FLIGHT PERFORMANCE and PLANNING

1 .Exceeding the maximum allowed aircraft mass is...

exceptionally permissible to avoid delays.

only relevant if the excess is more than 10 %.

compensated by the pilot's control inputs.

not permissible and essentially dangerous.

2. The effects on the performance of an aeroplane that is overweight would be...

improved rate of climb and higher stall speed.

the possibility of structural damage and impaired handling.

longer take-off run and decreased stall speed.

reduced stall speed and TODR.

3. In case the minimum weight as specified in the load plan cannot be achieved...

additional weight must be added using ballast.

the angle of incidence of the elevator has to be reduced.

the CG of the pilot has to be moved forward by a pillow.

the trim has to be set to "nose-heavy".

4. The center of gravity has to be located...

in front of the front C.G. limit.

behind the rear C.G. limit.

between the front and the rear C.G. limit.

right of the lateral C. G. limit.

5. The result of a rear C.G. position is...

a decrease of stability.

a decrease of range.

an increased fuel consumption.

an increased stall speed.

6. An aircraft must be loaded and operated in such a way that the center of gravity (CG) stays within the approved limits during all phases of flight. This is done to ensure...

both stability and controllability of the aircraft.

that the aircraft does not tip over on its tail while it is being loaded.

that the aircraft does not stall.

that the aircraft does not exceed the maximum permissible airspeed during a descent.

7. The primary reason for not operating an A/C when its CG is aft of the limit designated by the manufacturer is that...

stability may be impaired but the aircraft will always be controllable.

the aircraft will be uncontrollable in certain circumstances.

it will be impossible to flare out on landing.

it will be almost impossible to flare out on take-off.

8. The basic empty mass of an aircraft includes...

the mass of the aeroplane plus standard items such as unusable fuel and other unusable liquids, lubricating oil in engine and auxiliary units, fire extinguishers, pyrotechnics, emergency oxygen equipment, supplementary electronic equipment.

the total mass of the aeroplane ready for a specific type of operation excluding unusable fuel and traffic load. The mass includes items such as crew and crew baggage.

the total mass of an aeroplane ready for a specific type of operation including the required fuel and crew, but excluding traffic load.

the total mass of the aeroplane ready for a specific type of operation including crew, navigation instruments and engine cowling.

9. The total weight of an aeroplane together with its total contents at any particular time is referred to as...

gross weight.

zero fuel weight.

zero luggage weight.

basic empty weight.

10. Which of the following options includes the mass of all the installed instruments?

Trim mass

Mass of the supporting parts

Empty mass

Payload

11 .The density of AVGAS 100LL at 15° C is...

0.72 kg/l.

0.82 kg/l.

0.68 kg/l.

1.0 kg/l.

12. The conversion factor from kilogram [kg] into pounds [lb] is...

kg x 2.205 = lb.

kg x 0.454 = lb.

kg / 2.205 = lb.

kg x 2 = lb.

13. Baggage and cargo must be properly stowed and fastened, otherwise a shift of the cargo may cause...

structural damage, angle of attack stability, velocity stability.

calculable instability if the C.G. is shifting by less than 10 %.

continuous attitudes which can be corrected by the pilot using the flight controls.

uncontrollable attitudes, structural damage, risk of injuries.

14 .Loads must be adequately secured in order to...

carry extra fuel.

avoid any centre of gravity (C.G.) movements.

prevent excessive 'g'-loading during the landing flare.

allow steep turns.

15. The total weight of an aeroplane is acting vertically through the...

center of pressure.

center of gravity.

stagnation point.

neutral point.

16. The center of gravity (CG) defines...

the point through which the force of gravity is said to act on a mass.

the point on the longitudinal axis or its extension from which the centers

of gravity of all masses are referenced.

the product of mass and balance arm.

the distance from the datum to the position of a mass.

17. The term "datum" with regard to a mass and balance calculation defines...

the point on the longitudinal axis of an aeroplane or its extension from which the centers of gravity of all masses are referenced.

the point on the lateral axis of an aeroplane or its extension from which the centers of gravity of all masses are referenced.

the point on the vertical axis of an aeroplane or its extension from which the centers of gravity of all masses are referenced.

the distance from the reference plane to the center of gravity of an aircraft.

18. The term "moment" with regard to a mass and balance calculation defines the...

product of a mass and a balance arm.

sum of a mass and a balance arm.

difference of a mass and a balance arm.

quotient of a mass and a balance arm

19. The term "balance arm" in the context of a mass and balance calculation defines the...

distance from the datum to the center of gravity of a mass.

point on the longitudinal axis of an aeroplane or its extension from which the centers of gravity of all masses are referenced.

point through which the force of gravity is said to act on a mass.

distance of a mass from the center of gravity.

