Examination Center DGAC

Examination Date _____

Name _____

Firstname _____

Birthday _____

1 An example of differential aileron deflection during initiation of left turn is: (1.00 P.)

[A] Left aileron: 2° down
Right aileron: 5° up

[B] Left aileron: 5° down
Right aileron: 2° up

[C] Left aileron: 5° up
Right aileron: 2° down

[D] Left aileron: 2° up
Right aileron: 5° down

2 To be able to predict compressibility effects you have to determine the: (1.00 P.)

[A] Mach Number.

[B] IAS.

[C] TAS.

[D] EAS.

3 Does the pitch-angle of a constant-speed propeller alter in medium horizontal turbulence? (1.00 P.)

[A] No.

[B] Yes strongly.

[C] Yes, but only if the pitch is full-fine.

[D] Yes slightly.

4 When trailing edge flaps are selected down whilst maintaining straight and level flight at constant IAS: (1.00 P.)

[A] the lift coefficient and the drag coefficient increase.

[B] the total boundary layer becomes laminar.

[C] the centre of pressure moves aft.

[D] the stall speed increases.

5 The formula for the Mach Number is:
(a= speed of sound) (1.00 P.)

[A] M= IAS / a

[B] M= TAS / a

[C] M= TAS*a

[D] M= a / TAS

6 Assuming ISA conditions, climbing at a constant Mach Number up to FL 350 the TAS will: (1.00 P.)

[A] remain constant.

[B] decrease.

[C] increase.

[D] first increase, then decrease.

7 Which of the following situations leads to a decreasing stall speed (IAS)? (1.00 P.)

[A] decreasing weight.

[B] increasing altitude.

[C] increasing load factor.

[D] increasing air density.

8 The speed of sound is affected by the: (1.00 P.)

[A] pressure of the air.

[B] temperature of the air.

[C] density of the air.

[D] humidity of the air.

9 Two identical aircraft A and B, with the same mass, are flying steady level co-ordinated 20 degree bank turns. If the TAS of A is 130 kt and that of B is 200 kt: (1.00 P.)

[A] the rate of turn of A is greater than that of B.

[B] the load factor of A is greater than that of B.

[C] the lift coefficient of A is less than that of B.

[D] the turn radius of A is greater than that of B.

10 Which of the following statements about a constant speed propeller is correct? (1.00 P.)

[A] The propeller system keeps the aeroplane speed constant.

[B] The blade angle increases with increasing aeroplane speed.

[C] The selected RPM is kept constant by the manifold pressure.

[D] The RPM decreases with increasing aeroplane speed.

11 An aeroplane is flying through the transonic range. As the Mach Number increases the centre of pressure of the wing will move aft. This movement requires: (1.00 P.)

[A] a stability augmentation system to improve dynamic stability.

[B] a higher IAS to compensate the nose down effect.

[C] much more thrust from the engine.

[D] a pitch up input of the stabilizer.

12 The difference between IAS and TAS will: (1.00 P.)

[A] increase with increasing air density.

[B] decrease with decreasing altitude.

[C] increase with decreasing temperature.

[D] decrease with increasing speed.

13 The additional increase of drag at Mach Numbers above the critical Mach Number is due to: (1.00 P.)

[A] increased interference drag.

[B] wave drag.

[C] increased skin friction.

[D] increased angle of attack.

14 Air passes a normal shock wave. Which of the following statements is correct? (1.00 P.)

[A] The static temperature decreases.

[B] The velocity increases.

[C] The static pressure decreases.

[D] The static temperature increases.

15 Increase of wing loading will: (1.00 P.)

[A] increase CLmax.

[B] increase the stall speeds.

[C] decrease take off speeds.

[D] decrease the minimum gliding angle.

16 An aeroplane performs a right turn, the slip indicator is left of neutral. One way to co-ordinate the turn is to apply: (1.00 P.)

[A] more right rudder.

[B] a higher turn-rate.

[C] more left rudder.

[D] less right bank.

17 The bow wave will first appear at: (1.00 P.)

[A] a Mach number just below M = 1

[B] Mach 1

[C] a Mach number just above M = 1

[D] the critical Mach number

18 A light twin is in a turn at 20 degrees bank and 150 kt TAS. A more heavy aeroplane at the same bank and the same speed will: (1.00 P.)

[A] turn at a smaller turn radius.

[B] turn at a bigger turn radius.

[C] turn at a higher turn rate.

[D] turn at the same turn radius.

19 Two methods to increase the critical Mach Number are: (1.00 P.)

[A] positive cambering of the aerofoil and sweep back of the wing.

[B] thick aerofoils and dihedral of the wing.

[C] thin aerofoils and sweep back of the wing.

[D] thin aerofoils and dihedral of the wing.

20 A commercial jet aeroplane is performing a straight descent at a constant Mach number with constant mass. The operational speed limit that may be exceeded is: (1.00 P.)

[A] VMO.

[B] VD.

[C] VNE.

[D] MMO.

21 Which statement is correct about an aeroplane, that has experienced a left engine failure and continues afterwards in straight and level cruise flight with wings level ? (1.00 P.)

[A] turn indicator neutral, slip indicator neutral.

[B] turn indicator neutral, slip indicator left of neutral.

[C] turn indicator left of neutral, slip indicator neutral.

[D] turn indicator left of neutral, slip indicator left of neutral.

22 The bank angle in a rate-one turn depends on: (1.00 P.)

[A] load factor.

[B] weight.

[C] TAS.

[D] wind.

23 The relationship between the stall speed VS and VA (EAS) for a large transport aeroplane can be expressed in the following formula:
(SQRT= square root) (1.00 P.)

[A] VA >= VS SQRT(2.5)

[B] VA > VS SQRT(2.5)

[C] VA <= VS SQRT(2.5)

[D] VA < VS SQRT(2.5)

24 Which statement about induced drag and tip vortices is correct? (1.00 P.)

[A] The wing tip vortices and the induced drag decrease at increasing angle of attack.

[B] The flow direction at the upper and under side of the wing, both deviate in wing tip direction.

[C] The flow direction at the upper side of the wing has a component in wing root direction, the flow at the underside of the wing in wing tip direction.

[D] Tip vortices can be diminished by vortex generators.

25 By what percentage does VA (EAS) alter when the aeroplane's weight decreases by 19%? (1.00 P.)

[A] 19% lower.

[B] no change

[C] 10% lower.

[D] 4.36% lower.

26 Which load factor determines VA? (1.00 P.)

[A] manoeuvring limit load factor.

[B] manoeuvring ultimate load factor.

[C] gust load factor at 66 ft/sec gust.

[D] manoeuvring flap limit load factor.

27 VA is: (1.00 P.)

[A] the maximum speed at which rolls are allowed.

[B] the speed that should not be exceeded in the climb.

[C] the maximum speed at which maximum elevator deflection up is allowed.

[D] the speed at which a heavy transport aeroplane should fly in turbulence.

28 Compared with stalling airspeed (VS) in a given configuration, the airspeed at which stick shaker will be triggered is: (1.00 P.)

[A] 1.20 VS.

[B] greater than VS.

[C] 1.12 VS.

[D] 1.30 VS.

29 What can happen to the aeroplane structure flying at a speed just exceeding VA ? (1.00 P.)

[A] It will collapse if a turn is made.

[B] It may suffer permanent deformation because the flight is performed at too large dynamic pressure.

[C] It may break if the elevator is fully deflected upwards.

[D] It may suffer permanent deformation if the elevator is fully deflected upwards

30 The term angle of attack in a two dimensional flow is defined as: (1.00 P.)

[A] the angle formed by the longitudinal axis of the aeroplane and the chord line of the wing

[B] the angle between the wing chord line and the direction of the relative wind/airflow.

[C] the angle for maximum lift/drag ratio

[D] the angle between the aeroplane climb path and the horizon.

31 What is the limit load factor of a large transport aeroplane in the manoeuvring diagram? (1.00 P.)

[A] 2.5

[B] 1.5

[C] 3.75

[D] 6

32 The terms "q" and "S" in the lift formula are: (1.00 P.)

[A] static pressure and dynamic pressure

[B] static pressure and wing surface area

[C] dynamic pressure and the area of the wing

[D] square root of surface and wing loading

33 The critical angle of attack: (1.00 P.)

[A] decreases if the CG is moved aft

[B] increases if the CG is moved forward

[C] changes with an increase in gross weight

[D] remains unchanged regardless of gross weight

34 Comparing the lift coefficient and drag coefficient at normal angle of attack: (1.00 P.)

[A] CL is much greater than CD

[B] CL is lower than CD

[C] CL is much lower than CD

[D] CL has approximately the same value as CD

35 Which statement is correct in respect of Cl and angle of attack? (1.00 P.)

[A] For a symmetrical aerofoil, if the angle of attack is zero, Cl is not zero.

[B] For an asymmetrical aerofoil, if the angle of attack is zero, Cl is zero.

[C] For an asymmetrical aerofoil with positive camber, if the angle of attack is greater than zero, Cl is zero.

[D] For a symmetrical aerofoil, if the angle of attack is zero, Cl is zero.

36 The polar curve of an aerofoil is a graphic relation between: (1.00 P.)

[A] TAS and stall speed

[B] Angle of attack and CL

[C] CL and CD

[D] CD and angle of attack

37 The Mean Aerodynamic Chord (MAC) for a given wing of any planform is (1.00 P.)

[A] the chord of a large rectangular wing

[B] the average chord of the actual aeroplane

[C] the wing area divided by the wing span

[D] the chord of a rectangular wing with same moment and lift

38 The span-wise flow is caused by the difference between the air pressure on top and beneath the wing and its direction of movement goes from: (1.00 P.)

