Assignment week - 8

1) For a propeller driven aircraft with plane flaps, mission requirement data is given below
Vmax = 75 m/s ; Take off distance = 300 m ; Rate of climb = 7.62 m/s
Vstall <= 25 m/s ; Airfoil Clmax = 1.4 ; η = 0.8 ; w/hp = 8 lb/hp ; CDo = 0.02 ; e = 0.8 ; AR = 6 ; σ = 1
[Take sea level conditions]
Which one of the following can be a tentative value of wing loading during stall ?
[Hint: CLmax = 0.9 clmax]

- 450 N/m²
- 559 N/m²
- 720 N/m²
- 911 N/m²

Accepted Answers:
450 N/m²

2) Which one of the following can be a tentative value of wing loading during take off ?
[Given: Take off parameter = 120 ; Power loading = 8 lb/hp]

- 70 kg/m²
- 46 kg/m²
- 100 kg/m²
- 140 kg/m²

Accepted Answers:
70 kg/m²

3) What will be the flight path angle and maximum wing loading during climb respectively?
[Given: Climb velocity Vc = 118 ft/s ; Hint: Dynamic pressure = 16.6 lb/ft²]

- 12 deg and 62 lb/ft²
- 10 deg and 50.32 lb/ft²
- 8 deg and 78.23 lb/ft²
- None of these

Accepted Answers:
12 deg and 62 lb/ft²
4) What will be the thrust loading during climb?

- 1.57
- 2.57
- 8.25
- None of these

Accepted Answers:
None of these