20. When preparing to carry out the weighing procedure on an aircraft, which of the following is required?

Drain all engine tank oil

Drain all useable fuel

Remove the batteries

Remove service equipment

21. After the power setting has been changed, it is desired to maintain the aeroplane at a constant altitude.In respect of the elevator trim it..."

should be adjusted when the speed has stabilised after the power change.

will not need any adjustment.

should be adjusted at the same time as the power change.

should be adjusted immediately before the power change to compensate for the anticipated pitch change attitude.

22 .Calculated take-off mass = 2300 lbs, calculated CG = 95.75 in, fuel burn = 170 lbs on station 87.00 in. Where is the CG situated after the landing?"

96.45 in

96.57 in

97.39 in

94.11 in

23. Calculated take-off mass = 746 kg, calculated CG = 0.371, fuel burn = 30.5 l on station 0.45 m.

Where is the CG situated after the landing?"

36.9 cm

37.5 cm

37.2 cm

36.3 cm

24. Before refuelling, an aircraft had a weight of 1800 pounds and the total moment arm is 151200 lb/in to the aft of the datum. 310 Ib of fuel was then uploaded which had an effective arm of 90 inches. The new total moment arm is?

179100 lb/in

123300 lb/in

189900 lb/in

201100 lb/in

25. For the purpose of a fligh Limitations relating to aeroplane certification in the normal category are...

an aeroplane maximum weight of below 5000 kg restricted to no aerobatics and bank angles limited to 45°.

an aeroplane maximum weight of below 2300 kg restricted to limited aerobatics and bank angles limited to 45°.

an aeroplane maximum weight of below 5700 kg restricted to aerobatics and bank angles of 30°.

an aeroplane maximum weight of below 5700 kg restricted to no spinning or aerobatics and bank angles limited to 60°.

26. When climbing with a constant power setting and maintaining a constant speed, the lift generated by the wing of an aeroplane directly opposing the weight will be...

slightly greater than the weight.

less than the weight.

the same as the weight.

significantly greater than the weight.

27. A steep turn maintaining both constant altitude and airspeed will require...

an increase of both power and angle of attack.

the angle of attack to be increased.

no adjustment as the aircraft will remain in level flight without correction.

increased power to balance increased drag.

28 .Increasing or decreasing the power setting in a single engine aeroplane changes the pitch attitude because...

the gyroscopic effect of propeller torque changes.

of the thrust line not being aligned with the drag line.

of the spontaneous difference between profile and induced drag.

of an imbalance of the lift-weight couple

29. How do high temperatures affect aircraft performance?

High temperatures result in low air density, thus raising density altitude and decreasing aircraft performance

High temperatures result in high air density, thus lowering density altitude and increasing aircraft performance

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High temperatures result in high air density, thus raising density altitude and increasing aircraft performans

30. How does aircraft flap configuration influence the take-off performance?

A higher flap setting decreases ground roll and lift-off speed, but also climb performance

A higher flap setting decreases ground roll and lift-off speed and increases climb performance

A higher flap setting decreases ground roll and increases lift-off speed and climb performance

A higher flap setting increases ground roll, lift-off speed, and climb performance

31. How does wind affect the take-off performance?

Tailwind reduces the relative wind on the airfoil. The take-off distance will increase

Headwind causes an increased airflow around the wing. The take-off distance will increase

Headwind imposes an increased drag on the aircraft. The take-off distance will increase

Tailwind aids the aircraft in overcoming the initial drag at the commencement of the take-off roll. The take-off distance will decrease

32. How does precipitation affect airplane performance?

Water on the wing may disturb the airflow, thus decreasing aircraft performance

Rain does not affect aircraft performance

Water can enter the engine cowl, thus decreasing the engine performance

Heavy rain can increase the mass of the aircraft, thus decreasing aircraft performance

33 .How is the take-off distance influenced on a grass runway in comparison to a paved surface?

The required distance for take-off will be increased. The braking performance on grass will not be as good as it would be on a paved surface

The required distance for take-off will be increased. The braking performance on grass will be better than on a paved surface

The required distance for take-off will be decreased. The braking performance on grass will not be as good as it would be on a paved surface

The required distance for take-off will be decreased. The braking performance on grass will be better than on a paved surface

34. Which factor shortens take-off distance and landing distance?

Strong head wind

High density altitude

High pressure altitude

Heavy rain

35. If air density is reduced, full throttle take-off distance will be...

reduced.

increased.

the same because increased thrust is balanced by increased drag.

the same because the aircraft will accelerate quicker due to reduced drag.

36. Regardless of the runway surface...

a down sloping runway will increase the take-off run required but decrease the landing distance required.

an up sloping runway will increase the take-off run required but decrease the landing distance required.

an up sloping runway will decrease the take-off run required and decrease the landing distance required.

a down sloping runway will decrease the take-off run required and decrease the landing distance required.

