ATPL - Airline Transport Pilot license - Principles of Flight



STUDENT NAME:	DATE AND TIME:
01. For the same pressure gradient at 60°	°N, 50°N and 40°N the speed of the geostrophic wind will be:
a) Greatest at 60°N.	
b) The same at all latitudes.	
c) Least at 50°N.	
d) Greatest at 40°N.	
02. The spin axis of the turn indicator gy	roscope is parallel to the:
a) Pitch axis.	
b) Yaw axis.	
c) Roll axis.	
d) Longitudinal axis.	
03. The take-off mass of an aeroplane is What is the dry operating mass?	117 000 kg, comprising a traffic load of 18 000 kg and fuel of 46 000 kg.
a) 64 000 kg	
b) 53 000 kg	
c) 99 000 kg	
d) 71 000 kg	
04. Which of the following is the ICAO all	located frequency band for ADF receivers?
a) 300 - 3000 kHz	
b) 255 - 455 kHz	
c) 200 - 2000 kHz	
d) 190 - 1750 kHz	
05. Considering an airspeed indicator, a	second striped needle, if installed, indicates:

c) Never-exceed speed (VNE) or maximum operating speed (VMO), depending on which is the higher d) Never-exceed speed (VNE) or maximum operating speed (VMO), depending on which is the lowest

a) Never-exceed speed (VNE)

b) Maximum operating speed (VMO)

ATPL - Airline Transport Pilot license - Principles of Flight



06. An aircraft encountering radio communication failure on an IFR flight in VMC is assumed to:

- a) Leave controlled airspace and continue the flight within uncontrolled airspace
- b) Continue to fly in VMC, land at the nearest suitable aerodrome, report its arrival
- c) Continue the flight to destination aerodrome in any case
- d) Squawk IDENT and proceed to the alternate aerodrome

07. An Agonic line is a line that connects:

- a) Positions that have the same variation
- b) Positions that have 0° variation
- c) Points of equal magnetic horizontal field strength
- d) Points of equal magnetic dip

08. An air temperature of -15°C at the 700 hPa level over central Europe in summer is:

- a) Low
- b) 20°C below standard
- c) Within +/-5°C of ISA
- d) High

09. Which of the following is most likely to be overlooked should a pilot make a rushed decision?

- a) The skills of air traffic controllers
- b) Analysis of the current actual situation and instead applying a decision prepared beforehand
- c) The captain's superior knowledge, justified by his/her status
- d) The need to take account of every possible result or outcome

10. Which of the following factors have the greatest effect on the formation of the various types of ice on an aircraft ?

- a) Aircraft speed and size of cloud droplets
- b) Cloud temperature and droplet size
- c) Relative humidity inside the cloud
- d) Aircraft speed and curvature of the airfoil

ATPL - Airline Transport Pilot license - Principles of Flight



11. On which of the following radar displays is it possible to get an indication of the shape, and to some extent the type, of the aircraft generating the return?

- a) Aerodrome Surveillance (approach) Radar
- b) Secondary Surveillance Radar (SSR)
- c) Airborne Weather Radar (AWR)
- d) The installation does not require to have a separate method (marker beacons or DME) to determine range

12. What does the word 'acknowledge' mean?

- a) Pass me the following information
- b) Repeat all of this message back to me exactly as received
- c) Let me know that you have received and understood this message
- d) Repeat all of your last transmission

13. When accelerating on an easterly heading in the Northern hemisphere, the compass card of a direct reading magnetic compass will turn:

- a) Clockwise giving an apparent turn toward the north
- b) Anti-clockwise giving an apparent turn toward the south
- c) Anti-clockwise giving an apparent turn toward the north
- d) Clockwise giving an apparent turn toward the south

14. The principle of the Schuler pendulum is used in the design of a:

- a) Strapdown inertial system.
- b) Artificial horizon control system.
- c) Directional gyro control system.
- d) Stabilised platform inertial system.

