

DGCA CPL Practice Paper 04

Aviation Meteorology — Set B

ANSWER KEY & EXPLAINED SOLUTIONS

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

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

01. In the training METAR group 24015G25KT, what is reported?

Answer: C. Wind from 240 degrees true at 15 kt, gusting 25 kt

METAR wind direction is referenced to true north. The group gives mean wind 240/15 and gusts to 25 kt; G introduces the gust speed.

Topic: METAR wind | Study reference: WX

02. What does BKN020 indicate in a METAR?

Answer: D. Broken cloud with base 2,000 ft above aerodrome level

BKN indicates broken coverage, generally 5-7 oktas. Cloud height is encoded in hundreds of feet above aerodrome level: 020 means 2,000 ft.

Topic: METAR cloud | Study reference: WX

03. In a METAR using metric visibility, 9999 indicates:

Answer: B. Visibility 10 km or more

The code 9999 represents prevailing visibility of 10 km or greater. It is a reporting code, not an exact measured distance.

Topic: METAR visibility | Study reference: WX

04. The temperature/dew-point group 18/16 shows a spread of:

Answer: B. 2 C

Subtract dew point from temperature: $18 - 16 = 2$ C. The small spread suggests humid air but does not alone prove fog is present.

Topic: Temperature spread | Study reference: WX

05. The METAR group Q1008 represents:

Answer: A. QNH of 1008 hPa

Q followed by four digits encodes QNH in hectopascals. It is an altimeter-setting pressure, not a cloud or visibility code.

Topic: METAR pressure | Study reference: WX

06. What is the key distinction between a METAR and a TAF?

Answer: A. METAR reports observed weather; TAF forecasts aerodrome weather

METAR describes an observation at an aerodrome. TAF describes forecast conditions over a stated validity period.

Topic: Weather products | Study reference: WX

07. A TAF contains TEMPO for a specified period. This signals:

Answer: A. Temporary fluctuations in the stated conditions

TEMPO identifies temporary fluctuations during the specified period. It differs from a persistent new prevailing condition.

Topic: TAF changes | Study reference: WX

08. A SPECI is primarily:

Answer: B. A special aerodrome weather report issued when specified changes occur

SPECI is a special observation report, commonly issued when significant weather changes meet reporting criteria between routine reports.

Topic: Weather reports | Study reference: WX

09. Which product warns of specified significant en-route meteorological phenomena?

Answer: B. SIGMET

SIGMET provides information on specified significant weather that may affect flight safety over an area. It is not a clearance or a complete route forecast.

Topic: Weather warnings | Study reference: WX

10. What does -RA mean in a METAR?

Answer: C. Light rain

The minus sign denotes light intensity and RA denotes rain. A plus sign would indicate heavy intensity.

Topic: Weather code | Study reference: WX

11. Which set of ingredients supports thunderstorm development?

Answer: B. Moisture, instability and a lifting mechanism

Moisture supplies condensation, instability allows sustained rising motion, and lifting initiates convection. The presence of only one ingredient is insufficient.

Topic: Thunderstorms | Study reference: MET

12. The mature stage of a typical single-cell thunderstorm is characterised by:

Answer: D. Both updrafts and downdrafts with precipitation

Precipitation and downdrafts develop while strong updrafts persist in the mature stage, making it particularly hazardous.

Topic: Thunderstorm stages | Study reference: MET

13. In the dissipating stage of a typical thunderstorm cell, which motion generally dominates?

Answer: D. Downdrafts

Downdrafts increasingly cut off the supply of warm moist inflow. The cell weakens, but hazardous conditions can remain.

Topic: Thunderstorm stages | Study reference: MET

14. A microburst is best described as:

Answer: C. A small intense downdraft that spreads outward near the surface

The descending air spreads out when it reaches the surface, producing strong local wind shear and potentially abrupt airspeed changes.

Topic: Microburst | Study reference: MET

15. Wind shear means a change in wind velocity:

Answer: A. Over a short horizontal or vertical distance

Wind velocity includes both speed and direction. A rapid change in either over a short distance is wind shear.

Topic: Wind shear | Study reference: MET

16. Clear-air turbulence is often associated with:

Answer: A. Strong wind shear near jet streams

Strong shear near jet streams and frontal zones can generate turbulence without a visible convective cloud, hence the term clear-air turbulence.

Topic: CAT | Study reference: MET

17. What combination favours mountain-wave development?

Answer: A. Stable air with strong flow across a mountain ridge

Stable air displaced by a ridge can oscillate downstream. Strong cross-ridge flow supports standing waves and associated turbulence.

Topic: Mountain waves | Study reference: MET

18. Lenticular clouds near mountains may indicate:

Answer: C. Standing-wave activity

Lens-shaped stationary clouds can form near wave crests as air rises and cools. They are a visible clue to mountain-wave conditions.

Topic: Wave clouds | Study reference: MET

19. Airframe icing in cloud most directly requires:

Answer: A. Supercooled liquid water striking a surface cold enough to freeze it

Supercooled droplets are liquid below 0 C and may freeze on impact. Subzero temperature alone does not guarantee airframe icing.

Topic: Icing | Study reference: MET

20. Small supercooled droplets that freeze rapidly and trap air tend to produce:

Answer: C. Rime ice

Rapid freezing of small droplets traps air, producing a rough, opaque rime deposit. Clear ice is more associated with slower spreading before freezing.

Topic: Icing types | Study reference: MET

21. Larger supercooled droplets that spread before freezing are more associated with:

Answer: D. Clear or glaze ice

Spreading water can freeze into a relatively dense clear deposit, sometimes with runback. Ice changes the aerofoil shape and can seriously degrade performance.

Topic: Icing types | Study reference: MET

22. A typical warm front with stable warm air often produces:

Answer: D. Widespread layered cloud and prolonged precipitation

Warm air rises gently over colder air, favouring broad stratiform cloud and extended precipitation. Actual weather depends on moisture and stability.

Topic: Warm front | Study reference: MET

23. A cold front advancing into warm moist unstable air is more likely to produce:

Answer: B. Showers and convective cloud along the frontal zone

The advancing cold air lifts warm moist air. When that air is unstable, deep convection, showers and thunderstorms may form.

Topic: Cold front | Study reference: MET

24. An occluded front generally develops when:

Answer: D. A cold front overtakes a warm front

The faster cold front catches the warm front and lifts warm-sector air away from the surface. The resulting weather depends on the air masses involved.

Topic: Occlusion | Study reference: MET

25. Why is a METAR reporting good surface visibility insufficient by itself to establish safe weather for an entire route?

Answer: C. It describes limited observation conditions, not every en-route hazard

A local observation cannot describe all weather along a route or its future evolution. Route planning needs relevant forecasts and warnings as well.

Topic: Weather interpretation | Study reference: WX

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.

MET — FAA PHAK, Chapter 12: Weather Theory

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