37. A wing evenly contaminated with only a small amount of frost or ice will result in...

an increase in weight and decrease in drag.

an increase in weight and drag and a significant lift reduction.

an increase in both drag and lift coefficients due to a weight increase.

an increase in weight and reduced rate of descent for any given engine power setting.

38. If an aircraft's landing weight is increased by 15 %, the landing distance required will...

increase by 25 % or the original landing distance factored by 1.25.

increase by 20 % or the original landing distance factored by 1.20.

increase by 15 % or the original landing distance factored by 1.15.

increase by 33 % or the original landing distance factored by 1.33.

39. During final approach and landing, if the TAS is significantly less than the ground speed, you will have...

headwind.

crosswind at 90°.

an inversion.

tailwind.

40. The primary reason for taking off into the wind is to...

reduce the stalling speed during take-off.

reduce the TAS at which the aeroplane will take off.

reduce the emergency distance available in the event of an aborted take-off.

reduce the take-off distance.

41. If an aircraft's take-off mass is increased by 10 %, the take-off distance required to a height of 50 ft will...

increase by 25 % or the original take-off distance by a factor of 1.25.

increase by 30 % or the original take-off distance by a factor of 1.30.

increase by 20 % or the original take-off distance by a factor of 1.20.

increase by 15 % or the original take-off distance by a factor of 1.15.

42 .How should an approach be executed on a hot summer day?

With normal speed indication (IAS)

With increased speed indication (IAS)

With reduced speed indication (IAS)

By guessing

43. The speed Vx means...

that a given altitude is reached within minimum distance.

that a given altitude is reached within minimum flight time.

that a given altitude is reached with minimum fuel consumption.

maximum altitude gain per 10 % power.

44. Increasing an aircraft's gross weight will...

increase the rate of climb.

have no effect on the rate of climb.

have no effect on the rate of descent for any given aircraft configuration.

decrease the rate of climb.

45. The term "steady flight" is defined as...

unaccelerated flight. The four forces thrust, drag, lift, and weight are in equilibrium.

climb or descent with a constant climb or descent rate in calm weather conditions.

flight in smooth air without turbulence and a perfectly trimmed aircraft.

flight with a steady power setting without changing course.

46. The speed Vy is defined as...

best angle of climb.

best rate of climb.

best speed of climb.

best distance of climb.

47 .Which climb speed may be used to optimize the rate of climb (e.g. to reach a desired altitude within minimum time)?

Vx, the best angle of climb speed

Vy, the best rate of climb speed

Vy, the best angle of climb speed

Vx, the best rate of climb speed

48 .An aircraft wing will enter a stalled condition when...

the airspeed reaches a value where lift no longer equals weight.

the angle of attack is increased too far.

the angle of incidence achieves a critical point.

the angle of attack equals or just exceeds the rigging angle.

49. If the stalling speed of an aeroplane in the landing configuration (Vso) is 40 kt, what should be the minimum approach speed?

54 kt

50 kt

52 kt

48 kt

50. If the approach and landing speeds are increased above those recommended in the Pilot's Operating Handbook...

the landing distance will be unaffected on a dry runway.

the landing distance will be reduced due to increased braking action.

the landing distance will be increased.

the landing distance will be unaffected as long as the glide path angle is reduced to compensate for the higher approach speed.

51. The use of flaps will...

increase the stalling speed.

have no effect on the stalling speed.

cause fluctuation of stalling speed at the stalling angle of attack due to break up of laminar flow over the trailing edge.

decrease the stalling speed.

52. Which is the shortest possible landing distance according to the diagram with a given OAT of 10° C, a pressure altitude of 3000 ft and a headwind of 9 kt?

Approx. 370 m

Approx. 365 m

Approx. 350 m

Approx. 389 m

53. The fuel consumption when cruising at a pressure altitude of 6000 ft (standard temperature) and with an engine performance of 60% is...

19.2 l/h.

18.5 l/h.

20.8 l/h.

18.2 l/h.

54. The information in the cruise performance table refers to the...

maximum aeroplane mass and only temperatures according to ICAO standard atmosphere.

maximum aeroplane mass and correctly leaned mixture.

average mass of the aircraft with attached wheel spats.

maximum aeroplane mass and fully rich mixture.

55. Increasing an aircraft's gross weight will...

increase the rate of climb.

decrease the rate of climb.

have no effect on the rate of climb.

have no effect on the rate of climb at lower levels up to 7000 ft.

56 .When carburettor heat is applied on the ground or in the air, the engine speed drops...

because the airflow in the carburettor is mechanically inhibited.

because the fuel flow is increased to compensate for the weaker mixture due to warmer, denser air.

because there is a power loss resulting from warmer, less dense air entering the combustion chamber.

because the fuel flow is reduced to compensate for the warmer, denser air entering the combustion chamber.