[A] the top to beneath the wing via the wing's trailing edge

[B] beneath to the top of the wing via the wing tip

[C] beneath to the top of the wing via the trailing edge

[D] the top to beneath the wing via the leading edge

39 Induced drag may be reduced by: (1.00 P.)

[A] the use of a wing tip with a much thinner aerofoil

[B] an increase in aspect ratio

[C] a decrease of the aspect ratio

[D] an increase in the taper ratio of the wing

40 The relationship between induced drag and the aspect ratio is: (1.00 P.)

[A] there is no relationship

[B] a decrease in the aspect ratio increases the induced drag

[C] an increase in the aspect ratio increases the induced drag

[D] induced drag = 1.3 aspect ratio value

41 A high aspect ratio wing produces: (1.00 P.)

[A] a decrease in induced drag

[B] a decrease in stall speed

[C] less sensitivity to gust effects

[D] an increase in induced drag

42 What is the effect on induced drag of mass and speed changes? (all other factors of importance remaining constant) (1.00 P.)

[A] Decreases with decreasing speed and decreasing mass.

[B] Decreases with increasing speed and decreasing mass.

[C] Increases with increasing speed and increasing mass.

[D] Increases with increasing speed and decreasing mass.

43 What will happen in ground effect? (1.00 P.)

[A] The wing downwash on the tail surfaces increases.

[B] The induced angle of attack and induced drag decrease.

[C] The thrust required will increase significantly.

[D] The wing tip vortices increase in strength.

44 Floating due to ground effect during an approach to land will occur: (1.00 P.)

[A] when the height is less than twice the length of the wing span above the surface

[B] when a higher than normal angle of attack is used

[C] when the height is less than halve of the length of the wing span above the surface

[D] at a speed approaching the stall

45 Which statement is correct about the laminar and turbulent boundary layer: (1.00 P.)

[A] friction drag will be equal in both types of layers

[B] friction drag is lower in the laminar layer

[C] separation point will occur earlier in the turbulent layer

[D] friction drag is lower in the turbulent layer

46 After the transition point between the laminar and turbulent boundary layer (1.00 P.)

[A] the boundary layer gets thinner and the speed increases

[B] the boundary layer gets thicker and the speed decreases

[C] the mean speed and friction drag increases

[D] the mean speed increases and the friction drag decreases

47 The stall speed: (1.00 P.)

[A] increases with an increased weight

[B] does not depend on weight

[C] decreases with an increased weight

[D] increases with the length of the wingspan

48 When a pilot makes a turn in horizontal flight, the stall speed: (1.00 P.)

[A] increases with the square root of load factor

[B] increases with the load factor squared

[C] increases with flap extension

[D] decreases with increasing bank angle

49 The stall speed in a 60° banked turn increases by the following factor: (1.00 P.)

[A] 1.30

[B] 1.41

[C] 2.00

[D] 1.07

50 The trailing edge flaps when extended: (1.00 P.)

[A] increase the zero lift angle of attack

[B] degrade the best angle of glide

[C] significantly increase the angle of attack for maximum lift

[D] significantly lower the drag

51 When trailing edge flaps are extended in level flight, the change in pitching moment, ignoring any effects on the tailplane, will be: (1.00 P.)

[A] nose down.

[B] dependent on cg location.

[C] zero.

[D] nose up.

52 Deflection of leading edge flaps will: (1.00 P.)

[A] not affect critical angle of attack.

[B] increase critical angle of attack.

[C] decrease drag.

[D] decrease CLmax.

53 Slat extension will: (1.00 P.)

[A] reduce tip vortices.

[B] decrease the energy in the boundary layer on the upperside of the wing.

[C] create gaps between leading edge and engine nacelles.

[D] increase the critical angle of attack.

54 Spoiler deflection causes: (1.00 P.)

[A] an increase in lift and drag

[B] decrease in lift and drag

[C] an increase in lift only

[D] an increase in drag and decrease in lift

55 An aeroplane performs a continuous descent with 160 kts IAS and 1000 feet/min vertical speed. In this condition: (1.00 P.)

[A] lift is less than drag

[B] weight is greater than lift

[C] drag is less than the combined forces that move the aeroplane forward

[D] lift is equal to weight

56 One disadvantage of wing sweep is the stalling characteristics. At the stall: (1.00 P.)

[A] wing root stall will occur first, which produces a rolling moment

[B] leading edge stall will occur first, which produces a nose-down moment

[C] tip stall will occur first, which produces a nose-down moment

[D] tip stall will occur first, which produces a pitch-up moment.

57 The Mach number: (1.00 P.)

[A] increases at a given TAS, when the temperature rises.

[B] is the ratio between the TAS of the aeroplane and the speed of sound at sea level.

[C] is the ratio between the IAS of the aeroplane and the local speed of sound.

[D] is the ratio between the TAS of the aeroplane and the local speed of sound.

58 What factors determine the distance travelled over the ground of an aeroplane in a glide ? (1.00 P.)

[A] The wind and the lift/drag ratio, which changes with angle of attack

[B] The wind and weight together with power loading, which is the ratio of power output to the weight

[C] The wind and the aeroplane's mass

[D] The wind and CLmax

59 A normal shock wave: (1.00 P.)

[A] is a discontinuity plane in an airflow, in which the pressure drops suddenly.

[B] is a discontinuity plane in an airflow, which is always normal to the surface.

[C] can occur at different points on the aeroplane in transonic flight.

[D] is a discontinuity plane in an airflow, in which the temperature drops suddenly.

60 The following unit of measurement: kgm/s² is expressed in the SI-system as: (1.00 P.)

[A] Newton

[B] Watt

[C] Pascal

[D] Joule

61 Excluding constants, the coefficient of induced drag (CDi) is the ratio of: (1.00 P.)

[A] CL and b (wing span)

[B] $CL^2$and S (wing surface)

[C] CL^2 and AR (aspect ratio)

[D] CL and CD

62 One important advantage the turbulent boundary layer has over the laminar layer is that: (1.00 P.)

[A] it has less tendency to separate from the surface

[B] energy is less

[C] it is thinner

[D] skin friction drag is less

63 Which kind of "tab" is commonly used in case of manual reversion of fully powered flight controls ? (1.00 P.)

[A] Anti-balance tab

[B] Balance tab

[C] Servo tab

[D] Spring tab

64 High Aspect Ratio, as compared with low Aspect Ratio, has the effect of: (1.00 P.)

[A] Increasing induced drag and decreasing critical angle of attack

[B] Increasing lift and critical angle of attack

[C] Increasing lift and drag

[D] Decreasing induced drag and critical angle of attack

65 What wing shape or wing characteristic is the least sensitive to turbulence: (1.00 P.)

[A] wing dihedral

[B] straight wings

[C] elliptical wing

[D] swept wings

66 "A line connecting the leading- and trailing edge midway between the upper and lower surface of a aerofoil". This definition is applicable for: (1.00 P.)

[A] the upper camber line

[B] the camber line

[C] the mean aerodynamic chord line

[D] the chord line

67 One advantage of a movable-stabilizer system compared with an elevator trim system is that: (1.00 P.)

[A] the complete system (structure and control mechanism) weighs less

[B] it is a more effective means of trimming

[C] the system's complexity is reduced

[D] it leads to greater stability in flight

68 An aeroplane has a stall speed of 78 KCAS at its gross weight of 6850 Ibs. What is the stall speed when the weight is 5000 Ibs ? (1.00 P.)

[A] 67 KCAS

[B] 78 KCAS

[C] 91 KCAS

[D] 57 KCAS

69 Which statement is correct about a spring tab ? (1.00 P.)

[A] At high IAS it behaves like a fixed extension of the elevator

[B] At low IAS it behaves like a servo tab

[C] Its main purpose is to increase stick force per g

[D] At high IAS it behaves like a servo tab

70 How is adverse yaw compensated for during entry into and roll out from a turn ? (1.00 P.)

[A] Horn-balanced controls

[B] Differential aileron deflection

[C] Servo tabs

[D] Anti-balanced rudder control

71 What increases the stalling angle of attack ? Use of: (1.00 P.)

[A] spoilers

[B] fuselage mounted speed-brakes

[C] slats

[D] flaps

72 The use of a slot in the leading edge of the wing enables the aeroplane to fly at a slower speed because: (1.00 P.)

[A] it changes the camber of the wing

[B] it delays the stall to a higher angle of attack

[C] it decelerates the upper surface boundary layer air

[D] the laminar part of the boundary layer gets thicker

73 The angle of attack of a fixed pitch propeller blade increases when: (1.00 P.)

[A] RPM increases and forward velocity decreases

[B] velocity and RPM decrease

[C] forward velocity increases and RPM decreasing

[D] velocity and RPM increase

74 What is the approximate value of the lift of an aeroplane at a gross weight of 50 000 N, in a horizontal coordinated 45 degrees banked turn ? (1.00 P.)

[A] 50 000 N

[B] 70 000 N

[C] 80 000 N

[D] 60 000 N

75 Load factor is: (1.00 P.)

[A] 1/Bank angle

[B] Weight/Lift

[C] Wing loading

[D] Lift/Weight

76 Which has the effect of increasing load factor ? (all other relevant factors being constant) (1.00 P.)

[A] Increased aeroplane mass

[B] Increased air density

[C] Vertical gusts

[D] Rearward CG location

77 In twin-engine aeroplanes with right turning propellers (1.00 P.)

[A] the left engine produces a higher yaw moment if the right engine fails than vice versa.

[B] the 'minimum control speed' is determined by the failure of the right engine.

[C] the left engine is the critical motor.

[D] the right engine is the critical motor.

78 The continuity equation states: If the area of a tube is increasing, the speed of the subsonic and incompressible flow inside is (1.00 P.)

[A] decreasing.

[B] not changing.

[C] increasing.

[D] sonic.

79 If the continuity equation is applicable, what will happen to the air density (rho) if the cross sectional area of a tube changes ? (low speed, subsonic and incompressible flow) (1.00 P.)

