于四冲程柴油机,燃油开始喷射进入气缸是在【压缩冲程】期间。

34. In a diesel engine, _____ offers the heat energy directly; _____ works as working medium and changes the heat energy to mechanical energy.

- A. the burning of the fuel/medium shaft
- B. fuel spray/fresh air
- C. fuel/fuel spray
- D. the burning of the fuel/the burned gas mixture

注:在柴油机中,【燃油的燃烧】直接提供了热能;而【燃气】则作为工作介质将热能转变为机械能(即推动活塞做往复运动)。

35. In a diesel engine, _____ works as working medium and changes the heat energy to mechanical energy; _____ changes the reciprocating movement to rotary moment.

- A. fuel spray/the burning of the fuel
- B. the burned gas mixture/connecting rod
- C. medium shaft/crankshaft
- D. the burned gas mixture/piston rod

注:在柴油机中,【燃气】作为工作介质并将热能转换为机械能,【连杆】则将往复运动转换为回转运动。

36. One of the differences between a two-stroke engine and a four-stroke engine is that _____.

- A. a two-stroke engine works without exhaust operation
- B. a two-stroke engine works without compression stroke
- C. a two-stroke engine works without expansion stroke
- D. a two-stroke engine works without suction operation

注:二冲程和四冲程柴油机的区别之一是:【二冲程机工作中没有吸气过程】。

37. One of the differences between a two-stroke engine and a four-stroke engine is that _____.

- A. a two-stroke engine can't work without cylinders
- B. a two-stroke engine can't work without pistons
- C. a two-stroke engine can't work without crankshafts
- D. a two-stroke engine can't work without a blower

注:二冲程机和四冲程机区别之一是:【二冲程机没有增压器不能工作】。

38. In a diesel engine, when the fuel is injected into the cylinder, _____.

- A. the piston is just coming upward from the bottom dead center
- B. the piston has moved about one-fifth of the way up
- C. the piston has moved most of the way up and almost reached the TDC
- D. the piston has just passed the TDC

注:在柴油机中,当燃油喷入气缸时,【活塞走完了上行的大部分冲程,几乎到达上止点】。

39. _____ is the main reason for reducing the power advantage of a two-stroke engine over a same size four-stroke one to about _____.

- A. Inefficient scavenging/twice B. Inefficient scavenging/1.8 times
C. Fewer strokes in a circle/twice D. Fewer strokes in a circle/1.8 times

注:【扫气不充分】是将二冲程机相对同尺寸四冲程机的功率优势降低到大约【1.8倍】的主要原因。

40. If the engine is naturally aspirated, or is a small high-speed type with a centrifugal turbocharger, the period of valve overlap, i. e. when both valves are _____, will be _____, and the exhaust valve will close some 10° _____ top dead center.

- A. open/short/after B. closed/short/after
C. open/long/before D. closed/long/before

注:如果柴油机是自然吸气型,或者是带有离心式废气涡轮增压器的小型高速机,则其气阀重叠期,即两个阀同时【开启】的时间,将是很【短】的,而且排气阀将在上止点【后】 10° 左右关闭。

41. In a two-stroke engine, there are always a series of openings known as _____, and in some circumstances, there are also openings known as _____.

- A. scavenging air ports/exhaust ports B. inlet ports/scavenging air ports
C. scavenging air ports/inlet ports D. exhaust ports/inlet ports

注:对于二冲程柴油机来说,有一系列开口被称为【扫气口】,在有些情况下,还存在有【排气口】。

42. In some types of two-stroke engines, besides some small holes for _____, starting valve, safety valve, indicator cock, and so on, there is a large central opening in each cylinder cover for mounting the _____.

- A. fuel valves/exhaust valve B. exhaust valves/inlet valve
C. fuel valves/inlet valve D. exhaust valves/fuel valve

注:有些类型的二冲程柴油机,除了一些小孔用于安装【喷油器】、气缸启动阀、安全阀、示功考克等,气缸盖中心还有一个大的开口用于安装【排气阀】。

43. In a two-stroke engine, the piston consists of a lower part, which is named as _____ and usually made of _____, and an upper part, which is referred to as _____ and made of _____.

- A. low-half/cast iron/top-half/heat-resistant steel
B. low-half/aluminum/top-half/stainless steel
C. piston skirt/cast iron/piston crown/heat-resistant steel
D. piston skirt/aluminum/piston crown/stainless steel

注:二冲程柴油机的活塞包含有两部分:下半部分称为【活塞裙】,通常由【铸铁】制成;上半部分称为【活塞头】,通常由【耐热钢】制成。

44. In order to keep the oil film on the cylinder liner during the running-in period, the piston rings are slightly rounded _____.

