PRERNA AVIATION

DGCA CPL Practice Paper 10

Mixed Revision — Set B

ANSWER KEY & EXPLAINED SOLUTIONS

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

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

01. A 180 NM route must be completed in 90 minutes. Required average ground speed is:

Answer: B. 120 kt

90 minutes = 1.5 hours. Required ground speed = 180/1.5 = 120 kt.

Topic: Required ground speed | Study reference: NAV

02. An aircraft maintains a true heading of 350 degrees. With variation 8 degrees west and deviation 2 degrees east, compass heading is:

Answer: D. 356 degrees

True to magnetic: add west variation, 350 + 8 = 358 degrees. Magnetic to compass: subtract east deviation, 358 - 2 = 356 degrees.

Topic: Heading conversion | Study reference: NAV

03. A flight at 150 kt ground speed has 75 NM left. It is 1020 UTC now. Estimated arrival is:

Answer: A. 1050 UTC

Time remaining = 75/150 = 0.5 hour = 30 minutes. 1020 + 30 minutes = 1050 UTC.

Topic: ETA | Study reference: NAV

04. A chart scale is 1:1,000,000. A straight chart measurement is 9.26 cm. Using 1 NM = 1.852 km, distance is:

Answer: C. 50 NM

At this scale, 1 cm represents 10 km. 9.26 cm is 92.6 km. Dividing by 1.852 gives 50 NM.

Topic: Chart scale | Study reference: NAV

05. An aircraft must lose 4,500 ft in 15 NM at 90 kt ground speed. Required average descent rate is:

Answer: C. 450 ft/min

90 kt = 1.5 NM/min; 15 NM takes 10 minutes. Descent rate = 4,500/10 = 450 ft/min.

Topic: Descent planning | Study reference: NAV

06. Fuel quantity is 120 L and density is 0.75 kg/L. What fuel mass should be used in the loading calculation?

Answer: D. 90 kg

Mass = volume × density = 120 × 0.75 = 90 kg. Litres measure volume and must not be entered directly as kilograms.

Topic: Fuel mass | Study reference: PERF

07. A synthetic METAR includes 22012KT 3000 +RA OVC008. Which interpretation is correct?

Answer: B. Heavy rain with overcast cloud base at 800 ft above the aerodrome

The plus sign indicates heavy intensity; RA is rain. OVC means overcast and 008 is 800 ft above aerodrome level. Visibility is 3,000 m.

Topic: METAR application | Study reference: WX

08. Which process changes water vapour directly into ice crystals?

Answer: A. Deposition

Deposition is the direct change from vapour to solid. Sublimation is the opposite change, from solid to vapour; condensation forms liquid droplets.

Topic: Phase changes | Study reference: MET

09. Unsaturated air descends and is compressed without exchanging heat with its surroundings. Its temperature generally:

Answer: D. Rises

Descending air encounters higher pressure and is compressed. Under dry adiabatic conditions its temperature rises; rising unsaturated air instead expands and cools.

Topic: Adiabatic processes | Study reference: MET

10. In the Northern Hemisphere, surface wind around a low-pressure centre generally circulates:

Answer: C. Anticlockwise and inward

Coriolis deflection produces anticlockwise circulation around a Northern Hemisphere low. Surface friction reduces the wind speed and permits a component towards lower pressure.

Topic: Pressure systems | Study reference: MET

11. A small temperature-dew-point spread means the air is:

Answer: A. Close to saturation

When air temperature approaches its dew point, relative humidity is high and the air is close to saturation. It does not by itself determine stability, icing or future visibility.

Topic: Humidity interpretation | Study reference: MET

12. Why can a forecast freezing level alone not prove that an aircraft will encounter airframe icing?

Answer: B. Liquid-water content and other conditions also matter

Temperature is only part of the icing assessment. Structural icing commonly involves supercooled liquid water, so cloud type, moisture and exposure also matter.

Topic: Icing assessment | Study reference: MET

13. For a coordinated level turn, load factor is 1/cos(bank angle). Using cos 45 degrees = 0.707, load factor at 45 degrees bank is approximately:

Answer: A. 1.41

Load factor = 1/0.707 = 1.414. Lift must exceed weight because only its vertical component balances weight in a level banked turn.

