



# Diesel Engine Fundamentals Part I

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By

Jonathan Russell, BEng Hons

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# Diesel Engine Fundamentals (Part 1) – Quiz

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## Chapter 3 Introduction

- 1) Which engine is heavier due to the higher combustion pressures at which it operates?
    - a) Diesel engine.
    - b) Gasoline engine.
  - 2) Which engine operates at higher compression ratios?
    - a) Gasoline engine.
    - b) Diesel engine.
    - c) Both engines have compression ratios of *less* than 10:1.
    - d) Both engines have compression ratios of *more* than 10:1.
  - 3) In terms of speed control, diesel engines are:
    - a) Self-limiting.
    - b) Not self-limiting.
- 

## Chapter 4 Engine Components

- 4) What material are cylinder blocks usually manufactured from?
  - a) Copper.
  - b) Cast-iron.
  - c) Aluminium.
  - d) Stainless steel.

5) Identify the engine design shown in the image.

- a) In-line.
- b) V.



6) What is the function of the **top** piston ring?

- a) It acts primarily as a pressure seal.
- b) It acts as a wiper ring to regulate the oil film on the cylinder walls.
- c) It ensures that a supply of lubrication oil is evenly spread on the cylinder walls.

7) Pistons convert the energy of the expanding gases into mechanical energy.

- a) True.
- b) False.

8) Concerning connecting rods, which of the following statements is NOT true?

- a) The connecting rod connects the piston to the crankshaft.
- b) Conrods are made from drop-forged, heat-treated steel, to provide the required strength they need to operate.
- c) The smaller diameter top bore of the conrod connects to the piston pin.
- d) The smaller diameter top bore of the conrod connects to the crankshaft.

9) Which engine component transforms the linear motion of the piston(s) into rotational motion?

- a) Connecting rod.
- b) Crankshaft.
- c) Flywheel.
- d) Camshaft.

10) Most diesel engine pistons have only one piston ring.

- a) True.
- b) False.

11) Why do crankshaft's have drilled oil passages?

- a) To allow cooling of the crankshaft's internal surfaces.
- b) To allow oil flow to journal bearings and con rod bearings.
- c) To allow for lubrication of the crankshaft's internal surfaces.
- d) To prevent galling between two similar metals.

12) A flywheel's diameter is usually large, this allows it to rotate further from the crankshaft's centre axis of rotation.

- a) True.
- b) False.

13) The area a valve presses against when closed, is known as:

- a) Valve mushroom.
- b) Valve poppet.
- c) Valve lid.
- d) Valve seat.

14) What is the name of the gear that drives the camshaft?

- a) Planetary gear.
- b) Parasitic gear.
- c) Unemployed gear.
- d) Timing gear.

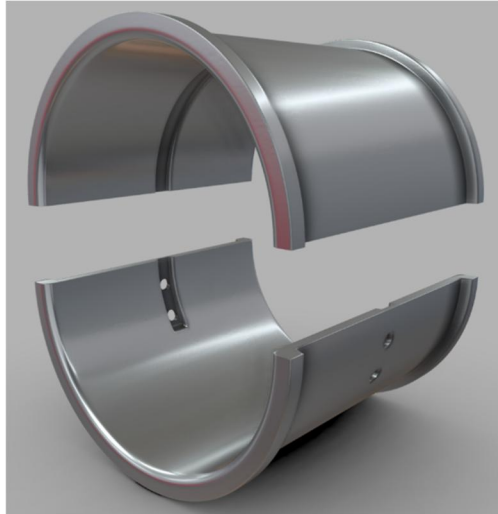
15) Gears or a chain (very large engines) connect the crankshaft to the camshaft and ensure that the rotation of one is proportional to the rotation of the other.

- a) True.
- b) False.

16) Starter motors engage with the flywheel when the engine starts, and stay engaged with the flywheel whilst the engine is in operation.

- a) True.
- b) False.

17) Identify the component shown in the image:



- a) Plain Bearing.
- b) Anti-Friction Bearing.
- c) Ball bearing.
- d) Cone bearing.

18) The engine design shown in the image, is a...:



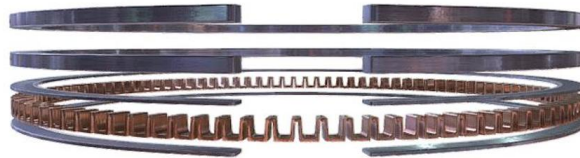
- a) Straight 6.
- b) Straight 4.
- c) V6.
- d) V4.

19) The engine design shown in the image, is a...:



- a) Straight 6.
- b) Straight 4.
- c) V6.
- d) V4.

20) Identify the component shown in the image:



- a) Piston rings.
- b) Piston things.
- c) Camshaft rings.
- d) Crankshaft rings.

21) What component does the starter motor engage with when starting the engine?

- a) Flywheel.
- b) Crankshaft.
- c) Camshaft.
- d) Fuel Injector.

- 22) Two-stroke engines are more efficient than four-stroke engines.
- a) True.
  - b) False.
- 

## Chapter 5 Diesel Engine Systems

- 23) Select ONE answer. A turbocharger must be connected to which two systems in order to operate.
- a) Fuel and lubrication oil.
  - b) Air and exhaust.
  - c) Electrical and lubrication oil.
  - d) Air and fuel.
- 24) A 'cooling water system' is also known as a...
- a) Jumper water system.
  - b) T-shirt water system.
  - c) Jacket water system.
  - d) Trouser water system.
- 25) What is the purpose of a lubrication oil system?
- a) To reduce friction between engine components.
  - b) To cool engine components.
  - c) To remove foreign particles and impurities from the engine (by means of a filter).
  - d) All these options.
- 26) The process of admitting air into the combustion space is known as...:
- a) Scavenging.
  - b) Pressing.
  - c) Charging.
  - d) Cooling.
- 27) Concerning charge air, which statement is true?
- a) The temperature of charge air is irrelevant.
  - b) Charge air should not be cooled below its dew point.
  - c) Charge air should always be cooled below its dew point.



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## Chapter 6 Engine Terminology

- 28) Which of the given statements best describes the term 'stroke'?
- a) The internal diameter of an engine's cylinder.
  - b) The length of an engine's cylinder.
  - c) The distance between TDC and BDC.
- 29) Which of the given statements best describe the term 'brake horsepower'?
- a) The amount of usable power delivered to the crankshaft.
  - b) The amount of power transferred to the pistons via the process of combustion.
  - c) The amount of work done per unit time.
  - d) The total power produced by the engine.
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## Chapter 7 Internal Combustion Engine

- 30) Concerning the two-stroke engine cycle, which of the given statements is correct?
- a) A two-stroke engine requires one full stroke to complete a full combustion cycle.
  - b) A two-stroke engine crankshaft requires 180 degrees of rotation to complete one full combustion cycle.
  - c) A two-stroke engine requires four strokes to complete a full combustion cycle.
  - d) A two-stroke engine requires two-strokes to complete a full combustion cycle.
- 31) Diesel engines require spark plugs whilst petrol engines do not.
- a) True.
  - b) False.