Questions

1. For a single-engine Class B aeroplane, how does runway slope affect allowable take-off mass, assuming other factors remain constant and not limiting?

a. An uphill slope decreases take-off mass
b. Allowable take-off mass is not affected by runway slope
c. A downhill slope decreases allowable take-off mass
d. A downhill slope increases allowable take-off mass

2. For this question use Performance Manual CAP 698 SEP1 Figure 2.1.

With regard to the take-off performance chart for the single-engine aeroplane, determine the take-off speed for (1) rotation and (2) at a height of 50 ft.

Given:

OAT: ISA + 10
Pressure Altitude: 5000 ft
Aeroplane Mass: 3400 lb
Headwind Component: 5 kt
Flaps: up
Runway: Tarred and Dry

a. 73 and 84 kt
b. 68 and 78 kt
c. 65 and 75 kt
d. 71 and 82 kt

3. For this question use Performance Manual CAP 698 SEP1 Figure 2.2.

With regard to the take-off performance chart for the single-engine aeroplane determine the take-off distance over a 50 ft obstacle height.

Given:
OAT: 30°C
Pressure Altitude: 1000 ft
Aeroplane Mass: 2950 lb
Tailwind Component: 5 kt
Flaps: Approach setting
Runway: Short, wet grass, firm subsoil
Correction Factor: 1.25 for the current runway conditions

a. 1700 ft
b. 2500 ft
c. 2200 ft
d. 1900 ft

4. For this question use Performance Manual CAP 698 SEP1 Figure 2.1.

With regard to the take-off performance chart for the single-engine aeroplane determine the maximum allowable take-off mass.

Given:

OAT: ISA
Pressure Altitude: 4000 ft
Headwind Component: 5 kt
Flaps: up
Runway: Tarred and Dry
Factored Runway Length: 2000 ft
Obstacle Height: 50 ft

a. 3000 lb
b. 2900 lb
c. 3650 lb
d. 3200 lb

5. For this question use Performance Manual CAP 698 SEP1 Figure 2.1.

With regard to the take-off performance chart for the single-engine aeroplane determine the take-off distance to a height of 50 ft.

Given:
OAT: 30°C
Pressure Altitude: 1000 ft
Aeroplane Mass: 3450 lb
Tailwind Component: 2.5 kt
Flaps: up
Runway: Tarred and Dry

a. approximately : 2200 ft
b. approximately : 2400 ft
c. approximately : 1400 ft
d. approximately : 2800 ft

6. For this question use Performance Manual CAP 698 SEP1 Figure 2.2.

With regard to the take-off performance chart for the single-engine aeroplane determine the take-off distance to a height of 50 ft.

Given:
OAT: -7°C
Pressure Altitude: 7000 ft
Aeroplane Mass: 2950 lb
Headwind Component: 5 kt
Flaps: Approach setting
Runway: Tarred and Dry

a. approximately : 1150 ft
b. approximately : 2450 ft
c. approximately : 1500 ft
d. approximately : 2100 ft

7. For this question use Performance Manual CAP 698 SEP1 Figure 2.1.

With regard to the take-off performance chart for the single engine aeroplane determine the take-off distance to a height of 50 ft.

Given:
Airport characteristics: hard, dry and zero slope runway
Pressure altitude: 1500 ft
Outside air temperature: +18°C
Wind component: 4 knots tailwind
Take-off mass: 1270 kg

a. 520 m
b. 415 m
c. 440 m
d. 615 m

8. For this question use Performance Manual CAP 698 SEP1 Figure 2.2.

With regard to the take-off performance chart for the single-engine aeroplane determine the take-off distance to a height of 50 ft.

Given:
OAT: 38°C
Pressure Altitude: 4000 ft
Aeroplane Mass: 3400 lb
Tailwind Component: 5 kt
Flaps: Approach setting
Runway: Dry Grass
Correction Factor: 1.2

a. approximately : 3250 ft
b. approximately : 4200 ft
c. approximately : 5040 ft
d. approximately : 3900 ft

9. For a Class B aircraft at an aerodrome with no stopway or clearway, the minimum length of take-off run that must be available to satisfy the take-off 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

10. For a single-engine Class B aircraft, the rotation speed V_R:

a. must not be less than $1.1V_{S1}$
b. must not be less than V_{S1}
c. must not be less than $1.2V_{MC}$
d. must not be less than V_{MC}

11. For a single-engine Class B aircraft at an aerodrome with stopway:

a. the TOD × 1.3 must not exceed the ASDA
b. the TOD must not exceed the ASDA × 1.3
c. the TOD × 1.25 must not exceed the ASDA
d. the TOD must not exceed the ASDA × 1.25