- A. on both the external and internal top edges
- B. on both the external top and bottom edges
- C. on both the external and internal bottom edges
- D. on all the four edges

注:为了在磨合期内维持缸套的油膜,在活塞环【的上、下外边缘】都稍有倒角。

45. In order to control thermal stresses, some types of modern engines use pistons with _____.
- A. heavy wall and intensive cooling
 - B. heavy wall and no cooling
 - C. thin wall and no cooling
 - D. thin wall and intensive cooling

注:为了控制热应力,一些类型的现代柴油机采用【薄壁强冷】的活塞。

46. In order to improve the working conditions of the crosshead bearings, the bearing pressure is made _____ and the peripheral speed is made _____ in later designs.
- A. smaller/higher
 - B. higher/smaller
 - C. smaller/smaller
 - D. higher/higher

注:为了改善十字头轴承的工作环境,在后来的一些设计里,轴承压力【减小】,而边缘速度【提高】(有利于油膜的分布)。

47. The guide shoes are secured to the crosshead by means of _____.
- A. through bolts
 - B. end chock bolts
 - C. side chock bolts
 - D. tap-bolts

注:十字头滑块通过【锥头螺栓】固定到十字头上。

48. The pistons are cooled by oil _____ the forced lubrication system.
- A. supplied by
 - B. supplying to
 - C. being supplied for
 - D. to be supplied to

注:活塞由强制润滑系统【供应】的滑油来冷却。

49. Sealing between the crankcase and scavenging air boxes is achieved by means of _____.
- A. the connecting rod stuffing boxes
 - B. the piston rod stuffing boxes
 - C. the sealing rings of piston
 - D. the scraper rings of piston

注:曲轴箱和扫气箱之间的密封通过【活塞杆填料函】来实现。

50. Each stuffing box is provided with two sealing rings and three _____.
- A. packings
 - B. rubber rings
 - C. distributor rings
 - D. scraper rings

注:每个填料函都配备有两道密封环和三道【刮油环】。

51. The sealing rings are in four parts and pressed together around the piston rods by means of _____.
- A. coil springs
 - B. lead wires
 - C. welding
 - D. adhesive paste

注:密封环由四段组成,并且通过【圈簧】压紧在活塞杆周围。

52. _____ of different thickness are inserted between the shells to enable adjustment of the bearing clearances.

- A. Screws
- B. Films
- C. Discs
- D. Shims

注:不同厚度的【垫片】被插入轴瓦之间以实现轴瓦间隙的调整。

53. Propulsion engines and the vast majority of auxiliary generator engines are designed to allow a generous through flow of scavenge air in order to control _____.

- A. the gas pressure
- B. the blade temperature
- C. the air pressure
- D. the fuel flow

注:主推进柴油机和绝大部分辅助发电柴油机都被设计成允许大量扫气空气的贯穿流动,从而控制【空气压力】。

54. Piston cooling fins are located _____.

- A. atop the piston crown
- B. beneath the piston crown
- C. at the base of the piston skirt
- D. inside the cylinder liner cooling water jacket

注:活塞冷却翅片位于【活塞头的下方】。

55. A well-lubricated bearing surface always appears _____.

- A. well knurled
- B. slightly streaked
- C. lightly glazed
- D. highly polished

注:润滑良好的轴承表面看上去【高度抛光】。

56. In a modern internal combustion diesel engine, the load carrying part of the engine is referred to as the _____.

- A. bedplate or base
- B. sump or oil pan
- C. cylinder block
- D. frame

注:现代内燃机承受负荷的部件是【机座或基座】。

57. An indicator card or pressure-volume diagram shows graphically the _____.

- A. compression ratio of the engine
- B. volume of the engine
- C. relationships between pressure and volume during one stroke of the engine
- D. relationships between pressure and volume during one cycle of the engine

注:一个示功图或 $p-V$ 图表示【在柴油机一个循环期间压力与体积之间的关系】。

58. A large two-stroke direct reversing diesel engine is to be reversed. Prior to the admission of starting air you must _____.

- A. line up the engine for restarting with light diesel oil
- B. reposition the fuel injection cam
- C. change the intake and exhaust valve cam positions
- D. place the starting cam in the intermediate position

注:大型低速可逆转二冲程柴油机准备换向。在启动空气进入前必须【重新定位喷油凸轮】。