[A] The density depends on the change of the tube area.

[B] rho1 < rho2

[C] rho1 > rho2

[D] rho1 = rho2

80 The critical Mach number for an aerofoil equals the free stream airfoil Mach number at which: (1.00 P.)

[A] the maximum operating temperature is reached.

[B] a "supersonic bell" appears on the upper surface.

[C] a shock-wave appears on the upper surface.

[D] sonic speed (M=1) is reached at a certain point on the upper side of the aerofoil.

81 Bernoulli's equation can be written as:
(pt = total pressure, ps = static pressure, q = dynamic pressure) (1.00 P.)

[A] pt = ps - q

[B] pt = q - ps

[C] pt - q = ps

[D] pt + ps = q

82 Which kind of boundary layer has the strongest change in velocity close to the surface? (1.00 P.)

[A] Turbulent boundary layer

[B] No difference

[C] Transition boundary layer

[D] Laminar boundary layer

83 081-002.jpg
Which one of the bodies in motion (all bodies have the same cross section area) will have lowest drag? (1.00 P.)

Siehe Anlage 1

[A] Body d

[B] Body b

[C] Body c

[D] Body a

84 Increasing dynamic pressure will have the following effect on the drag of an aeroplane (all other factors of importance remaining constant): (1.00 P.)

[A] none

[B] at speeds greater than the minimum drag speed, drag increases.

[C] drag increases across the whole speed range.

[D] drag decreases across the whole speed range.

85 Increasing air density will have the following effect on the drag of a body in an airstream (angle of attack and TAS are constant): (1.00 P.)

[A] the drag increases.

[B] this has no effect.

[C] the drag decreases.

[D] the drag is only affected by the ground speed.

86 Which of the following aeroplane parts affect induced drag most? (1.00 P.)

[A] Engine cowling

[B] Wing tip

[C] Landing gear

[D] Wing root junction

87 Winglets (1.00 P.)

[A] decrease the static lateral stability.

[B] increase the manoeuvrability.

[C] decrease the induced drag.

[D] create an elliptical lift distribution.

88 Interference drag is the result of: (1.00 P.)

[A] aerodynamic interaction between aeroplane parts (e.g. wing/fuselage).

[B] the addition of induced and parasite drag

[C] separation of the induced vortex.

[D] downwash behind the wing.

89 081-003.jpg
Which line represents the total drag line of an aeroplane? (1.00 P.)

Siehe Anlage 2

[A] Line a

[B] Line b

[C] Line d

[D] Line c

90 081-004.jpg
The diagram shows the parameter X versus TAS. If a horizontal flight is considered the axis X shows (1.00 P.)

Siehe Anlage 3

[A] the lift force.

[B] the parasite drag.

[C] the induced drag.

[D] the total drag.

91 081-005.jpg
How are the speeds (shown in the figure) at point 1 and point 2 related to the relative wind/airflow V? (1.00 P.)

Siehe Anlage 4

[A] V1 = 0 and V2 = V

[B] V1 = 0 and V2 > V

[C] V1 < V2 and V2 < V

[D] V1 > V2 and V2 < V

92 Consider an aerofoil with a certain camber and a positive angle of attack. At which location will the highest flow velocities occur ? (1.00 P.)

[A] Lower side

[B] In the stagnation point

[C] Upper side

[D] In front of the stagnation point

93 The forces of lift and drag on an aerofoil are, respectively, normal and parallel to the: (1.00 P.)

[A] longitudinal axis.

[B] horizon.

[C] chord line.

[D] relative wind/airflow.

94 If an aeroplane flies in the ground effect (1.00 P.)

[A] the lift is increased and the drag is decreased.

[B] the effective angle of attack is decreased.

[C] the induced angle of attack is increased.

[D] drag and lift are reduced.

95 Ground effect has the following influence on the landing distance: (1.00 P.)

[A] increases.

[B] decreases.

[C] increases, only if the landing flaps are fully extended.

[D] does not change.

96 An aeroplane performs a straight and level horizontal flight at the same angle of attack at two different altitudes. (all other factors of importance being constant, assume ISA conditions and no compressibility effects) (1.00 P.)

[A] the TAS at both altitudes is the same

[B] the TAS at the higher altitude is higher

[C] the TAS at the higher altitude is lower

[D] the TAS at the higher altitude cannot be determined

97 081-006.jpg
Which point shown in the figure corresponds with CL for minimum horizontal flight speed? (1.00 P.)

Siehe Anlage 5

[A] Point a

[B] Point b

[C] Point c

[D] Point d

98 081-007.jpg
Which point marks the value for minimum sink rate (assume zero thrust) ? (1.00 P.)

Siehe Anlage 6

[A] Point 3

[B] Point 4

[C] Point 1

[D] Point 2

99 081-008.jpg
Which point in the diagram corresponds to the minimum (zero thrust) glide angle ? (1.00 P.)

Siehe Anlage 7

[A] Point 2

[B] Point 1

[C] Point 4

[D] Point 3

100 081-009.jpg
Which point in the diagram gives the lowest speed in horizontal flight? (1.00 P.)

Siehe Anlage 8

[A] Point 4

[B] Point 1

[C] Point 3

[D] Point 2

101 At higher altitudes, the stall speed (IAS): (1.00 P.)

[A] increases

[B] decreases

[C] decreases until the tropopause

[D] remains the same

102 What is the correct relationship between the true airspeed for (i) minimum sink rate and (ii) minimum glide angle, at a given altitude? (1.00 P.)

[A] (i) is greater than (ii)

[B] (i) is less than (ii)

[C] (i) can be greater than or less than (ii) depending on the type of aeroplane

[D] (i) is equal to (ii)

103 If you decrease the propeller pitch during a glide with idle-power at constant IAS the lift to drag ratio will (1.00 P.)

[A] decrease and the rate of descent will increase.

[B] decrease and the rate of descent will decrease.

[C] increase and the rate of descent will increase.

[D] increase and the rate of descent will decrease.

104 If you increase the propeller pitch during a glide with idle-power at constant IAS the lift to drag ratio will (1.00 P.)

[A] increase and the rate of descent will increase.

[B] decrease and the rate of descent will decrease.

[C] increase and the rate of descent will decrease.

[D] decrease and the rate of descent will increase.

105 Which statement is correct?
The lift to drag ratio determines the (1.00 P.)

[A] maximum rate of climb.

[B] endurance speed.

[C] horizontal glide distance from a given altitude at zero wind and zero thrust.

[D] horizontal distance in the climb up to a given altitude.

106 081-010.jpg
Which type of flap is shown in the picture? (1.00 P.)

Siehe Anlage 9

[A] Double slotted flap

[B] Fowler flap

[C] Split flap

[D] Plain flap

107 081-011.jpg
Which type of flap is shown in the picture? (1.00 P.)

Siehe Anlage 10

[A] Single slotted flap

[B] Plain flap

[C] Split flap

[D] Fowler flap

108 081-012.jpg
The high lift device shown in the figure is a (1.00 P.)

Siehe Anlage 11

[A] Slat

[B] Krueger flap

[C] Slotted flap

[D] Fowler flap

109 081-013.jpg
The high lift device shown in the figure below is a (1.00 P.)

Siehe Anlage 12

[A] Slotted flap

[B] Slot or slat

[C] Fowler flap

[D] Krueger flap

110 A plain flap will increase CLmax by (1.00 P.)

[A] boundary layer control.

[B] increasing angle of attack.

[C] increasing the camber of the aerofoil.

[D] centre of lift movement.

111 An aeroplane is descending at a constant Mach number from FL 350. What is the effect on true airspeed ? (1.00 P.)

[A] It remains constant

[B] It decreases as altitude decreases

[C] It decreases as pressure increases

[D] It increases as temperature increases

112 During the retraction of the flaps at a constant angle of attack the aeroplane starts to (all other factors of importance being constant) (1.00 P.)

[A] bank.

[B] sink suddenly.

[C] climb.

[D] yaw.

113 A jet aeroplane is cruising at high altitude with a Mach-number, that provides a buffet margin of 0.3g incremental. In order to increase the buffet margin to 0.4g incremental the pilot must: (1.00 P.)

[A] fly at a lower altitude and the same Mach-number

[B] fly at a higher Mach-number

[C] fly at a larger angle of attack

[D] extend the flaps to the first selection

114 During the extension of the flaps at a constant angle of attack the aeroplane starts to (all other factors of importance being constant) (1.00 P.)

[A] sink suddenly.

[B] bank.

[C] climb.

[D] yaw.

115 For an aeroplane with one fixed value of VA the following applies. VA is: (1.00 P.)

[A] just another symbol for the rough air speed

[B] the speed at which unrestricted application of elevator control can be used, without exceeding the maximum manoeuvring limit load factor

[C] the maximum speed in smooth air

[D] the speed at which the aeroplane stalls at the manoeuvring limit load factor at MTOW.

116 Compared with the clean configuration, the angle of attack at CLmax with trailing edge flaps extended is: (1.00 P.)

[A] smaller.

[B] larger.

[C] unchanged.

[D] smaller or larger depending on the degree of flap extension.

117 A slat will (1.00 P.)

[A] increase the camber of the aerofoil and divert the flow around the sharp leading edge.

[B] increase the lift by increasing the wing area and the camber of the aft portion of the wing.

[C] prolongs the stall to a higher angle of attack.

[D] provide a boundary layer suction on the upper surface of the wing.

118 One method to compensate adverse yaw is: (1.00 P.)

[A] a differential aileron.

[B] an anti-balance tab.

[C] a balance panel.

[D] a balance tab.

119 Critical Mach number is the free stream Mach number at which: (1.00 P.)

[A] there is supersonic flow over all parts of the aeroplane.

[B] there is subsonic flow over all parts of the aeroplane.

