PRERNA AVIATION

DGCA CPL Practice Paper 18

Technical General - Aircraft Systems

ANSWER KEY & EXPLAINED SOLUTIONS

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

01 B	02 C	03 D	04 B	05 A
06 A	07 A	08 C	09 A	10 C
11 D	12 C	13 B	14 C	15 D
16 D	17 D	18 B	19 C	20 B
21 D	22 A	23 C	24 B	25 A

01. An alternator produces electricity by:

Answer: B. Electromagnetic induction

Relative motion between a magnetic field and conductors induces voltage. Alternator output is normally regulated and rectified as required by the aircraft system.

Topic: Electrical generation | Study reference: SYS

02. A rectifier converts:

Answer: C. Alternating current to direct current

A rectifier allows current flow in selected directions to convert AC into DC. An inverter performs the reverse electrical conversion.

Topic: Rectification | Study reference: SYS

03. An inverter is used to convert:

Answer: D. DC electrical power to AC electrical power

An inverter supplies alternating-current power from a direct-current source. Its output voltage and frequency depend on its design.

Topic: Inverters | Study reference: SYS

04. A transformer operating normally requires a changing magnetic field and is commonly used with:

Answer: B. Alternating current

AC produces a changing magnetic field that can induce voltage in another winding. A steady DC input does not provide normal continuous transformer action.

Topic: Transformers | Study reference: SYS

05. A conventional transformer has twice as many turns on the secondary as on the primary. Ideally, secondary voltage is:

Answer: A. Twice primary voltage

For an ideal transformer, voltage ratio equals turns ratio. A 2:1 secondary-to-primary turns ratio gives twice the voltage, with corresponding current trade-offs.

Topic: Transformer ratio | Study reference: SYS

06. A battery rated 20 Ah supplies a constant 5 A in an ideal calculation. Nominal discharge time is:

Answer: A. 4 hours

Time = capacity/current = 20 Ah/5 A = 4 h. Actual usable time depends on discharge rate, temperature, battery condition and voltage limits.

Topic: Battery capacity | Study reference: SYS

07. Connecting identical batteries in parallel, with correct polarity and compatible condition, ideally increases:

Answer: A. Available ampere-hour capacity while voltage stays the same

Parallel connection retains the nominal voltage of one battery while adding available capacity. Real aircraft installations require the approved arrangement and protective provisions.

Topic: Parallel batteries | Study reference: SYS

08. A short circuit is characterised by an unintended path of:

Answer: C. Very low resistance that can produce excessive current

Ohm's law shows that low resistance can allow high current. Protective devices and approved procedures limit resulting damage and overheating.

Topic: Circuit faults | Study reference: SYS

09. An open circuit usually prevents current because:

Answer: A. The conducting path is interrupted

A broken or disconnected path prevents normal current flow. This differs from a short circuit, which creates an unintended low-resistance path.

Topic: Open circuits | Study reference: SYS

10. A circuit breaker trips repeatedly. The appropriate general principle is to:

Answer: C. Follow the aircraft's approved procedure rather than repeatedly resetting it

A trip can indicate a fault. Repeated resets may worsen overheating or damage; the approved aircraft procedure governs whether any reset is permitted.

Topic: Electrical fault response | Study reference: SYS

11. A busbar in an aircraft electrical system is principally:

Answer: D. A common distribution point for electrical power

A bus distributes power to connected circuits. Aircraft may have multiple buses to separate essential loads and manage power sources or failures.

Topic: Electrical distribution | Study reference: SYS

12. Hydraulic fluid is useful for transmitting force because it is:

Answer: C. Relatively incompressible

Liquids are comparatively incompressible, allowing pressure transmission and controlled actuator motion. Fluid properties, contamination and temperature still matter.

Topic: Hydraulic principles | Study reference: SYS

13. A hydraulic reservoir primarily provides:

Answer: B. A supply of system fluid and space for volume changes

The reservoir stores fluid and accommodates changes in system volume. Depending on design, it may also support deaeration and heat dissipation.

Topic: Hydraulic reservoirs | Study reference: SYS

14. A hydraulic relief valve is intended mainly to:

Answer: C. Limit excessive system pressure

The valve opens at a specified pressure to protect the system from excessive pressure. Its setting and operation are part of the approved system design.