57. The probable consequence of any ambient temperature increase upon air density and aircraft performance would be...

an increase in both air density and engine power available.

a decrease in both air density and engine power available.

a decrease in air density with an increase in engine power available.

an increase in air density with a decrease in engine power available.

58. The variable physical properties of the atmosphere that affect aircraft performance are...

temperature, pressure, and humidity.

pressure, humidity, and oxygen content.

temperature, pressure, density, and humidity.

pressure, density, humidity, and specific gravity.

59. Flight for maximum endurance in a piston engine aircraft is achieved by flying...

at the same speed as for maximum range and at optimum throttle height.

at a lower speed than for maximum range and at the lowest altitude that is safely possible.

at a higher speed than for maximum range and at the lowest altitude that is safely possible.

at a lower speed than for maximum range and at the service ceiling.

60. In comparison to the true airspeed (TAS) in still air conditions, the TAS for the best range in a strong tailwind will be...

the same.

slightly higher.

significantly lower, proportional to the tailwind component.

slightly lower.

61. When gliding for maximum range, the greater the aircraft weight...

the greater the angle of attack and the slower the airspeed.

the shallower the glidepath and the slower the airspeed.

the steeper the glide path and the slower the airspeed.

the steeper the glide path and the higher the airspeed.

62. If an aeroplane with a lift / drag ratio of 6:1 was at 6000 ft, the maximum distance it could glide in still air conditions would be aproximately...

1 nautical mile.

3 nautical miles.

6 nautical miles.

6 kilometres.

63. Flight for maximum range in a piston engined aircraft is achieved by flying...

at the lowest density altitude that is safely possible.

at just above the minimum drag speed.

just below that speed which provides the maximum power / airspeed ratio.

at the same speed for maximum endurance + 10 % and at the lowest density altitude that is safely possible.

64. The term "maximum elevation figure" (MEF) is defined as...

the highest elevation within an area covering 30 minutes of latitude and 30 minutes of longitude plus a safety margin, rounded to the next higher 100 ft.

the highest elevation within an area covering 30 minutes of latitude and 30 minutes of longitude plus a safety margin of 1000 ft (305 m), rounded to the next higher 100 ft.

the highest elevation within an area covering 30 minutes of latitude and 30 minutes of longitude.

the highest elevation within an area covering 1 degree of latitude and 1 degree of longitude plus a safety margin, rounded to the next lower 100 ft.

65. The VFR semicircular rules are based on the...

magnetic track

true heading.

magnetic bearing.

true course.

66. What is the lowest possible VFR flight level if a true course of 181° is selected and a variation of 3° east exists?

FL 055

FL 050

FL 065

FL 060

67. A flight time of 20 minutes is necessary for a route of 10.8 cm on the aeronautical chart ICAO 1:500 000. What is the ground speed (GS) according to this?"

162 kt

200 MPH

162 km/h

200 km/h

68. An aircraft climbs from an aerodrome (ELEV = 1500 ft MSL) at a rate of climb of 600 ft/min, QNH = 1013.2 hPa, GS =85 MPH in climb. At what distance from the aerodrome does it reach FL 75?

20 NM

18 NM

12 NM

16 NM

69. The required fuel load for a flight is 300 pounds. Given that the specific gravity of the fuel is 0.72, how much fuel in litres should be uplifted, presuming the tanks are empty?

41.5 litres

275.0 litres

85.0 litres

189.0 litres

70. 12 Imperial gallons of fuel with a specific gravity of 0.73 have a weight of...

87.6 lb.

72.2 lb.

120.5 lb.

145.9 lb.

71. Given the following data:

Fuel for start-up, taxi, run-up and take-off: 2 Imp gal

Planned flight time: 1 h 30 min

Planned diversion time: 20 min

Fuel consumption rate: 10 Imp gal/h

Reserve required at the alternate aerodrome: 7 Imp gal

72. What is the minimum fuel required before start up?

24 Imp gals

28 Imp gals

32 Imp gals

36 Imp gals

73. What is the meaning of the "Z" in a METAR?

Coordinated Universal Time

Local mean time

No clouds below 5000 ft

Past weather conditions

74. The EOBT (estimated off-block time) is specified in the ATS flight plan as...

Central European Time (CET).

Local Mean Time (LMT).

Coordinated Universal Time (UTC).

Standard Time (ST).

75. What must be considered for cross-border flights?

Approved exceptions

Transmission of hazard reports

Required flight plans

Regular location messages

76. During a flight, a flight plan can be filed at the...

Flight Information Service (FIS).

Aeronautical Information Service (AIS).

Search and Rescue Service (SAR).

next airport operator en-route.