15. Electrical bonding of an aircraft is used to 1. protect the aircraft against lightning effects. 2. reset the electrostatic potential of the aircraft to a value approximating 0 volt 3. reduce radio interference on radio communication systems 4. set the aircraft to a single potentia The combination regrouping all the correct statements is:

- a) 1, 2, 2003
- b) 3, 4
- c) 1, 3, 4
- d) 2, 4

ATPL - Airline Transport Pilot license - Principles of Flight



16. A Foehn wind occurs on the

- a) Windward side of a mountain range and is caused by surface heating
- b) Leeward side of a mountain range and is caused by significant moisture loss by precipitation from cloud
- c) Leeward side of a mountain range and is caused by the condensation level being lower on the leeward side than on the windward side
- d) Windward side of a mountain range and is caused by surface cooling and reverse air flow

17. Load shedding means ..

- a) To Leave Behind Extra Cargo If The Centre Of Gravity Moves Outside Limits
- b) Temporary or permanent switching off of certain electric users to avoid overload of electric generators
- c) A procedure used in control systems to reduce the stick forces
- d) Reduction Of Air Loads On The Flaps By Means Of The Flap Load Relief Value

18. Route 'A' (44°N 026°E) to 'B' (46°N 024°E) forms an angle of 3	5° with longitude 026°E	. Variation at A is 3°E. V	Vhat
is the initial magnetic track from A to B?			

a) 032°

b) 328°

c) 038°

d) 322°

19. The fire extinguisher types which may be used on class A fires are:1 - H2O2 - CO23 - dry-chemical4 - halonWhich of the following combinations contains all of the correct statements?

a) 1 - 2 - 3 - 4

b) 3 - 4

c) 1

d) 2 - 3 - 4

20. In accordance with JAR-OPS 1 and if necessary, the number of life rafts to be carried on board an aeroplane must allow the transportation of the entire aeroplane occupants:

- a) Plus 10 %.
- b) In the case of a loss of one raft of the largest rated capacity.
- c) Plus 30 %.
- d) Plus 30 %.

ATPL - Airline Transport Pilot license - Principles of Flight



21. The operating principle of the vertical speed indicator (VSI) is based on the measurement of the rate of change of:

- a) Dynamic pressure
- b) Static pressure
- c) Kinetic pressure
- d) Total pressure

22. The take-off mass of an aeroplane is 141000 kg. Total fuel on board is 63000 kg including 14000 kg reserve fuel and 1000 kg of unusable fuel. The traffic load is 12800 kg. The zero fuel mass is:

- a) 79000 kg
- b) 65200 kg.
- c) 93000 kg
- d) 78000 kg

23. If the take-off mass of an aeroplane is tyre speed limited, downhill slope would:

- a) Have no effect on the maximum mass for take-off
- b) Increase the required take-off distance
- c) Increase the maximum mass for take-off
- d) Decrease the maximum mass for take-off

24. Which statement, in relation to the climb limited takeoff mass of a jet aeroplane, is correct?

- a) The climb limited takeoff mass is determined at the speed for best rate of climb
- b) The climb limited takeoff mass decreases with increasing OAT
- c) On high elevation airports equipped with long runways the aeroplane will always be climb limited
- d) 50% of a head wind is taken into account when determining the climb limited takeoff mass

25. What does the expression 'Broken (BKN)' mean?

- a) 3-4 eighths of the sky is cloud covered
- b) 3-5 eighths of the sky is cloud covered
- c) 5-7 eighths of the sky is cloud covered
- d) Nil significant cloud cover

ATPL - Airline Transport Pilot license - Principles of Flight



26. An aeroplane has the following masses: ESTLWT= 50 000 kgTrip fuel= 4 300 kg Contingency fuel= 215 kgAlternate fuel (final reserve included)= 2 100kg Taxi= 500 kgBlock fuel= 7 115 kgBefore departure the captain orders to make the block fuel 9 000 kg. The trip fuel in the operational flight plan should read:

a) 6 185 kg.
b) 9 000 kg.
c) 4 300 kg.
d) 6 400 kg.
27. In what way do (1) induced drag and (2) parasite drag alter with increasing speed in straight and level flight?
a) (1) decreases and (2) increases
b) (1) increases and (2) decreases
c) (1) decreases and (2) decreases
d) (1) increases and (2) increases
28. The Dry Operating Mass includes:
a) Crew and crew baggage, catering, removable passenger service equipment, potable water and lavatory chemicals.
b) Passengers baggage and cargo.
c) Fuel and passengers baggage and cargo.
d) Unusable fuel and reserve fuel.
29. Sound propagates through the air at a speed which only depends on:
a) Temperature and the pressure.
b) Temperature.
c) Density.
d) Pressure.
30. A SANDWICH structural part is unsuitable for absorbing:

d) Concentrated loads.

a) Torsional Loads.b) Shear loads.c) Bending loads.

