

Questions

1. For a multi-engine Class B aeroplane at an aerodrome with no stopway or clearway, the length of take-off run that must be available for take-off, to satisfy the requirements:
 - a. must not be less than the gross take-off distance to 50 ft
 - b. must not be less than 1.15 times the gross take-off distance to 50 ft
 - c. must not be less than 1.25 times the gross take-off distance to 50 ft
 - d. must not be less than 1.3 times the gross take-off distance to 50 ft
2. For a multi-engine Class B aircraft, the rotation speed V_R :
 - a. must not be less than either $1.1V_{S1}$ or $1.05V_{MC}$
 - b. must not be less than V_{S1}
 - c. must not be less than $1.05V_{S1}$ or $1.1V_{MC}$
 - d. must not be less than V_{MC}
3. For a multi-engine Class B aircraft, the take-off safety speed must:
 - a. not be less than either $1.1V_{S1}$ or $1.05V_{MC}$
 - b. be greater than $1.2V_{MC}$ or $1.1V_{S1}$
 - c. not be less than either $1.2V_{S1}$ or $1.1V_{MC}$
 - d. be greater than V_{S1}
4. For this question use Performance Manual CAP 698 MEP1 Figure 3.4.

Determine the accelerate-stop distance from brake release to a full stop given an abort speed of 64 KIAS and a reaction time of three seconds.

Given:

OAT: 27°C

Pressure altitude: MSL

Aeroplane mass: 3750 lb

Tailwind component: 5 kt

Flaps: 25°

Runway: paved, level and dry

- a. 2200 ft
- b. 1800 ft
- c. 3300 ft
- d. 2400 ft

5. For this question use Performance Manual CAP 698 MEP1 Figure 3.2.

Determine the maximum permissible mass that will allow the aeroplane to come to full stop given an accelerate-stop distance available of 3200 ft.

Given:

OAT: ISA

Pressure altitude: MSL

Headwind component: 5 kt

Flaps: 0°

Runway: paved, level and dry

- a. 3550 lb
- b. 4100 lb
- c. 4250 lb
- d. 3000 lb

6. For this question use Figure 3.2 in CAP 698. With regard to the graph for the light twin aeroplane, will the accelerate-stop distance be achieved in a take-off where the brakes are released before take-off power is set?

- a. It does not matter which take-off technique is being used
- b. No, the performance will be worse than in the chart
- c. Performance will be better than in the chart
- d. Yes, the chart has been made for this situation

7. When assessing obstacle clearance after take-off for a twin-engine Class B aircraft, the climb from 50 ft to 1500 ft:

- a. is always assumed to take place with all engines operating
- b. assumes that an engine fails at the point where visual reference of the obstacle is lost
- c. always assumes that an engine has failed at 50 ft
- d. assumes that an engine fails at 400 ft above ground level

8. A light twin-engine aircraft is climbing from the screen height of 50 ft, and has an obstacle 10 000 m along the net flight path. If the net climb gradient is 10%, there is no wind and the obstacle is 900 m above the aerodrome elevation then what will the clearance be?

- a. The aircraft will not clear the object
- b. 85 m
- c. 100 m
- d. 115 m.

9. By what vertical margin must a multi-engine Class B aeroplane clear an obstacle in the take-off flight path?

- a. 35 ft
- b. 50 ft
- c. There is no obstacle clearance requirement
- d. 60 m + 0.125D

10. Regarding the take-off climb requirements for a multi-engine Class B aeroplane, what is the minimum all engine climb gradient after take-off?
- a. 0.75%
 - b. >0%
 - c. 4%
 - d. 2.4%
11. If a multi-engine Class B aeroplane is unable to achieve the required vertical clearance over an obstacle, by what minimum horizontal margin must the obstacle be cleared? (assume wing span < 60 m.)
- a. $60 \text{ m} + 1/2 \text{ wingspan} + 0.125D$
 - b. $90 \text{ m} + 0.125D$
 - c. $60 \text{ m} / D + 0.125$
 - d. There is no minimum horizontal clearance requirement
12. What is the maximum bank angle permitted within the take-off flight path up to 1500 ft for a multi-engine Class B aeroplane?
- a. 25°
 - b. 10°
 - c. 5°
 - d. 15°
13. By what regulatory factor must the all engine climb gradient of a multi-engine Class B aeroplane be multiplied in order to comply with the obstacle clearance requirements?
- a. 0.5%
 - b. 0.5
 - c. 0.77
 - d. 1.43