[C] the aeroplane has zero buffet margin.

[D] local supersonic flow first exists on any part of the aeroplane.

120 The sensor of a stall warning system can be activated by a change in the location of the (1.00 P.)

[A] transition region.

[B] stagnation point.

[C] centre of gravity.

[D] centre of lift.

121 Which aeroplane design has the highest probability of a super stall? (1.00 P.)

[A] Swept wings.

[B] A T-tail.

[C] A low horizontal tail.

[D] A canard wing.

122 The pitch up effect of an aeroplane with swept wing in a stall is due to the (1.00 P.)

[A] wing root stalling first.

[B] aft movement of the centre of gravity.

[C] wing tip stalling first.

[D] forward movement of the centre of gravity.

123 The Mach-trim function is installed on most commercial jets in order to minimize the adverse effects of: (1.00 P.)

[A] increased drag due to shock wave formation

[B] changes in the position of centre of pressure

[C] compressibility effects on the stabilizer

[D] uncontrolled changes in stabilizer setting

124 A jet aeroplane equipped with inboard and outboard ailerons is cruising at its normal cruise Mach number. In this case (1.00 P.)

[A] only the outboard aileron are active.

[B] only the spoilers will be active, not the ailerons.

[C] only the inboard ailerons are active.

[D] the inboard and outboard ailerons are active.

125 When comparing a rectangular wing and a swept back wing of the same wing area and wing loading, the swept back wing has the advantage of: (1.00 P.)

[A] Greater strength

[B] Lower stalling speed

[C] Increased longitudinal stability

[D] Higher critical Mach number

126 What is the effect of an aft shift of the centre of gravity on (1) static longitudinal stability and (2) the required control deflection for a given pitch change? (1.00 P.)

[A] (1) reduces (2) reduces

[B] (1) reduces (2) increases

[C] (1) increases (2) increases

[D] (1) increases (2) reduces

127 Which statement about a primary control surface controlled by a servo tab, is correct ? (1.00 P.)

[A] The control effectiveness of the primary surface is increased by servo tab deflection.

[B] Due to the effectiveness of the servo tab the control surface area can be smaller.

[C] The servo tab can also be used as a balance tab.

[D] The position is undetermined during taxiing, in particular with tailwind.

128 Which statement is correct about a normal shock wave ? (1.00 P.)

[A] The airflow expands when passing the aerofoil

[B] The airflow changes from supersonic to subsonic

[C] The airflow changes from subsonic to supersonic

[D] The airflow changes direction

129 Assuming an initial condition in straight and level flight with CL=1. What will be the new value of CL after the value of the speed has doubled? (1.00 P.)

[A] 0.25.

[B] 1.00.

[C] 2.00.

[D] 0.50.

130 An aeroplane is provided with spoilers and in- and outboard ailerons. Roll control during cruise is provided by: (1.00 P.)

[A] outboard ailerons and roll-spoilers.

[B] inboard ailerons and roll-spoilers.

[C] inboard and outboard ailerons.

[D] outboard ailerons only.

131 The airload on the horizontal tailplane (tailload) of an aeroplane in straight and level flight: (1.00 P.)

[A] will in principle be zero on transport aeroplanes without an electronic flight control system (Fly-by-Wire) due to the trim system.

[B] is in general directed downwards and will become less negative when the c.g. moves aft.

[C] is in general directed downwards and will always become less negative in a linear fashion with increasing airspeed.

[D] is in general directed upwards and will increase when c.g. is moved forward.

132 The aerodynamic contribution to the static longitudinal stability of the nacelles of aft fuselage mounted engines is: (1.00 P.)

[A] positive.

[B] zero.

[C] maximum during cruise.

[D] negative.

133 Examples of aerodynamic balancing of control surfaces are: (1.00 P.)

[A] seal between wing's trailing edge and leading edge of a control surface, horn balance

[B] weight in the nose of the control surface, horn balance

[C] Fowler flaps, upper and lower rudder

[D] upper and lower rudder, seal between wing's trailing edge and leading edge of a control surface

134 In straight and level flight, as speed is increased: (1.00 P.)

[A] both elevator and trim tab are deflected further downwards.

[B] the elevator is deflected further upwards and the trim tab further downwards.

[C] the elevator and trim tab do not move.

[D] the elevator is deflected further downwards and the trim tab further upwards.

135 Which of the following statements concerning control is correct? (1.00 P.)

[A] In a differential aileron control system the control surfaces have a larger upward than downward maximum deflection.

[B] In general the maximum downward elevator deflection is larger than upward.

[C] On some aeroplanes, the servo tab also serves as a trim tab.

[D] Hydraulically powered control surfaces do not need mass balancing.

136 When are outboard ailerons (if present) de-activated ? (1.00 P.)

[A] Landing gear extended.

[B] Landing gear retracted.

[C] Flaps (and slats) retracted or speed above a certain value.

[D] Flaps (and/or slats) extended or speed below a certain value..

137 In what flight phase are the outboard ailerons (if present) not operated ? (1.00 P.)

[A] During cruise flight.

[B] During a landing with strong and gusty crosswind to avoid overcontrolling the aeroplane.

[C] In the approach phase, before landing.

[D] During take-off, until lift-off.

138 For shallow climb angles the following formula can be used:
(gamma = climb angle) (1.00 P.)

[A] sin gamma = W/T - CD/CL.

[B] sin gamma = W/T - CL/CD.

[C] sin gamma = T/W - CD/CL.

[D] sin gamma = T/W - CL/CD.

139 Positive static lateral stability is the tendency of an aeroplane to: (1.00 P.)

[A] roll to the left in a right turn.

[B] roll to the right in a right turn.

[C] roll to the right in the case of a positive sideslip angle (aeroplane nose to the right).

[D] roll to the left in the case of a positive sideslip angle (aeroplane nose to the left).

140 Static lateral stability should not be too large, because: (1.00 P.)

[A] too much aileron deflection would be required in a crosswind landing.

[B] constant aileron deflection would be required during cruise in case of crosswind.

[C] the roll trim sensitivity would increase sharply.

[D] too much rudder deflection would be required in a crosswind landing.

141 Static lateral stability should not be too small, because (1.00 P.)

[A] after a disturbance around the longitudinal axis the aeroplane would show too strong a tendency to return to the original attitude.

[B] the aeroplane would show too strong a tendency for Dutch Roll.

[C] the stick force per g would become unacceptably small.

[D] the aeroplane would show too strong a tendency to spiral dive.

142 What should be usually done to perform a landing with the stabilizer jammed in the cruise flight position ? (1.00 P.)

[A] choose a higher landing speed than normal and/or use a lower flapsetting for landing.

[B] choose a lower landing speed than normal.

[C] if possible, relocate as many passengers as possible to the front of the cabin.

[D] use the Mach trimmer until after landing.

143 In general transport aeroplanes with power assisted flight controls are fitted with an adjustable stabilizer instead of trim tabs on the elevator. This is because: (1.00 P.)

[A] trim tab deflection increases Mcrit

[B] effectiveness of trim tabs is insufficient for those aeroplanes

[C] the pilot does not feel the stick forces at all

[D] mechanical adjustment of trim tabs creates too many problems

144 At a constant angle of attack, which of the following factors will lead to an increase of ground distance during a glide and with zero thrust ? (1.00 P.)

[A] Tailwind

[B] Headwind

[C] Increase of aeroplane mass

[D] Decrease of aeroplane mass

145 Which of the following parameters can be read from the parabolic polar diagram of an aeroplane? (1.00 P.)

[A] The induced drag and the parasite drag.

[B] The minimum glide angle and the parasite drag coefficient.

[C] The minimum rate of descent and the induced drag.

[D] The aspect ratio of the wing and the induced drag coefficient.

146 An aeroplane transitions from steady straight and level flight into a horizontal co-ordinated turn with a load factor of 2, the speed remains constant and the: (1.00 P.)

[A] angle of attack increases by a factor of 1/4.

[B] induced drag increases by a factor of 4.

[C] total drag increases by a factor of 4.

[D] lift increases by a factor of 4.

147 Bernoulli's law states:
(note:
rho is the mean sea level density under ISA conditions;
pstat is static pressure;
pdyn is dynamic pressure;
ptot is total pressure) (1.00 P.)

[A] ptot+ ½rhoV^2= pstat.

[B] pstat + ½rhoTAS^2 = constant.

[C] pstat + ½rhoV^2= constant.

[D] pdyn+ ½rhoV^2= constant.

148 The wing of an aeroplane will never stall at low subsonic speeds as long as.... (1.00 P.)

[A] there is a nose-down attitude.

[B] the IAS exceeds the power-on stall speed.

[C] the angle of attack is smaller than the value at which the stall occurs.

[D] the CAS exceeds the power-on stall speed.

149 The induced drag coefficient, CDi is proportional with: (1.00 P.)

[A] square root (CL)

[B] CL

[C] CL^2

[D] CLmax

150 The stall speed increases, when: (all other factors of importance being constant) (1.00 P.)

[A] weight decreases.

[B] pulling out of a dive.

[C] minor altitude changes occur e.g. 0-10.000 ft.

[D] spoilers are retracted.

151 When power assisted controls are used for pitch control: (1.00 P.)

[A] trimming is superfluous.

[B] aerodynamic balancing of the control surfaces is meaningless.

[C] a part of the aerodynamic forces is still felt on the column.

[D] they only function in combination with an elevator trim tab.

152 Sensitivity for spiral dive will occur when: (1.00 P.)

[A] the dutch roll tendency is too strongly suppressed by the yaw damper.

[B] the static directional stability is negative and the static lateral stability is positive.

[C] the static directional stability is positive and the static lateral stability is relatively weak.

[D] the static lateral and directional stability are both negative.

153 Which part of an aeroplane provides the greatest positive contribution to the static longitudinal stability ? (1.00 P.)

