PRERNA AVIATION

DGCA CPL Practice Paper 02

Air Navigation — Set B

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. An aircraft is on the 135-degree radial of a VOR. What magnetic bearing leads directly to the station, disregarding wind?

A. 315 degrees
B. 225 degrees
C. 135 degrees
D. 045 degrees

02. On an ADF with a fixed relative-bearing scale, magnetic heading is 070 degrees and relative bearing is 040 degrees. What is the magnetic bearing to the NDB?

A. 290 degrees
B. 110 degrees
C. 030 degrees
D. 250 degrees

03. Magnetic heading is 300 degrees and an ADF relative bearing is 100 degrees. What is the magnetic bearing to the station?

A. 220 degrees
B. 040 degrees
C. 100 degrees
D. 200 degrees

04. DME indicates which distance to its ground station?

A. Distance to the runway threshold in every installation
B. Slant range
C. Horizontal map distance only
D. Distance along the planned route

05. An aircraft is directly above a DME station and 6,080 ft higher than it. Using 6,080 ft = 1 NM for this exercise, the DME should read approximately:

A. 1 NM
B. 0 NM
C. 10 NM
D. 6 NM

06. Which ILS component provides lateral guidance toward the runway centreline?

A. DME alone
B. Glide slope
C. Localizer
D. Marker beacon alone

07. Which ILS component supplies vertical approach guidance?

A. ADF
B. VOR radial
C. Glide slope
D. Localizer

08. Why does usable VHF radio range generally increase with aircraft height?

A. The radio horizon extends
B. Transmitter frequency automatically falls
C. Ground stations become more powerful
D. VHF becomes a purely sky-wave signal

09. An aircraft has mass 1,000 kg and total moment 2,450 kg m about a specified datum. What is its centre-of-gravity arm?

A. 0.408 m
B. 24.5 m
C. 3.45 m
D. 2.45 m

10. A 900 kg aircraft has CG arm 2.0 m. A 100 kg load is added at arm 3.0 m. What is the new CG arm?

A. 2.90 m
B. 2.00 m
C. 2.30 m
D. 2.10 m

11. In a 1,200 kg aircraft, a 60 kg load is moved aft by 2 m without changing total mass. What is the CG movement?

A. 0.20 m aft
B. 0.10 m forward
C. 0.05 m forward
D. 0.10 m aft

12. Fuel has mass 144 kg and density 0.72 kg/litre. What is its volume?

A. 144 litres
B. 103.68 litres
C. 200 litres
D. 172.8 litres

13. At constant configuration and load factor, stall speed is proportional to the square root of weight. Weight increases from 1,000 to 1,210 kg; original stall speed is 50 kt. Find the new stall speed.

A. 50 kt
B. 45.5 kt
C. 60.5 kt
D. 55 kt

14. Rate of climb is 600 ft/min and ground speed is 120 kt. What climb gradient is achieved in ft/NM?

A. 1,200 ft/NM
B. 300 ft/NM
C. 5 ft/NM
D. 600 ft/NM

15. A descent must lose 6,000 ft in 20 NM. At 120 kt ground speed, what constant descent rate is needed?

A. 600 ft/min
B. 1,200 ft/min
C. 300 ft/min
D. 900 ft/min

16. Under a simplified 3-degree-path rule of 300 ft per NM, how much height is lost over 12 NM?

A. 4,800 ft
B. 2,400 ft
C. 1,200 ft
D. 3,600 ft

17. With the aircraft stationary at the same elevation, increasing the altimeter pressure setting causes the indicated altitude to:

A. Increase
B. Decrease
C. Stay exactly constant
D. Become density altitude

18. An aircraft flies from higher to lower atmospheric pressure without resetting the altimeter. Compared with the indicated altitude, its true altitude is generally:

A. Higher
B. Lower
C. Identical in all conditions
D. Unrelated to pressure

19. Which instrument directly compares pitot pressure with static pressure?

A. Turn coordinator
B. Attitude indicator
C. Airspeed indicator
D. Magnetic compass

20. If a conventional static source becomes blocked, which instrument initially remains fixed at the altitude where blockage occurred?

A. Altimeter
B. Magnetic compass
C. Clock
D. Attitude indicator

21. A standard-rate turn is 3 degrees per second. How long does a 180-degree turn take?

A. 30 seconds
B. 90 seconds
C. 60 seconds
D. 120 seconds

22. Using a wind-triangle model, TAS is 100 kt and the pure crosswind component is 20 kt. What is the required wind-correction angle, approximately?

A. 20 degrees
B. 30 degrees
C. 5.7 degrees
D. 11.5 degrees

23. An aircraft must maintain a due-east track with TAS 100 kt and a 20 kt wind from the north. What is its approximate ground speed when the crosswind is fully corrected?

A. 100 kt
B. 120 kt
C. 98 kt
D. 80 kt

24. At a constant 90 kt ground speed, two fixes are passed 8 minutes apart. What is the distance between them?

A. 24 NM
B. 8 NM
C. 12 NM
D. 18 NM

25. For a GPS position solution with receiver clock error also unknown, the usual minimum number of satellites for a three-dimensional solution is:

A. Three
B. Four
C. Two
D. Sixteen