

DGCA CPL Practice Paper 09

Mixed Revision — Set A

ANSWER KEY & EXPLAINED SOLUTIONS

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

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

01. An aircraft flies 80 NM at 120 kt and then 90 NM at 180 kt. Total airborne time is:

Answer: A. 70 minutes

First leg: $80/120 \times 60 = 40$ minutes. Second leg: $90/180 \times 60 = 30$ minutes. Total = 70 minutes; averaging the two speeds directly would be incorrect.

Topic: Multi-leg planning | Study reference: NAV

02. After flying 60 NM, an aircraft is 4 NM left of track with 60 NM remaining. Using the 1-in-60 rule, the approximate heading change to regain track at destination is:

Answer: D. 8 degrees right

Track error = $60 \times 4/60 = 4$ degrees. Closing angle = $60 \times 4/60 = 4$ degrees. Add them: change heading 8 degrees right, assuming the wind remains unchanged.

Topic: Track correction | Study reference: NAV

03. Wind is 20 kt at 30 degrees to the runway direction from ahead. The crosswind component is:

Answer: B. 10 kt

Crosswind = wind speed $\times \sin(\text{angle}) = 20 \times \sin 30 \text{ degrees} = 10$ kt. The headwind component is approximately 17.3 kt.

Topic: Wind components | Study reference: NAV

04. An aircraft departs at 2340 UTC for a 95-minute flight. Its estimated arrival is:

Answer: C. 0115 UTC the next day

95 minutes is 1 hour 35 minutes. Adding this to 2340 crosses midnight and gives 0115 UTC on the following day.

Topic: Time calculations | Study reference: NAV

05. A training plan requires 45 minutes at 36 L/h and 30 minutes at 30 L/h, plus a specified 20 L reserve. Required fuel is:

Answer: A. 62 L

First segment uses $0.75 \times 36 = 27$ L; second uses $0.5 \times 30 = 15$ L. Total including the exercise reserve = $27 + 15 + 20 = 62$ L. This reserve is a stated exercise value, not a regulatory rule.

Topic: Fuel planning | Study reference: NAV

06. At 30 degrees north, two points differ by 2 degrees longitude. Using $\cos 30$ degrees = 0.866, the approximate distance along the parallel is:

Answer: C. 104 NM

Distance along a parallel = longitude difference $\times 60 \times \cos$ latitude. Thus $2 \times 60 \times 0.866 = 103.92$ NM, approximately 104 NM.

Topic: Earth coordinates | Study reference: NAV

07. A 1,200 kg aircraft has a CG 2.5 m aft of datum. Removing 100 kg from an arm of 4.0 m gives a new CG of approximately:

Answer: C. 2.36 m aft of datum

Original moment = $1,200 \times 2.5 = 3,000$ kg m. Remove 400 kg m and 100 kg: new CG = $2,600/1,100 = 2.364$ m. Removing aft mass moves the CG forward.

Topic: Mass and balance | Study reference: PERF

08. A shallow layer of cold air is trapped beneath warmer air near the surface. Which result is most likely?

Answer: D. Suppressed vertical mixing and possible trapped pollution

An inversion is stable: an upward-displaced surface parcel can become colder and denser than its surroundings. Vertical mixing is restricted, so haze or pollution may persist.

Topic: Stability application | Study reference: MET

09. A synthetic METAR contains 08008KT 4000 BR SCT010. What does BR indicate?

Answer: B. Mist

BR denotes mist. Here visibility is 4,000 m; SCT010 denotes scattered cloud with a base 1,000 ft above aerodrome level. The report is a training example.

Topic: METAR decoding | Study reference: WX

10. Air at 28 degrees C has a dew point of 20 degrees C. Using 400 ft per degree C of spread, estimate convective cloud base above the surface:

Answer: C. 3,200 ft

Temperature-dew-point spread = $28 - 20 = 8$ degrees C. Estimated base = $8 \times 400 = 3,200$ ft AGL. This is an approximate convective estimate, not a measured ceiling.

Topic: Cloud-base estimate | Study reference: MET

11. An aircraft leaves a warm air mass for a much colder one while retaining the same pressure setting and indicated altitude. Ignoring pressure changes, true altitude tends to be:

Answer: B. Lower than indicated

Pressure levels are closer together in cold air. At a given indicated altitude above the setting reference, true altitude is lower than indicated in colder-than-standard conditions.

Topic: Cold-temperature effect | Study reference: INST

12. Which condition is most directly associated with a strong downdraught spreading outward near the surface?

Answer: B. A microburst

A microburst is a concentrated downdraught with low-level outflow. An aircraft crossing it can encounter rapid changes from headwind to downdraught and tailwind.

Topic: Convective hazards | Study reference: MET

13. A TAF covers the arrival period but was issued several hours earlier. Which planning approach is best?

Answer: D. Check current observations, amendments and relevant warnings as well

A forecast must be assessed with the latest available observations, amendments and significant-weather information. A single older forecast cannot describe every subsequent development.

Topic: Weather briefing | Study reference: WX

14. At a fixed angle of attack and air density, wing area doubles while speed remains unchanged. Lift becomes:

Answer: C. Twice the original value

Lift = one-half $\times$ density $\times$ speed squared $\times$ wing area $\times$ lift coefficient. With density, speed and lift coefficient unchanged, doubling area doubles lift.