[A] The engine.

[B] The horizontal tailplane.

[C] The fuselage.

[D] The wing.

154 Which statement about stick force per g is correct? (1.00 P.)

[A] The stick force per g must have both an upper and lower limit in order to ensure acceptable control characteristics.

[B] The stick force per g increases, when centre of gravity is moved aft.

[C] The stick force per g can only be corrected by means of electronic devices (stability augmentation) in case of an unacceptable value.

[D] If the slope of the Fe-n line becomes negative, generally speaking this is not a problem for control of an aeroplane.

155 Why is VMCG determined with the nosewheel steering disconnected? (1.00 P.)

[A] Because the value of VMCG must also be applicable on wet and/or slippery runways.

[B] Because the nosewheel steering could become inoperative after an engine has failed.

[C] Because nosewheel steering has no effect on the value of VMCG.

[D] Because it must be possible to abort the take-off even after the nosewheel has already been lifted off the ground.

156 By what approximate percentage will the stall speed increase in a horizontal coordinated turn with a bank angle of 45° ? (1.00 P.)

[A] 41%

[B] 19%

[C] 31%

[D] 52%

157 An aeroplane has a stalling speed of 100 kt in a steady level flight. When the aeroplane is flying a level turn with a load factor of 1.5, the stalling speed is: (1.00 P.)

[A] 141 kt.

[B] 82 kt.

[C] 150 kt.

[D] 122 kt.

158 Which of the following wing planforms gives the highest local lift coefficient at the wing root ? (1.00 P.)

[A] Tapered.

[B] Positive angle of sweep.

[C] Rectangular.

[D] Elliptical.

159 Examples of aerodynamic balancing of control surfaces are: (1.00 P.)

[A] balance tab, horn balance, and mass balance.

[B] servo tab, spring tab, seal between the wing trailing edge and the leading edge of control surface.

[C] mass in the nose of the control surface, horn balance and mass balance.

[D] spring tab, servo tab, and power assisted control.

160 In straight and level flight, as speed is reduced: (1.00 P.)

[A] the elevator and trim tab do not move.

[B] the elevator is deflected further downwards and the trim tab further upwards.

[C] both elevator and trim tab are deflected further upwards.

[D] the elevator is deflected further upwards and the trim tab further downwards.

161 Which statement is correct about the gust load on an aeroplane (IAS and all other factors of importance remaining constant) ?

1. the gust load increases, when the weight decreases.

2. the gust load increases, when the altitude increases. (1.00 P.)

[A] 1 and 2 are correct.

[B] 1 is correct and 2 is incorrect.

[C] 1 is incorrect and 2 is correct.

[D] 1 and 2 are incorrect.

162 The angle of attack of a wing profile is defined as the angle between: (1.00 P.)

[A] The local airflow and the mean camberline.

[B] The undisturbed airflow and the mean camberline.

[C] The local airflow and the chordline.

[D] The undisturbed airflow and the chordline.

163 An advantage of locating the engines at the rear of the fuselage, in comparison to a location beneath the wing, is: (1.00 P.)

[A] easier maintenance of the engines.

[B] less influence on lateral/directional stability characteristics such as dutch roll.

[C] a wing which is less sensitive to flutter.

[D] less influence of thrust changes on longitudinal control.

164 Which phenomenon is counteracted with differential aileron deflection? (1.00 P.)

[A] Adverse yaw.

[B] Turn co-ordination.

[C] Aileron reversal.

[D] Sensitivity for spiral dive.

165 An aeroplane has a servo tab controlled elevator. What will happen if the elevator jams during flight? (1.00 P.)

[A] Pitch control sense is reversed.

[B] Pitch control is lost.

[C] The pitch control forces double.

[D] The servo-tab now works as a negative trim-tab.

166 Which statement regarding the gust load factor on an aeroplane is correct (all other factors of importance being constant) ?

1. Increasing the aspect-ratio of the wing will increase the gust load factor.

2. Increasing the speed will increase the gust load factor. (1.00 P.)

[A] 1 and 2 are incorrect.

[B] 1 is incorrect and 2 is correct.

[C] 1 and 2 are correct.

[D] 1 is correct and 2 is incorrect.

167 Which statement is correct? (1.00 P.)

[A] Flap extension has no influence on the minimum rate of descent, as only TAS has to be taken into account.

[B] Flap extension causes a reduction in stall speed and the maximum glide distance.

[C] Spoiler extension causes a reduction in stall speed and the minimum rate of descent, but increases the minimum descent angle.

[D] Flap extension will increase (CL/CD)max thus causing a reduction in the minimum rate descent.

168 What will increase the sensitivity to Dutch Roll? (1.00 P.)

[A] An increased static lateral stability.

[B] An increased anhedral.

[C] An increased static directional stability.

[D] A forward movement of the centre of gravity.

169 In which phase of the take-off is the aerodynamic effect of ice located on the wing leading edge most critical? (1.00 P.)

[A] The take-off run.

[B] The last part of the rotation.

[C] All phases of the take-off are equally critical.

[D] During climb with all engines operating.

170 Which statement is correct at the speed for minimum drag (subsonic) ? (1.00 P.)

[A] The CL/CD ratio is minimum (assume zero thrust).

[B] Induced drag is greater than the parasite drag.

[C] The gliding angle is minimum (assume zero thrust).

[D] Propeller aeroplanes fly at that speed at max. endurance.

171 From a polar diagram of the entire aeroplane in the clean configuration one can read: (1.00 P.)

[A] the minimum drag coefficient and the maximum lift.

[B] the maximum CL/CD ratio and maximum lift coefficient.

[C] the minimum drag and the maximum lift.

[D] the minimum CL/CD ratio and the minimum drag.

172 An aeroplane has a stall speed of 100 kt at a load factor n=1. In a turn with a load factor of n=2, the stall speed is: (1.00 P.)

[A] 282 kt

[B] 200 kt

[C] 70 kt

[D] 141 kt

173 The induced angle of attack is the result of: (1.00 P.)

[A] downwash due to flow separation.

[B] change in direction of flow due to the effective angle of attack.

[C] a large local angle of attack in a two dimensional flow.

[D] downwash due to tip vortices.

174 A horn balance in a control system has the following purpose: (1.00 P.)

[A] to obtain mass balancing.

[B] to decrease the effective longitudinal dihedral of the aeroplane.

[C] to prevent flutter.

[D] to decrease stick forces.

175 Which statement is correct for a side slip condition at constant speed and side slip angle, where the geometric dihedral of an aeroplane is increased ? (1.00 P.)

[A] the required lateral control force decreases.

[B] the stick force per g decreases.

[C] the required lateral control force increases.

[D] the required lateral control force does not change.

176 What is the position of the elevator in relation to the trimmable horizontal stabiliser of a power assisted aeroplane that is in trim? (1.00 P.)

[A] The position depends on speed, the position of slats and flaps and the position of the centre of gravity.

[B] The elevator is always deflected slightly downwards in order to have sufficient remaining flare capability.

[C] The elevator deflection (compared to the stabilizer position) is always zero.

[D] At a forward CG the elevator is deflected upward and at an aft CG the elevator is deflected downward.

177 Mass-balancing of control surfaces is used to: (1.00 P.)

[A] ensure that the control surfaces are in the mid-position during taxiing .

[B] increase the stick force stability.

[C] limit the stick forces.

[D] prevent flutter of control surfaces

178 An aeroplane performs a steady horizontal turn with a TAS of 200 kt. The turn radius is 2000 m. The load factor (n) is approximately: (1.00 P.)

[A] 1.1.

[B] 1.4.

[C] 2.0.

[D] 1.8.

179 Amongst the following factors, which will decrease the ground distance covered during a glide (assume zero power/thrust)? (1.00 P.)

[A] Headwind.

[B] An increase in aeroplane mass.

[C] Tailwind.

[D] A decrease in aeroplane mass.

180 An aeroplane exhibits static longitudinal stability, if, when the angle of attack changes: (1.00 P.)

[A] the change in total aeroplane lift acts aft of the centre of gravity.

[B] the resulting moment is positive.

[C] the change in total aeroplane lift acts through the centre of gravity.

[D] the change in wing lift is equal to the change in tail lift.

181 If an aeroplane exhibits insufficient stick force per g, this problem can be resolved by installing: (1.00 P.)

[A] a bobweight in the control system which pulls the stick backwards.

[B] a spring which pulls the stick backwards.

[C] a bobweight in the control system which pulls the stick forwards.

[D] a spring which pushes the stick forwards.

182 The flight Mach number is 0.8 and the TAS is 400 kts. The speed of sound is: (1.00 P.)

[A] 320 kts

[B] 480 kts

[C] 600 kts

[D] 500 kts

183 The effect of the wing downwash on the static longitudinal stability of an aeroplane is: (1.00 P.)

[A] negative.

[B] negligible.

[C] smallest at high values of the lift coefficient.

[D] positive.

184 When the air has passed through a normal shock wave the Mach number is (1.00 P.)

[A] lower than before but still greater than 1.

[B] less than 1.

[C] higher than before.

[D] equal to 1.

185 In a slipping turn (nose pointing outwards), compared to a co-ordinated turn, the bank angle (i) and the "ball" or slip indicator (ii) are respectively: (1.00 P.)

[A] (i) too large, (ii) displaced towards the high wing.

[B] (i) too small, (ii) displaced towards the high wing.

[C] (i) too small, (ii) displaced towards the low wing.

[D] (i) too large, (ii) displaced towards the low wing.

186 When the air is passing through a shock wave the static temperature will (1.00 P.)

[A] decrease and beyond a certain Mach number start increasing again

[B] increase.

[C] stay constant.

[D] decrease.

187 When the air is passing through a shock wave the density will (1.00 P.)

[A] increase.

[B] stay constant.

[C] decrease.