Topic: Pressure protection | Study reference: SYS

15. A non-return or check valve normally permits fluid flow:

Answer: D. In one direction

A check valve permits flow in the designed direction and restricts reverse flow. It differs from a selector valve that routes flow between different paths.

Topic: Check valves | Study reference: SYS

16. Pneumatic systems transmit power using:

Answer: D. Compressed gas

Pneumatic systems use pressurised gas, commonly air. Gas compressibility gives them different characteristics from hydraulic systems.

Topic: Pneumatics | Study reference: SYS

17. In a pressurised aircraft, cabin differential pressure is:

Answer: D. Cabin pressure minus outside atmospheric pressure

Differential pressure measures the pressure difference across the cabin structure. Structural limits constrain how much difference can be maintained.

Topic: Cabin differential | Study reference: SYS

18. As a pressurised aircraft climbs while cabin altitude remains constant, cabin differential pressure generally:

Answer: B. Increases

Outside pressure falls with climb while cabin pressure stays approximately constant. Cabin-minus-outside pressure therefore increases.

Topic: Pressurisation during climb | Study reference: SYS

19. A cabin safety valve helps protect the structure against:

Answer: C. Excessive positive or negative pressure differential, according to its design

Safety or relief arrangements limit differential pressure beyond approved values. They are separate from normal cabin-pressure control functions.

Topic: Pressure safety | Study reference: SYS

20. Anti-icing and de-icing differ because anti-icing primarily:

Answer: B. Prevents ice accumulation, while de-icing removes accumulated ice

Anti-icing aims to prevent formation or accumulation; de-icing removes ice after it forms. Equipment use must follow the aircraft's procedures and limitations.

Topic: Ice protection | Study reference: SYS

21. An electrically heated pitot head is intended to:

Answer: D. Reduce the risk of ice blocking pressure sensing

Pitot heat helps prevent or remove icing at the pressure inlet as designed. It does not guarantee protection against every blockage or instrument fault.

Topic: Pitot heat | Study reference: INST

22. A fuel vent helps prevent:

Answer: A. An excessive pressure difference as fuel is used or temperature changes

Fuel tanks must accommodate changes in fuel volume and pressure. A blocked vent can impede normal fuel flow or stress the tank, depending on design.

Topic: Fuel venting | Study reference: SYS

23. Water in aviation fuel is undesirable partly because it can:

Answer: C. Interrupt fuel flow or contribute to icing and corrosion

Water contamination can affect fuel delivery and components, including through freezing. Approved sampling and servicing procedures are used to identify and manage contamination.

Topic: Fuel contamination | Study reference: SYS

24. A centrifugal pump's impeller primarily adds energy to fluid by:

Answer: B. Rotational motion

The rotating impeller accelerates fluid; the pump arrangement converts part of that energy to pressure. Actual performance depends on pump and system characteristics.

Topic: Pumps | Study reference: SYS

25. A filter bypass valve may allow fluid to continue flowing when a filter is severely restricted, but the trade-off can be:

Answer: A. Flow of unfiltered fluid

Bypass can preserve flow when restriction is excessive, but bypassed fluid may not receive normal filtration. Indications and maintenance actions depend on the approved system.

Topic: Filter bypass | Study reference: SYS

Study references & review notes

Use these sources to revise the concepts behind your answers. Questions and explanations are newly written; they are not reproduced from an official question bank.

INST — FAA PHAK, Chapter 8: Flight Instruments

https://www.faa.gov/sites/faa.gov/files/10_phak_ch8.pdf

SYS — FAA PHAK, Chapter 7: Aircraft Systems

https://www.faa.gov/sites/faa.gov/files/09_phak_ch7.pdf

Scope: foundation-to-intermediate CPL ground-subject practice. This set does not claim complete coverage of the latest DGCA syllabus. Consult the current DGCA CAR Section 7, Series B and Pariksha notices for the applicable syllabus and examination requirements. Aircraft-type-specific Technical Specific and a complete RTR(A) course are not included.

FAA references support general theory only, not Indian regulatory requirements. CAP 413 is used for standard phrase meanings, not UK-specific operating rules. Weather reports, fuel reserves and flight scenarios in questions are illustrative. For operational use, consult current approved publications and aircraft manuals.

Reviewed and prepared: 30 October 2026. Official session instructions and syllabus pointers were checked; exact current subject-wise question counts and durations were not independently verified.