Topic: Lift equation | Study reference: AERO

15. A wing's stalling speed is 60 kt at load factor 1. What is its approximate stalling speed at load factor 1.44, with other conditions unchanged?

Answer: D. 72 kt

Stalling speed varies with the square root of load factor. $60 \times \text{square root of } 1.44 = 60 \times 1.2 = 72$ kt.

Topic: Accelerated stall | Study reference: AERO

16. A 12 V supply feeds two 3 ohm resistors connected in series. Circuit current is:

Answer: A. 2 A

Series resistance is $3 + 3 = 6$ ohms. Ohm's law gives current = voltage/resistance = $12/6 = 2$ A.

Topic: DC circuits | Study reference: SYS

17. A hydraulic actuator has a piston area of 5 square centimetres under 200 newtons per square centimetre. Ignoring losses, force is:

Answer: C. 1,000 N

Force = pressure × area = 200 × 5 = 1,000 N. Using consistent area units avoids conversion errors.

Topic: Hydraulic calculations | Study reference: SYS

18. A pitot inlet is blocked but its drain hole remains open; the static source is normal. A conventional airspeed indicator will tend to:

Answer: B. Under-read towards zero

With the inlet blocked and drain open, pitot pressure vents towards ambient pressure. The pressure difference driving the airspeed indicator is lost, so the indication falls towards zero.

Topic: Pitot blockage | Study reference: INST

19. An aircraft's indicated airspeed is unchanged while air density decreases. Neglecting instrument and compressibility errors, true airspeed will:

Answer: A. Increase

For a given dynamic pressure, lower density requires greater true airspeed because dynamic pressure is one-half × density × true airspeed squared. The relationship is approximate under the stated assumptions.

Topic: IAS and TAS | Study reference: INST

20. A pilot sees a current NOTAM closing a runway that is shown as available in the AIP. What should the pilot conclude?

Answer: A. The current closure must be considered in planning

AIP information is supplemented by time-sensitive NOTAM information. A current closure can affect a runway even while its permanent dimensions remain published in the AIP.

Topic: Aeronautical information | Study reference: AIS

21. ATC asks a pilot to READ BACK a clearance. Which response meets that request?

Answer: B. Repeat the specified clearance details

READ BACK asks for repetition of all or the specified part of the message. ROGER acknowledges receipt but does not demonstrate that clearance details were understood correctly.

Topic: Readback application | Study reference: RT

22. A pilot approaching another aircraft from behind should not assume that being faster grants priority because:

Answer: D. The aircraft being overtaken has right of way

Under the general overtaking rule, the overtaken aircraft has right of way. The overtaking pilot must keep clear and alter heading to the right as applicable under the rules of the air.

Topic: Overtaking application | Study reference: AIR

23. During a briefing, a junior crew member notices an incorrect fuel calculation. The best CRM response is to:

Answer: B. State the concern clearly and verify the figures with the crew

Effective CRM encourages timely, clear communication and cross-checking. Respectful challenge helps detect an error before it affects the operation.

Topic: Assertiveness | Study reference: HF

24. A pilot accepts only reports supporting a preferred route and dismisses conflicting weather evidence. This primarily illustrates:

Answer: A. Confirmation bias

Confirmation bias favours information that supports an existing belief. Deliberately examining conflicting evidence helps reduce its influence on decisions.

Topic: Decision-making bias | Study reference: ADM

25. A pilot feels compelled to continue because passengers expect an on-time arrival. This pressure is best managed by:

Answer: D. Reassessing conditions against limits and accepting delay or diversion if needed

External pressure can bias decisions. Revisiting the plan against actual conditions and established limits preserves options, including delay or diversion when appropriate.

Topic: External pressure | Study reference: ADM

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.

ADM — FAA PHAK, Chapter 2: Aeronautical Decision-Making

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak

AERO — FAA PHAK, Chapter 5: Aerodynamics of Flight

https://www.faa.gov/sites/faa.gov/files/07_phak_ch5_0.pdf

AIR — AAI eAIP India, ENR 1.1: General rules

<https://aim-india.aai.aero/eaip/eaip-v2-07-2026/eAIP/IN-ENR%201.1-en-GB.html>

AIS — AAI eAIP India, GEN 3.1: Aeronautical information services

<https://aim-india.aai.aero/eaip/eaip-v2-06-2026/eAIP/IN-GEN%203.1-en-GB.html>

HF — FAA PHAK, Chapter 17: Aeromedical Factors; Chapter 2: Aeronautical Decision-Making

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak

INST — FAA PHAK, Chapter 8: Flight Instruments

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

MET — FAA PHAK, Chapter 12: Weather Theory

https://www.faa.gov/sites/faa.gov/files/14_phak_ch12.pdf

NAV — FAA Pilot's Handbook of Aeronautical Knowledge, Chapter 16: Navigation

https://www.faa.gov/sites/faa.gov/files/18_phak_ch16.pdf

PERF — FAA PHAK, Chapters 10–11: Weight and Balance; Aircraft Performance

https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak

RT — UK CAA CAP 413, Edition 24: standard radiotelephony phrase meanings only

<https://www.caa.co.uk/data-and-publications/publications/documents/content/cap-413/>

SYS — FAA PHAK, Chapter 7: Aircraft Systems

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

WX — Aviation Weather Center: Aviation Weather Data help

<https://aviationweather.gov/help/data/>

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.

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