[D] decrease and beyond a certain Mach number start increasing again

188 A jet transport aeroplane exhibits pitch up when thrust is suddenly increased from an equilibrium condition, because the thrust line is below the: (1.00 P.)

[A] drag line of action.

[B] CG.

[C] neutral point.

[D] centre of pressure.

189 When air has passed through a shock wave the local speed of sound is (1.00 P.)

[A] increased.

[B] decreased and beyond a certain Mach number start increasing again

[C] not affected

[D] decreased.

190 The pitch angle is defined as the angle between the: (1.00 P.)

[A] speed vector axis and the longitudinal axis.

[B] chord line and the horizontal plane.

[C] longitudinal axis and the chord line.

[D] longitudinal axis and the horizontal plane.

191 If the Mach number of an aeroplane in supersonic flight is increased, the Mach cone angle will: (1.00 P.)

[A] stay constant.

[B] increase.

[C] decrease.

[D] decrease and beyond a certain Mach number start increasing again.

192 Consider subsonic incompressible airflow through a venturi:

I The dynamic pressure in the undisturbed airflow is higher than in the throat.
II The total pressure in the undisturbed airflow is higher than in the throat. (1.00 P.)

[A] I is incorrect, II is correct.

[B] I is incorrect, II is incorrect.

[C] I is correct, II is incorrect.

[D] I is correct, II is correct.

193 The loss of total pressure in a shock wave is due to the fact that (1.00 P.)

[A] the speed reduction is too high.

[B] the static pressure decrease is comparatively high.

[C] kinetic energy in the flow is converted into heat energy.

[D] the friction in the boundary layer is higher.

194 An aeroplane has the following flap positions: 0°, 15°, 30°, 45°. Slats can also be selected. Generally speaking, which selection provides the highest positive contribution to the CLMAX? (1.00 P.)

[A] The slats from the retracted to the take-off position.

[B] The flaps from 30° to 45°.

[C] The flaps from 0° to 15°.

[D] The flaps from 15° to 30°.

195 When the air is passing through an expansion wave the local speed of sound will (1.00 P.)

[A] stay constant.

[B] increase.

[C] decrease.

[D] decrease and beyond a certain Mach number start increasing again.

196 An aeroplane enters a horizontal turn with a load factor n=2 from straight and level flight whilst maintaining constant indicated airspeed. The: (1.00 P.)

[A] lift doubles.

[B] induced drag doubles.

[C] total drag becomes four times its original value.

[D] lift becomes four times its original value.

197 Which statement is correct about the gust load on an aeroplane, while all other factors of importance remain constant?

I When the mass increases, the gust load increases.
II When the altitude decreases, the gust load increases. (1.00 P.)

[A] I is incorrect, II is incorrect.

[B] I is incorrect, II is correct.

[C] I is correct, II is incorrect.

[D] I is correct, II is correct.

198 When the air is passing through an expansion wave the Mach number will (1.00 P.)

[A] stay constant.

[B] increase.

[C] decrease.

[D] decrease and beyond a certain Mach number start increasing again.

199 When the air is passing through an expansion wave the static temperature will (1.00 P.)

[A] decrease.

[B] stay constant.

[C] decrease and beyond a certain Mach number start increasing again.

[D] increase.

200 An aeroplane is in a steady horizontal turn at a TAS of 194.4 kt. The turn radius is 1000 m. The bank angle is: (assume g = 10 m/sec2) (1.00 P.)