ATPL - Airline Transport Pilot license - Principles of Flight



31. The critical Mach number can be increased by

- a) Sweepback of the wings.
- b) An increase in wing aspect ratio.
- c) A T-tail.
- d) Positive dihedral of the wings.

32. The most important problem of ice accretion on a transport aeroplane during flight is:

- a) Increase in weight
- b) Increase in drag
- c) Reduction in CLmax
- d) Blocking of control surfaces

33. Geostrophic wind is the wind when isobars are:

- a) Curved lines and no friction is involved
- b) Straight lines and friction is involved
- c) Straight lines and no friction is involved
- d) Curved lines and friction is involved

34. When descending at a constant Mach number:

- a) The difference between surrounding conditions and ISA must be known to deduce the CAS variation.
- b) CAS decreases.
- c) CAS increases.
- d) CAS remains constant.

35. What is the radiotelephony call sign for the aeronautical station providing approach control (no radar service)?

- a) ARRIVAL
- b) RADAR
- c) APPROACH
- d) CONTROL

ATPL - Airline Transport Pilot license - Principles of Flight



36. Given:Distance from departure to destination 1950 NM GS Out 400 ktGS Home 300 kt What is the time of the PET from the departure point?

- a) 223 min
- b) 167 min
- c) 125 min
- d) 29 min

37. What is the likely track for a hurricane in the Caribbean area?

- a) West in the earlier stages and later turning north east.
- b) West in the earlier stages and later turning south east.
- c) West deep into the US
- d) East then south.

38. Which of the following is true according to regulations for turbo propeller powered aeroplanes not performing a steep approach?

- a) Maximum Landing Distance at destination is 0,95 x LDA (Landing Distance Available).
- b) Maximum use of clearway is 1,5 x runway.
- c) Maximum Landing Distance at the destination aerodrome and at any alternate aerodrome is 0.7×10^{-2} LDA (Landing Distance Available).
- d) Maximum Take-off Run is 0,5 x runway.

39. Which phrase shall be used if you want to say: "Communication is difficult. Please send every word or group of words twice"?

- a) Say again, say again
- b) Repeat twice
- c) Words twice
- d) Message second time

40. For an aircraft flying a true track of 360° between the 5°S and 5°N parallels, the precession error of the directional gyro due to apparent drift is equal to:

- a) -5°/hour
- b) +5°/hour
- c) 15°/hour
- d) Approximately 0°/hour

ATPL - Airline Transport Pilot license - Principles of Flight



41. With regard to the average influence of age on pilot performance, it may be said that age:

- a) Sharply reduces performance without, however, affecting cognitive capabilities
- b) Has little impact when the pilot is able to compensate for it by his/her flight experience
- c) Increases in impact as speed of thought and memory deteriorate
- d) Has a major impact owing to the impairment of memory

42.	The	signal	transmitted	by	a radio	altimeter	is:
-----	-----	--------	-------------	----	---------	-----------	-----

- a) An amplitude modulated carrier wave.
- b) A combination of frequency modulation and pulse modulation.
- c) A pulse modulated carrier wave.
- d) A frequency modulated carrier wave.

43. The angle of attack of a blade section is the angle between the chord line and the:

- a) Induced airflow.
- b) Rotational airflow.
- c) Plane of rotation.
- d) Relative airflow.

44. Calculate the centre of gravity in % MAC (mean aerodynamic chord) with following data: Distance datum - centre of gravity: 12.53 mDistance datum - leading edge: 9.63 m Length of MAC: 8 m

- a) 63.4 % MAC
- b) 36.3 % MAC
- c) 23.1 % MAC
- d) 47.0 % MAC

45. At what approximate latitude is the length of one minute of arc along a meridian equal to one NM (1852 m) correct?

- a) 90°
- b) 0°
- c) 30°
- d) 45°

ATPL - Airline Transport Pilot license - Principles of Flight



46. The apparent wander of a directional gyro is 15°/h:

- a) At the latitude 45°
- b) At the latitude 30°
- c) At the equator
- d) At the North pole

47. During the approach, the radio altimeter indicates 950 ft. This is:

- a) The relative height of the aircraft above airport level (AAL).
- b) The height of the pilot eyes with regard to the ground.
- c) The relative height of the aircraft with regard to the runway.
- d) The height of the lowest wheels with regard to the ground.