Topic: Turning flight | Study reference: AERO

14. An aerofoil's camber is best described as:

Answer: C. Curvature of its mean camber line

The mean camber line lies midway between the upper and lower surfaces. Its curvature describes aerofoil camber; the chord is the straight reference line from leading to trailing edge.

Topic: Aerofoil geometry | Study reference: AERO

15. An aircraft is disturbed in pitch and then oscillates with decreasing amplitude. It demonstrates:

Answer: B. Positive dynamic stability in that motion

Dynamic stability describes the time history after a disturbance. Decreasing oscillation amplitude indicates positive dynamic stability; increasing amplitude would indicate instability.

Topic: Dynamic stability | Study reference: AERO

16. A 24 V electrical load draws 8 A for 30 minutes. Ignoring losses, energy consumed is:

Answer: C. 96 Wh

Power = 24 × 8 = 192 W. Time = 0.5 hour, so energy = 192 × 0.5 = 96 Wh. Watts and watt-hours are different quantities.

Topic: Electrical energy | Study reference: SYS

17. Two identical 12 V batteries are connected in series with correct polarity. Their combined nominal voltage is:

Answer: B. 24 V

Series-connected battery voltages add: 12 + 12 = 24 V. Identical batteries in parallel would retain the voltage of one battery, rather than double it.

Topic: Battery connections | Study reference: SYS

18. In a typical gas-turbine engine, which sequence correctly follows the main airflow?

Answer: B. Intake, compressor, combustion section, turbine, exhaust

Air is admitted and compressed before combustion. Hot gas then expands through the turbine and exhaust. The turbine extracts energy to drive the compressor and other connected loads.

Topic: Gas-turbine layout | Study reference: SYS

19. Why can a blocked static source affect several conventional flight instruments at once?

Answer: A. The altimeter, vertical speed indicator and airspeed indicator use static pressure

The altimeter and VSI use static pressure directly; the ASI compares pitot and static pressure. A shared static-source blockage can therefore affect all three, though their symptoms differ.

Topic: Common system failure | Study reference: INST

20. An AIP amendment is marked with a future effective date. When should the revised procedure be treated as operationally effective, unless superseded by other valid information?

Answer: D. On its stated effective date

Publication date and effective date are not interchangeable. Planning must use information applicable to the operation's date, together with relevant current amendments and NOTAM.

Topic: Effective dates | Study reference: AIS

21. A clearance is partly obscured by radio interference. Which phrase is appropriate to request repetition?

Answer: C. SAY AGAIN

SAY AGAIN requests repetition. A pilot should clarify the obscured part instead of acknowledging or accepting a clearance that was not fully understood.

Topic: Communication clarity | Study reference: RT

22. A pilot receives a clearance that the aircraft cannot comply with. What is the appropriate immediate communication?

Answer: D. Advise ATC UNABLE and clarify the limitation

UNABLE communicates inability to comply. Clear, timely communication allows ATC and the pilot to establish an appropriate alternative; a clearance does not alter aircraft limitations.

Topic: Unable clearance | Study reference: RT

23. During a checklist, a crew member announces completion of an item without checking it. The main weakness is:

Answer: A. Loss of the checklist's verification function

A checklist is useful only when required actions and states are actually verified. Announcing an unchecked item can hide an omission from the other crew member.

Topic: Checklist discipline | Study reference: HF

24. A tired pilot consumes caffeine and feels more alert. Which conclusion is most sound?

Answer: C. Feeling alert does not prove that fatigue-related performance impairment is removed

Subjective alertness and actual performance are not identical. Stimulants do not replace adequate rest, and fatigue can still affect attention, judgement and reaction time.

Topic: Fatigue awareness | Study reference: HF

25. During training, a student makes a navigation error but detects and corrects it before an unsafe state develops. This best illustrates:

Answer: D. Error management through detection and recovery

Threat and error management accepts that errors can occur and uses detection, correction and recovery to contain their effects. Debriefing the cause helps improve future performance.

Topic: Error management | Study reference: HF

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.

AERO — FAA PHAK, Chapter 5: Aerodynamics of Flight

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

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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