[A] 60°

[B] 30°

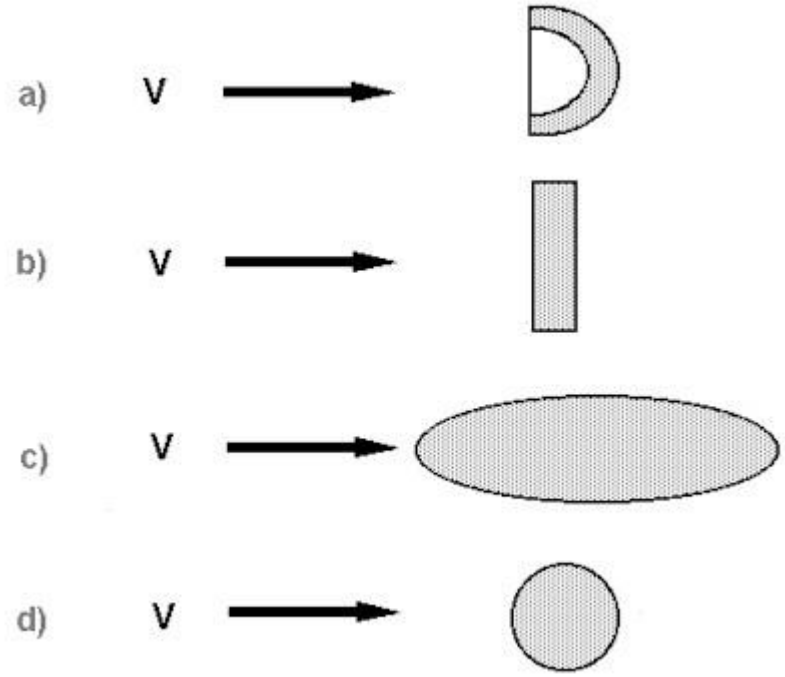
[C] 50°

[D] 45°

Anlagen zu den Aufgaben

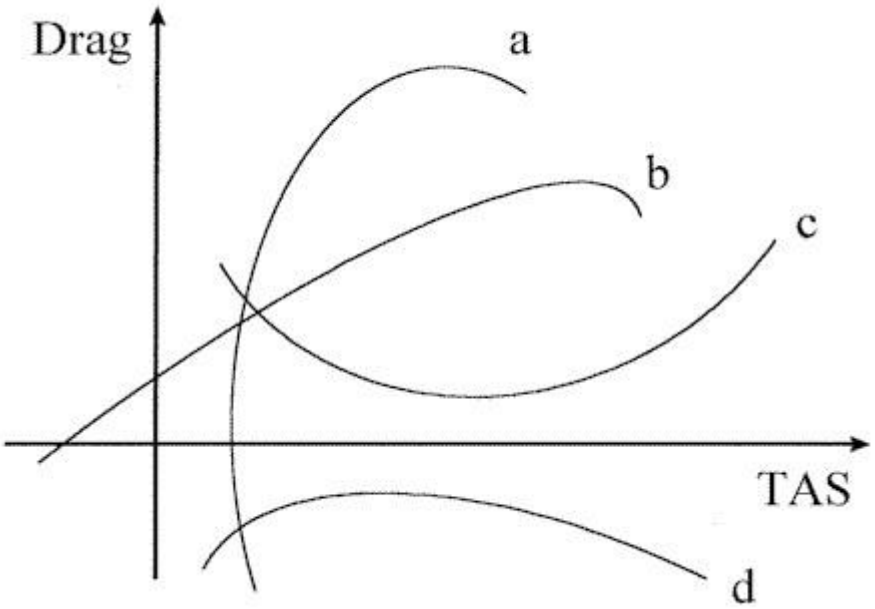
Anlage 1 zu Aufgabe 83

Titel: Anlage 1



Anlage 2 zu Aufgabe 89

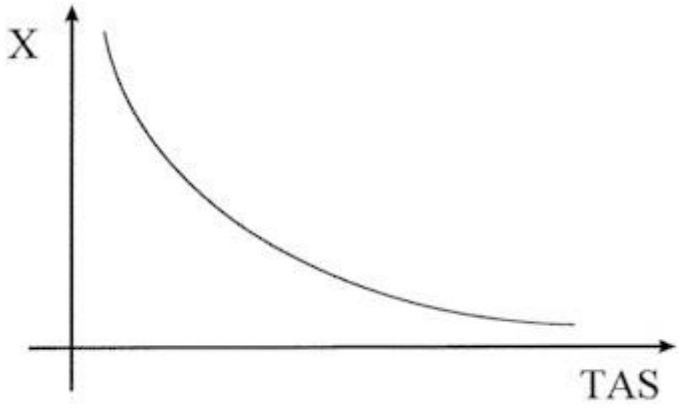
Titel: Anlage 1



Anlage 3 zu Aufgabe 90

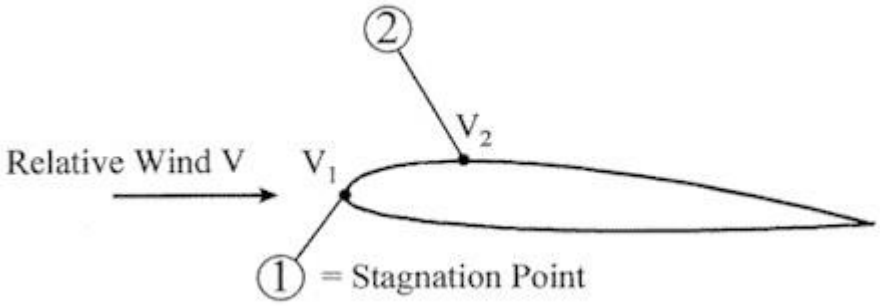
Titel: Anlage 1

Anlagen zu den Aufgaben



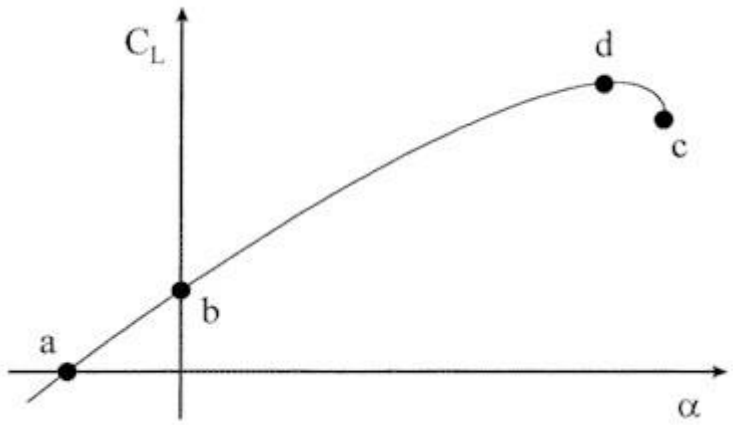
Anlage 4 zu Aufgabe 91

Titel: Anlage 1



Anlage 5 zu Aufgabe 97

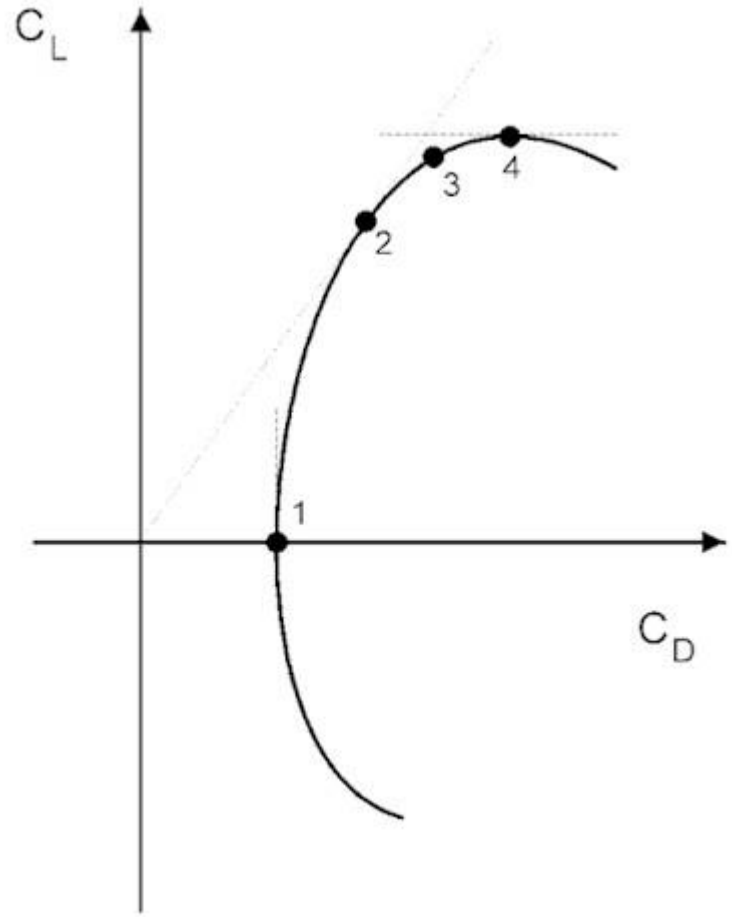
Titel: Anlage 1



Anlage 6 zu Aufgabe 98

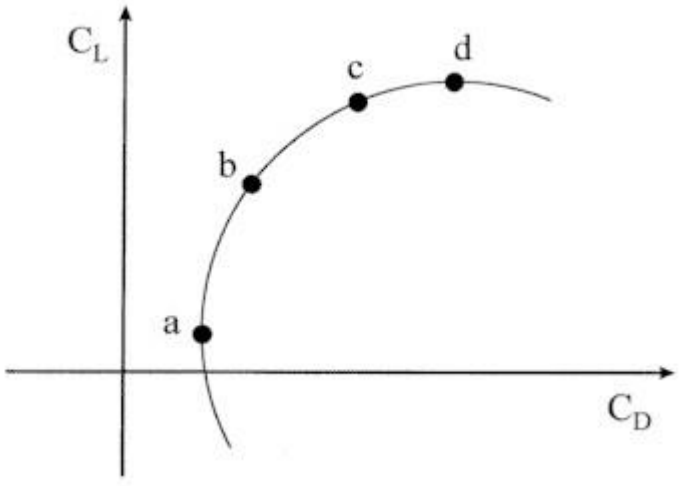
Titel: Anlage 1

Anlagen zu den Aufgaben



Anlage 7 zu Aufgabe 99

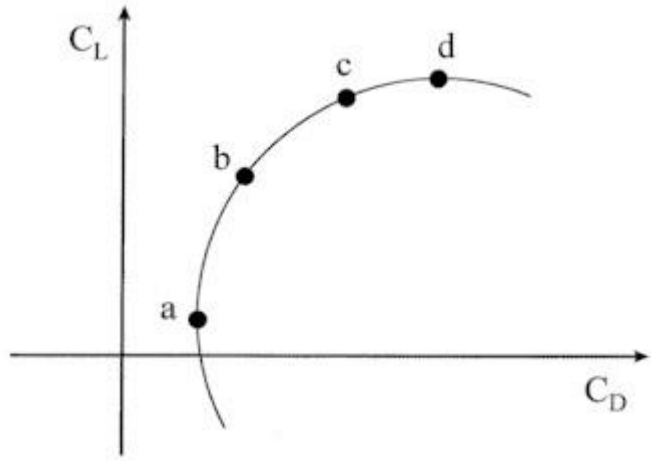
Titel: Anlage 1



Anlage 8 zu Aufgabe 100

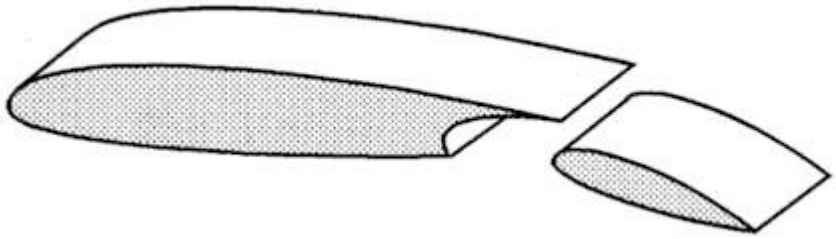
Titel: Anlage 1

Anlagen zu den Aufgaben



Anlage 9 zu Aufgabe 106

Titel: Anlage 1

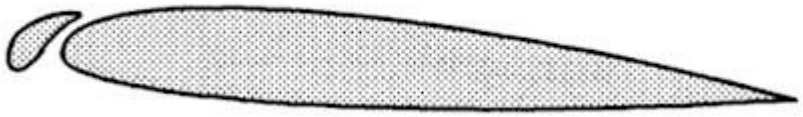


Anlage 10 zu Aufgabe 107

Titel: Anlage 1

Anlage 11 zu Aufgabe 108

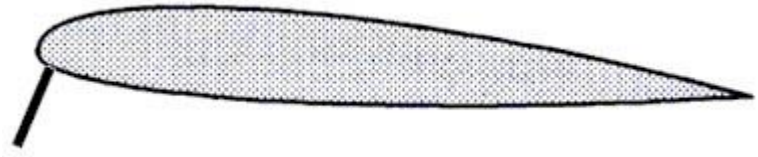
Titel: Anlage 1



Anlagen zu den Aufgaben

Anlage 12 zu Aufgabe 109

Titel: Anlage 1



Vom Teilnehmer auszufüllen	
Name:	**Prüf.-Nr.:**
Prüfungsdatum:	**Unterschrift**

1.	A	B	C	D	**2.**	A	B	C	D	**3.**	A	B	C	D
4.	**A**	**B**	**C**	**D**	**5.**	**A**	**B**	**C**	**D**	**6.**	**A**	**B**	**C**	**D**
7.	**A**	**B**	**C**	**D**	**8.**	**A**	**B**	**C**	**D**	**9.**	**A**	**B**	**C**	**D**
10.	**A**	**B**	**C**	**D**	**11.**	**A**	**B**	**C**	**D**	**12.**	**A**	**B**	**C**	**D**
13.	**A**	**B**	**C**	**D**	**14.**	**A**	**B**	**C**	**D**	**15.**	**A**	**B**	**C**	**D**
16.	**A**	**B**	**C**	**D**	**17.**	**A**	**B**	**C**	**D**	**18.**	**A**	**B**	**C**	**D**
19.	**A**	**B**	**C**	**D**	**20.**	**A**	**B**	**C**	**D**	**21.**	**A**	**B**	**C**	**D**
22.	**A**	**B**	**C**	**D**	**23.**	**A**	**B**	**C**	**D**	**24.**	**A**	**B**	**C**	**D**
25.	**A**	**B**	**C**	**D**	**26.**	**A**	**B**	**C**	**D**	**27.**	**A**	**B**	**C**	**D**
28.	**A**	**B**	**C**	**D**	**29.**	**A**	**B**	**C**	**D**	**30.**	**A**	**B**	**C**	**D**
31.	**A**	**B**	**C**	**D**	**32.**	**A**	**B**	**C**	**D**	**33.**	**A**	**B**	**C**	**D**
34.	**A**	**B**	**C**	**D**	**35.**	**A**	**B**	**C**	**D**	**36.**	**A**	**B**	**C**	**D**
37.	**A**	**B**	**C**	**D**	**38.**	**A**	**B**	**C**	**D**	**39.**	**A**	**B**	**C**	**D**
40.	**A**	**B**	**C**	**D**	**41.**	**A**	**B**	**C**	**D**	**42.**	**A**	**B**	**C**	**D**
43.	**A**	**B**	**C**	**D**	**44.**	**A**	**B**	**C**	**D**	**45.**	**A**	**B**	**C**	**D**
46.	**A**	**B**	**C**	**D**	**47.**	**A**	**B**	**C**	**D**	**48.**	**A**	**B**	**C**	**D**
49.	**A**	**B**	**C**	**D**	**50.**	**A**	**B**	**C**	**D**	**51.**	**A**	**B**	**C**	**D**
52.	**A**	**B**	**C**	**D**	**53.**	**A**	**B**	**C**	**D**	**54.**	**A**	**B**	**C**	**D**
55.	**A**	**B**	**C**	**D**	**56.**	**A**	**B**	**C**	**D**	**57.**	**A**	**B**	**C**	**D**
58.	**A**	**B**	**C**	**D**	**59.**	**A**	**B**	**C**	**D**	**60.**	**A**	**B**	**C**	**D**
61.	**A**	**B**	**C**	**D**	**62.**	**A**	**B**	**C**	**D**	**63.**	**A**	**B**	**C**	**D**
64.	**A**	**B**	**C**	**D**	**65.**	**A**	**B**	**C**	**D**	**66.**	**A**	**B**	**C**	**D**