48. The ISO-ECHO facility of an airborne weather radar is provided in order to:

- a) Give an indication of cloud tops
- b) Detect areas of possible severe turbulence in cloud
- c) Extend the mapping range
- d) 666 km

49. What does the word 'recleared' mean?

- a) Permission for proposed action granted
- b) An error has been made in my last transmission
- c) A change has been made to your last clearance
- d) Consider that transmission as not sent

50. At what time of day, or night, is radiation fog most likely to occur?

- a) Late evening.
- b) At sunset.
- c) Shortly after midnight.
- d) Shortly after sunrise.

ATPL - Airline Transport Pilot license - Principles of Flight



51. The Maximum Taxi (Ramp) Mass is governed by:

- a) Tyre speed and temperature limitations.
- b) Structural considerations.
- c) Taxi distance to take-off point.
- d) Bearing strength of the taxiway pavement.

52. With respect to a single-engine piston powered aeroplane, determine the zero fuel moment (lbs.ln./100) in the following conditions:Basic Empty Mass: 2415 lbs.Arm at Basic Empty Mass: 77,9 ln. Cargo Zone A: 350 lbs.Baggage Zone B: 35 lbs.Pilot and front seat passenger: 300 lbs (total)

ATPL - Airline Transport Pilot license - Principles of Flight



ATPL - Airline Transport Pilot license - Principles of Flight



CIVIL AVIATION AUTHORITY MASS AND BALANCE

DATA SHE AIRCRAFT-S.E.

SEP1

Fig.2.4

<u>ITEM</u>	MASS	ARM (IN)	MOMEN X100
1. BASIC EMPTY CONDITION			
2. FRONT SEAT OCCUPANTS		79	
3. THIRD & FOURTH SEAT PAX		117	
4. BAGGAGE ZONE 'A1		108	
5. FIFTH & SIXTH SEAT PAX		152	
6. BAGGAGE ZONE 'B'		150	
7. BAGGAGE ZONE 'C1		180	
SUB - TOTAL = ZERO FUEL MASS			
8. FUEL LOADING			
SUB -TOTAL = RAMP MASS			
9. SUBTRACT FUEL FOR START, TAXI & RUN UP. (SEE NOTE)			
SUB- TOTAL = TAKE OFF MASS			
10. TRIP FUEL			
SUB -TOTAL = LANDING MASS			

LOADING MANIFEST

NB. FUEL FOR START TAXI AND RUN UP IS NORMALLY 13 LBS AT AN AVERAGE ENTRY OF 10 IN THE COLUMN HEADED **MOMENT (X 100)**

ATPL - Airline Transport Pilot license - Principles of Flight



~\	CCZE
aι	nn/n

b) 2496,3

c) 2548,8

d) 2311,8

53. How many red	I lights must a pilot	see, whose aircra	ft, in final approach,	is following a norma	al glide path	defined
by a PAPI?				_		

a) 3.

b) 2.

c) 1.

d) None.

54. According JAR CS/ EASA CS the worst effect of a MINOR FAILURE on the flight crew could be:

- a) Physical Distress Or Excessive Workload, Impairs Ability To Perform Tasks.
- b) Physical discomfort or a significant increase in workload.
- c) No effect on flight crew.
- d) A slight increase in workload.

55. In the ATC flight plan Item 10 (equipment), the letter to indicate the carriage of a serviceable transponder - mode A (4 digits-4096 codes) and mode C, is:

