

DGCA CPL Practice Paper 08

Technical General — Systems & Instruments

QUESTION PAPER

Original educational practice set. Not an official DGCA paper or a full-length examination simulation.

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

Choose one answer per question. Practice scoring: +1 for a correct answer; 0 for an incorrect or blank answer. This timing and scoring are for this practice set only. A calculator may be used for practice. Use the assumptions stated in each question.

Name: _____ Date: _____ Score: ____ / 25

01. The correct sequence in a four-stroke spark-ignition piston engine is:

- | | |
|---|---|
| A. Power, induction, exhaust, compression | B. Compression, exhaust, induction, power |
| C. Induction, compression, power, exhaust | D. Induction, power, compression, exhaust |

02. In a conventional magneto-ignition piston engine, the magneto:

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|---|--|
| A. Requires cabin lights to be on | B. Is simply a fuel pump |
| C. Generates ignition energy independently of the main battery once operating | D. Cannot operate while the crankshaft turns |

03. Detonation in a spark-ignition engine is:

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|--|--|
| A. Abnormal explosive combustion of the remaining charge | B. A normal indication of maximum efficiency |
| C. Ignition before the spark due to a hot spot | D. Normal spark timing |

04. Pre-ignition is most accurately described as:

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|--|--|
| A. Combustion caused only by low tyre pressure | B. A harmless alternative name for induction |
| C. Ignition of the charge before the scheduled spark | D. The exhaust valve opening normally |

05. In a carburettor, ice can form even when outside air temperature is above freezing because:

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|---|---|
| A. Ice requires no water in any form | B. Carburettor temperature must equal outside temperature |
| C. The exhaust always freezes the carburettor | D. Fuel vaporisation and pressure reduction can cool the intake air |

06. Applying carburettor heat generally makes the inducted air:

- | | |
|--------------------------|--|
| A. Warmer and less dense | B. Free of oxygen |
| C. Colder and denser | D. Identical to compressed turbine air |

07. The principal purpose of a turbocharger is to:

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|--|---------------------------------------|
| A. Compress intake air using an exhaust-driven turbine | B. Replace the propeller governor |
| C. Cool brake fluid | D. Generate only cabin lighting power |

08. A constant-speed propeller governor normally controls RPM by varying:
- A. Aircraft registration
 - B. Fuel-tank size
 - C. Wing dihedral
 - D. Blade pitch
09. Feathering a featherable propeller after the relevant engine failure primarily aims to:
- A. Increase lift from the fuselage
 - B. Maximise windmilling drag
 - C. Change QNH
 - D. Reduce windmilling drag
10. In a gas-turbine engine, the main role of the compressor is to:
- A. Extract all exhaust energy before the turbine
 - B. Cool the runway
 - C. Increase air pressure before combustion
 - D. Provide hydraulic braking directly
11. A turbine extracts energy primarily from:
- A. Hot expanding gases
 - B. The static pressure instrument
 - C. The magnetic compass
 - D. Landing-gear shock absorbers
12. In a simple circuit, voltage is 24 V and resistance is 6 ohms. What current flows?
- A. 4 A
 - B. 30 A
 - C. 144 A
 - D. 0.25 A
13. A device uses 5 A from a 28 V supply. What electrical power does it consume?
- A. 5.6 W
 - B. 140 W
 - C. 0.18 W
 - D. 33 W
14. Two 4-ohm resistors are connected in series. Their equivalent resistance is:
- A. 4 ohms
 - B. 8 ohms
 - C. 2 ohms
 - D. 16 ohms
15. Two equal 6-ohm resistors are connected in parallel. Their equivalent resistance is:
- A. 12 ohms
 - B. 36 ohms
 - C. 3 ohms
 - D. 6 ohms
16. The main purpose of a circuit breaker is to protect against:
- A. Any fuel contamination
 - B. Excessive current
 - C. Every possible mechanical failure
 - D. All radio interference
17. A hydraulic system mainly transmits power through:
- A. Only an electrical radio signal
 - B. Only dry air at atmospheric pressure
 - C. The magnetic field of a compass
 - D. Pressurised liquid
18. A hydraulic actuator has effective area 4 square cm and pressure 100 N per square cm. Ignoring losses, what force is produced?
- A. 25 N
 - B. 400 N
 - C. 104 N
 - D. 40 N

19. The function of a hydraulic accumulator is generally to:

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|---|---|
| A. Store hydraulic energy and help absorb pressure fluctuations | B. Replace all system pumps permanently |
| C. Measure outside humidity | D. Identify the aircraft position |

20. An anti-skid braking system aims primarily to:

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|--|--|
| A. Increase cabin pressure | B. Lock the wheels continuously |
| C. Prevent excessive wheel slip by modulating brake pressure | D. Prevent every runway overrun regardless of conditions |

21. Cabin pressurisation is normally controlled largely by:

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|--|----------------------------------|
| A. Turning off all cockpit instruments | B. Changing wing span |
| C. Changing navigation-light colour | D. Regulating the outflow of air |

22. An engine oil system commonly provides lubrication and also:

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|------------------------------------|---|
| A. Supplies breathing oxygen | B. Helps remove heat and carry contaminants to filtration |
| C. Replaces all fuel in combustion | D. Measures radio altitude |

23. An airspeed indicator's green arc on a conventional light-aircraft dial generally identifies:

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|----------------------------------|--------------------------------------|
| A. The flap operating range only | B. Only speeds prohibited for flight |
| C. A range with no upper limit | D. The normal operating speed range |

24. The attitude indicator principally displays:

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|--------------------------|----------------------------|
| A. Distance to a VOR | B. Pitch and bank attitude |
| C. Magnetic heading only | D. Fuel quantity only |

25. A conventional vertical speed indicator senses:

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|--------------------------------------|-------------------------|
| A. Rate of change of static pressure | B. Engine oil pressure |
| C. Magnetic variation | D. Total pressure alone |