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67.	**A**	**B**	**C**	**D**	**68.**	**A**	**B**	**C**	**D**	**69.**	**A**	**B**	**C**	**D**
70.	**A**	**B**	**C**	**D**	**71.**	**A**	**B**	**C**	**D**	**72.**	**A**	**B**	**C**	**D**
73.	**A**	**B**	**C**	**D**	**74.**	**A**	**B**	**C**	**D**	**75.**	**A**	**B**	**C**	**D**
76.	**A**	**B**	**C**	**D**	**77.**	**A**	**B**	**C**	**D**	**78.**	**A**	**B**	**C**	**D**
79.	**A**	**B**	**C**	**D**	**80.**	**A**	**B**	**C**	**D**	**81.**	**A**	**B**	**C**	**D**
82.	**A**	**B**	**C**	**D**	**83.**	**A**	**B**	**C**	**D**	**84.**	**A**	**B**	**C**	**D**
85.	**A**	**B**	**C**	**D**	**86.**	**A**	**B**	**C**	**D**	**87.**	**A**	**B**	**C**	**D**
88.	**A**	**B**	**C**	**D**	**89.**	**A**	**B**	**C**	**D**	**90.**	**A**	**B**	**C**	**D**
91.	**A**	**B**	**C**	**D**	**92.**	**A**	**B**	**C**	**D**	**93.**	**A**	**B**	**C**	**D**
94.	**A**	**B**	**C**	**D**	**95.**	**A**	**B**	**C**	**D**	**96.**	**A**	**B**	**C**	**D**
97.	**A**	**B**	**C**	**D**	**98.**	**A**	**B**	**C**	**D**	**99.**	**A**	**B**	**C**	**D**
100.	**A**	**B**	**C**	**D**	**101.**	**A**	**B**	**C**	**D**	**102.**	**A**	**B**	**C**	**D**
103.	**A**	**B**	**C**	**D**	**104.**	**A**	**B**	**C**	**D**	**105.**	**A**	**B**	**C**	**D**
106.	**A**	**B**	**C**	**D**	**107.**	**A**	**B**	**C**	**D**	**108.**	**A**	**B**	**C**	**D**
109.	**A**	**B**	**C**	**D**	**110.**	**A**	**B**	**C**	**D**	**111.**	**A**	**B**	**C**	**D**
112.	**A**	**B**	**C**	**D**	**113.**	**A**	**B**	**C**	**D**	**114.**	**A**	**B**	**C**	**D**
115.	**A**	**B**	**C**	**D**	**116.**	**A**	**B**	**C**	**D**	**117.**	**A**	**B**	**C**	**D**
118.	**A**	**B**	**C**	**D**	**119.**	**A**	**B**	**C**	**D**	**120.**	**A**	**B**	**C**	**D**
121.	**A**	**B**	**C**	**D**	**122.**	**A**	**B**	**C**	**D**	**123.**	**A**	**B**	**C**	**D**
124.	**A**	**B**	**C**	**D**	**125.**	**A**	**B**	**C**	**D**	**126.**	**A**	**B**	**C**	**D**
127.	**A**	**B**	**C**	**D**	**128.**	**A**	**B**	**C**	**D**	**129.**	**A**	**B**	**C**	**D**
130.	**A**	**B**	**C**	**D**	**131.**	**A**	**B**	**C**	**D**	**132.**	**A**	**B**	**C**	**D**

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133.	A	B	C	D	134.	A	B	C	D	135.	A	B	C	D
136.	A	B	C	D	137.	A	B	C	D	138.	A	B	C	D
139.	A	B	C	D	140.	A	B	C	D	141.	A	B	C	D
142.	A	B	C	D	143.	A	B	C	D	144.	A	B	C	D
145.	A	B	C	D	146.	A	B	C	D	147.	A	B	C	D
148.	A	B	C	D	149.	A	B	C	D	150.	A	B	C	D
151.	A	B	C	D	152.	A	B	C	D	153.	A	B	C	D
154.	A	B	C	D	155.	A	B	C	D	156.	A	B	C	D
157.	A	B	C	D	158.	A	B	C	D	159.	A	B	C	D
160.	A	B	C	D	161.	A	B	C	D	162.	A	B	C	D
163.	A	B	C	D	164.	A	B	C	D	165.	A	B	C	D
166.	A	B	C	D	167.	A	B	C	D	168.	A	B	C	D
169.	A	B	C	D	170.	A	B	C	D	171.	A	B	C	D
172.	A	B	C	D	173.	A	B	C	D	174.	A	B	C	D
175.	A	B	C	D	176.	A	B	C	D	177.	A	B	C	D
178.	A	B	C	D	179.	A	B	C	D	180.	A	B	C	D
181.	A	B	C	D	182.	A	B	C	D	183.	A	B	C	D
184.	A	B	C	D	185.	A	B	C	D	186.	A	B	C	D
187.	A	B	C	D	188.	A	B	C	D	189.	A	B	C	D
190.	A	B	C	D	191.	A	B	C	D	192.	A	B	C	D
193.	A	B	C	D	194.	A	B	C	D	195.	A	B	C	D
196.	A	B	C	D	197.	A	B	C	D	198.	A	B	C	D

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Name:	**Prüf.-Nr.:**
Prüfungsdatum:	**Unterschrift**

199.	**A**	**B**	**C**	**D**		**200.**	**A**	**B**	**C**	**D**

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1.			C		**2.**	A				**3.**				D
4.			**C**		**5.**		**B**			**6.**		**B**		
7.	**A**				**8.**		**B**			**9.**	**A**			
10.		**B**			**11.**				**D**	**12.**		**B**		
13.		**B**			**14.**				**D**	**15.**		**B**		
16.			**C**		**17.**			**C**		**18.**				**D**
19.			**C**		**20.**	**A**				**21.**	**A**			
22.			**C**		**23.**	**A**				**24.**			**C**	
25.			**C**		**26.**	**A**				**27.**			**C**	
28.		**B**			**29.**				**D**	**30.**		**B**		
31.	**A**				**32.**			**C**		**33.**				**D**
34.	**A**				**35.**				**D**	**36.**			**C**	
37.				**D**	**38.**		**B**			**39.**		**B**		
40.		**B**			**41.**	**A**				**42.**		**B**		
43.		**B**			**44.**			**C**		**45.**		**B**		
46.			**C**		**47.**	**A**				**48.**	**A**			
49.		**B**			**50.**		**B**			**51.**	**A**			
52.		**B**			**53.**				**D**	**54.**				**D**
55.		**B**			**56.**				**D**	**57.**				**D**
58.	**A**				**59.**			**C**		**60.**	**A**			
61.			**C**		**62.**	**A**				**63.**			**C**	
64.				**D**	**65.**				**D**	**66.**		**B**		

Nur für den internen Gebrauch	
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Prüfungsdatum:	

67.		**B**			**68.**	**A**				**69.**				**D**
70.		**B**			**71.**			**C**		**72.**		**B**		
73.	**A**				**74.**		**B**			**75.**				**D**
76.			**C**		**77.**			**C**		**78.**	**A**			
79.				**D**	**80.**				**D**	**81.**			**C**	
82.	**A**				**83.**			**C**		**84.**		**B**		
85.	**A**				**86.**		**B**			**87.**			**C**	
88.	**A**				**89.**				**D**	**90.**			**C**	
91.		**B**			**92.**			**C**		**93.**				**D**
94.	**A**				**95.**	**A**				**96.**		**B**		
97.				**D**	**98.**	**A**				**99.**	**A**			
100.	**A**				**101.**	**A**				**102.**		**B**		
103.	**A**				**104.**			**C**		**105.**			**C**	
106.		**B**			**107.**			**C**		**108.**	**A**			
109.				**D**	**110.**			**C**		**111.**				**D**
112.		**B**			**113.**	**A**				**114.**			**C**	
115.				**D**	**116.**	**A**				**117.**			**C**	
118.	**A**				**119.**				**D**	**120.**		**B**		
121.		**B**			**122.**			**C**		**123.**		**B**		
124.			**C**		**125.**				**D**	**126.**	**A**			
127.				**D**	**128.**		**B**			**129.**	**A**			
130.		**B**			**131.**		**B**			**132.**	**A**			

Nur für den internen Gebrauch	
LÖSUNGSBOGEN	**Prüf.-Nr.:**
Prüfungsdatum:	

133.	A				134.				D	135.	A			
136.			C		137.	A				138.			C	
139.				D	140.	A				141.				D
142.	A				143.		B			144.	A			
145.		B			146.		B			147.			C	
148.			C		149.			C		150.		B		
151.			C		152.			C		153.		B		
154.	A				155.	A				156.		B		
157.				D	158.			C		159.		B		
160.				D	161.		B			162.				D
163.				D	164.	A				165.	A			
166.			C		167.		B			168.	A			
169.		B			170.			C		171.		B		
172.				D	173.				D	174.				D
175.			C		176.	A				177.				D
178.	A				179.	A				180.	A			
181.			C		182.				D	183.	A			
184.		B			185.				D	186.		B		
187.	A				188.		B			189.	A			
190.				D	191.			C		192.		B		
193.			C		194.	A				195.			C	
196.	A				197.		B			198.		B		

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Prüfungsdatum:	

199.	**A**				**200.**					**D**