

# **DGCA CPL Practice Paper 20**

## **Technical General - Engines & Propellers**

### **QUESTION PAPER**

2026-reviewed sectional practice. Not an official DGCA paper or a verified full-length latest-pattern mock.

25 MCQs • 25 marks • Suggested practice time: 40 minutes

Choose one answer. Practice scoring: +1 correct; 0 incorrect or blank. Count, timing and scoring are editorial practice settings, not a verified official exam pattern. Attempt this set without a calculator. Use the stated assumptions.

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_ / 25

01. In a piston engine, compression ratio is the ratio of cylinder volume at:

- |                                                    |                                                    |
|----------------------------------------------------|----------------------------------------------------|
| A. Top dead centre to volume at bottom dead centre | B. Bottom dead centre to volume at top dead centre |
| C. Intake pressure to exhaust temperature          | D. Idle to full-throttle rpm                       |

02. A four-stroke piston engine completes one operating cycle in:

- |                               |                                 |
|-------------------------------|---------------------------------|
| A. One crankshaft revolution  | B. Half a crankshaft revolution |
| C. Two crankshaft revolutions | D. Four crankshaft revolutions  |

03. During the compression stroke of a conventional four-stroke spark-ignition engine, the valves are normally:

- |                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| A. Both closed                               | B. Intake open and exhaust closed throughout |
| C. Exhaust open and intake closed throughout | D. Both fully open                           |

04. Dual ignition in many aircraft piston engines improves reliability and also:

- |                                     |                                                                   |
|-------------------------------------|-------------------------------------------------------------------|
| A. Removes all need for spark plugs | B. Guarantees that detonation cannot occur                        |
| C. Eliminates the need for fuel     | D. Promotes more effective combustion through two ignition points |

05. For a normally aspirated piston engine, increasing altitude at unchanged throttle generally causes maximum available power to:

- |                                              |                                      |
|----------------------------------------------|--------------------------------------|
| A. Decrease                                  | B. Increase without limit            |
| C. Remain exactly constant at every altitude | D. Become independent of air density |

06. A turbocharger wastegate controls boost mainly by regulating:

- |                                          |                                       |
|------------------------------------------|---------------------------------------|
| A. Oil flow through the magnetic compass | B. The number of propeller blades     |
| C. Cabin oxygen concentration directly   | D. Exhaust flow bypassing the turbine |

07. An intercooler in a turbocharged induction system primarily:

- |                                 |                                |
|---------------------------------|--------------------------------|
| A. Cools only brake fluid       | B. Cools compressed intake air |
| C. Replaces the exhaust turbine | D. Heats fuel until it boils   |

08. A mixture that is excessively rich for the operating condition may cause:

- |                                                          |                                                |
|----------------------------------------------------------|------------------------------------------------|
| A. Unlimited power increase                              | B. Zero fuel consumption                       |
| C. Incomplete combustion, reduced power and plug fouling | D. Guaranteed elimination of all engine damage |

09. A fuel-injected piston engine differs from a conventional float-carburettor engine because fuel is metered and delivered:

- A. Through injection nozzles rather than a carburettor venturi discharge
- B. Without any relationship to airflow
- C. By the pitot tube
- D. Only through the exhaust pipe

10. A dry-sump lubrication system stores most of its oil in:

- A. Only the bottom of the crankcase
- B. A separate tank
- C. The propeller spinner as a universal rule
- D. The fuel tank

11. A scavenge pump in a dry-sump oil system primarily:

- A. Returns oil from the engine to the tank
- B. Measures cylinder compression
- C. Supplies fuel directly to spark plugs
- D. Delivers oxygen to the cabin

12. An oil cooler removes heat from engine oil by:

- A. Permanently reducing oil quantity to zero
- B. Converting it into electrical current only
- C. Adding fuel to the oil
- D. Transferring it to another medium such as airflow

13. A propeller blade's geometric pitch is related to the:

- A. Magnetic bearing of the destination
- B. Theoretical distance it would advance in one revolution without slip
- C. Aircraft's measured distance per revolution in every flight condition
- D. Number of cylinders in the engine

14. Propeller blades are twisted along their span mainly because:

- A. Only the root produces any thrust
- B. Every blade section has identical linear speed
- C. Rotational speed and relative airflow vary from root to tip
- D. Twist eliminates centrifugal force

15. With a constant-speed propeller governor operating normally, an overspeed tendency is corrected by a pitch change that generally:

- A. Increases blade angle to absorb more torque
- B. Stops all airflow over the propeller
- C. Changes magnetic variation
- D. Reduces blade angle to increase rpm further

16. Propeller torque reaction tends to roll a single-engine aeroplane:

- A. In the same direction as every possible propeller
- B. Always towards geographic north
- C. Opposite to the propeller's rotation
- D. Only when the engine is stopped

17. P-factor is most associated with unequal blade loading when the propeller disc is:

- A. Replaced by a jet nozzle
- B. Exactly perpendicular to uniform inflow with no asymmetry
- C. Not rotating
- D. Inclined to the relative airflow at significant angle of attack

18. A gas-turbine compressor stall involves:

- A. A wing exceeding its critical angle of attack only
- B. Disruption or breakdown of normal airflow through compressor blade passages
- C. An empty electrical battery only
- D. A runway surface defect

19. Compressor surge is a system-level instability that can involve:
- A. Large pressure and flow oscillations, sometimes with flow reversal
  - B. Guaranteed smooth and steady compression
  - C. Only low tyre pressure
  - D. Only a change in cabin lighting
20. A turbofan's bypass ratio compares:
- A. Aircraft mass with thrust
  - B. Air mass flow bypassing the core with air mass flow through the core
  - C. Fuel flow with oil flow
  - D. Fan diameter with runway length
21. In a turboprop engine, most useful propulsive power is delivered through:
- A. Only the exhaust jet as in a pure turbojet
  - B. A hydraulic brake on the main wheels
  - C. A propeller driven by the turbine system
  - D. The cabin pressurisation outlet
22. Reduction gearing between a turbine and propeller is used mainly to:
- A. Allow the turbine and propeller to operate at suitable different rotational speeds
  - B. Increase propeller tip speed without limit
  - C. Remove all torque from the propeller
  - D. Make both rotate at identical speed in every design
23. A gas-turbine engine's exhaust gas temperature indication is useful for monitoring:
- A. Aircraft latitude
  - B. Runway visibility
  - C. Fuel quantity directly
  - D. Thermal operating limits at the specified measurement location
24. A 'hot start' in a turbine engine refers to a start in which:
- A. The battery is fully charged
  - B. The aircraft has already reached cruise speed
  - C. The outside air temperature is merely above freezing
  - D. Temperature exceeds the permitted start limit
25. Engine indications should be assessed together because:
- A. All faults produce identical indications
  - B. One gauge always proves the condition of every component
  - C. A single reading may be ambiguous without related parameters and operating context
  - D. Cross-checking is never useful