Drag

1 Total drag is minimum:

a) when parasite drag equals induced drag.
b) when power is minimum.
c) when the lift over drag ratio is minimum.
d) when the aircraft flies at its minimum straight and level speed.

2 For a constant weight, the minimum drag speed with increasing altitude will be:

a) the same IAS but a higher TAS.
b) the same TAS but a lower IAS.
c) the same IAS but a lower TAS.
d) a higher TAS and a higher IAS.

3 Due to decreasing density with increasing altitude, the lift/drag ratio at a given angle of attack and IAS will:

a) decrease with decreasing density
b) decrease up to the tropopause and then remain constant.
c) Increase with decreasing density
d) not change

4 For an aircraft in level flight, as speed increases:

a) both parasite and induced drag increase
b) parasite drag decreases, induced drag increases due to the increase in lift
c) parasite drag increases, induced drag decreases
d) both parasite and induced drag decrease

5 Due to decreasing density with increasing altitude, the lift/drag ratio at a given angle of attack and IAS will:

a) not change with change of density
b) decrease with altitude
c) decrease up to the tropopause and then remain constant
d) increase

6 If the weight of an aircraft is increased, the maximum lift/drag ratio will:

a) decrease.
b) increase
c) remain the same and occur at a lower speed
d) remain the same but occur at a higher speed

7 Extending airbrakes during an approach will:

a) increase induced drag
b) increase minimum drag speed
c) reduce minimum drag speed
d) decrease profile drag

8 If the weight of an aircraft is increased, the:

a) minimum drag speed will remain the same
b) stalling angle will be reduced
c) stalling speed will be reduced
d) minimum drag speed will occur at a higher speed

9 When flying at 200 kts, the value of the aircraft's drag is 1,000 kg. If the speed is increased to 400 kts, the value of drag would be:

a. 2,000 kg;
b. 4,000 kg;
c. 6,000 kg;
d. 4,500 kg.

10 In level flight, the speed at which total drag is a minimum would be

a) the maximum cruising speed
b) the normal cruising speed
c) the minimum speed for level flight
d) less than the normal cruising speed

11 For an aircraft flying at a constant IAS:

a) The drag will be the same at altitude as at sea level
b) the drag will be less at altitude than at sea level because the TAS is lower
c) the drag will be less at altitude than at sea level because the density is lower
d) the drag will be greater at altitude than at sea level because the TAS is higher

12 If the weight of an aircraft is increased, for a constant speed:

a) parasite drag will increase, induced drag will remain the same
b) induced drag will increase, parasite drag will remain the same
c) both profile drag and induced drag will remain the same
d) both parasite and induced drag will increase

13 If airspeed doubles while the angle of attack remains the same, the drag will

a) remain the same
b) double
c) increase as the square of speed

d) increase as the square of lift

14 As airspeed increases in level flight, total drag of an aircraft becomes greater than the total drag produced at the maximum L/D speed because of the

a) increase in induced drag
b) increase in parasite drag
c) decrease in parasite drag
d) increase in lift

15 For a given amount of lift, In comparison with a low aspect ratio wing, a high aspect ratio wing will have

a) decreased drag, especially at high angles of attack
b) increased drag, especially at high angles of attack
c) increased drag, especially at low angles of attack
d) decreased drag, especially at low speed

16 In comparison with a high aspect ratio wing, a low aspect ratio wing in a constant airflow velocity and given lift will have

a) decreased drag, especially at low angles of attack
b) decreased drag, especially at high angles of attack
c) increased drag, especially at high angles of attack
d) increased drag , especially at low speed

17 If an aircrafts speed is reduced by half, and altitude maintained,induced drag will increase by

a) 4 times
b) 8 times
c) 16 times
d) V^2

18 The minimum drag speed (T.A.S.) :

a) increases with an increase in altitude.
b) remains constant at all altitudes.
c) decreases with an increase in altitude.
d) is related to IAS and so is not affected by density.

19 The lowering of undercarriage and flaps increases the parasite drag:

a) thus reducing minimum drag speed and making slow speed flight speed unstable.
b) thus reducing minimum drag speed and tending to make slow speed flight more speed stable.
c) thus raising minimum drag speed and making slow speed flight speed stable.
d) thus increasing maximum drag speed and making high speed flight more stable.

20 In the Drag formula, $Cd \frac{1}{2} p V^2 S$, what does the S represent

a) average frontal area
b) total frontal area
c) wing area
d) mean frontal area

21 An increase in which of the parameters listed below will always result in an increase in Induced Drag

a) aspect ratio
b) IAS
c) L/D ratio
d) angle of attack

22 Wing tip vortices cause induced drag. In level flight this drag will increase with:

a. increasing speed and higher aspect ratio;
b. decreasing speed and higher aspect ratio;
c. decreasing speed and lower aspect ratio;
d. decreasing speed and higher aspect ratio.

Answers

1.a 2.a 3.d 4.c 5.a 6.d 7.c 8.d 9.b 10.d 11.a 12.d
13.c 14.b 15.d 16.d 17.c 18.a 19.b 20.b 21.d 22.c