ATPL - Airline Transport Pilot license - Principles of Flight



ATPL - Airline Transport Pilot license - Principles of Flight



QuizVds.it

	FLIGHT PLAN PLAN DE VOL
PRIORITY Priorité	ADDRESSEE(S) Destinataire(s)
<<≡ FF →	
FLIGHT TIME Heure de dépôt	ORIGINATOR Expéditeur
	」→ [<<≡
	DRESSEE(S) AND/OR ORIGINATOR stinataire(s) et/ou de l'expéditeur
3 MESSAGE TYPE Type de message	7 AIRCRAFT IDENTIFICATION 8 FLIGHT RULES Identification de l'aéronef Règles de vol
<<≡ (FPL -	
9 NUMBER Nombre	TYPE OF AIRCRAFT WAKE TURBULENCE CAT. Type de l'aéronef Cat. de turbulence de sillage
	/
13 DEPARTURE AEROD Aérodrome de dép	odr Heure
	<<≡
15 CRUISING SPEED Vitesse croisière	LEVEL ROUTE Niveau Route
16 DESTINATION AERODE Aérodrome de destina — 18 OTHER INFORMATION Renseignements divers	
•	
	SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)
19 ENDURANCE Autonomie	ements complémentaires (A NE PAS TRANSMETTRE DANS LES MESSAGES DE PLAN DE VOL
HR. MIN.	PERSONS ON BOARD Personnes a boid UHF VHF
— E / L	
	ESERT MARITIME JUNGLE LIGHT FLUORES ésert Maritime Jungle Lampes Fluores UHF
→ S / P L	D M J > J/L F U
NUMBER CAPACIT Nombie Capacité	
→ D/ →	<<≡
A /	D MARKINGS / Couleur et marques de l'aéronef
REMARKS / Remarques	
→ N /	ilote commandant de boor
C /) < =
FILED BY / Deposé par	

ATPL - Airline Transport Pilot license - Principles of Flight



- a) B
- b) A
- c) C
- d) P

ATPL - Airline Transport Pilot license - Principles of Flight



56. A plain in Western Europe with an average height of 500 m (1600 FT) above sea level is covered with a uniform

SC layer of	cloud during the summer	months. At what heig	ht above the ground	is the base of this cloud t	o be
expected?	-	_	_		

- a) 7000 15000 FT above ground
- b) 100 1500 FT above ground
- c) 15000 25000 FT above ground
- d) 1500 7000 FT above ground

57. An aircraft at Fl	L 100 should be able to	receive a VOR	groundstation at 1	00' above MSL	at an approximate
maximum range of	:	_			

- a) 123 NM
- b) 137 NM
- c) 145 NM
- d) 130 NM

58. The control of free turbine engines on turboprops, is accomplished by - a propeller control lever used to select: 1 - propeller RPM2 - turbine temperature 3 - turbine RPM - a fuel control lever used to select: 4 - propeller RPM 5 torque 6 - turbine temperature The combination which regroups all of the correct statements is:

- a) 1 5 6
- b) 2 4 5
- c) 3 4 6
- d) 1 3 5

59. For most large aeroplanes, spoilers are:

- a) Lower Wing Surface Devices And Their Deflection Can Be Symmetrical Or Asymmetrical.
- b) Upper Wing Surface Devices And Their Deflection Is Always Asymmetrical.
- c) Upper wing surface devices and their deflection can be symmetrical or asymmetrical.
- d) Lower Wing Surface Devices And Their Deflection Is Always Asymmetrical.

ATPL - Airline Transport Pilot license - Principles of Flight



60. An operator shall not operate an aeroplane unless it is equipped with a cockpit voice recorder which starts to record automatically:

- a) When the parking brake is released until the termination of flight when the parking brake is set.
- b) Prior to the aeroplane moving under its own power until the termination of the flight when the aeroplane is no longer capable of moving under its own power.
- c) Prior to the aeroplane moving under its own power until the termination of flight when the parking brake is set.
- d) When full thrust is applied until the termination of the flight when the aeroplane is no longer capable of moving under its own power.

61. Which of the following statements is correct concerning flight in an environment of low contrast (fog, snow, darkness, haze)?

- a) It is impossible to detect objects.
- b) It is difficult to estimate the correct speed and size of approaching objects.
- c) It is unlikely that visual illusions occur.
- d) There is no problem to estimate the correct speed and size of approaching objects.

62. When compared to still air conditions, a constant headwind component:

- a) Increases the best rate of climb
- b) Decreases the angle of climb
- c) Increases the angle of flight path during climb
- d) Increases the maximum endurance

63. The term 'useful load' as applied to an aircraft includes

- a) Traffic load plus usable fuel.
- b) The revenue-earning portion of traffic load plus useable fuel.
- c) The revenue-earning portion of traffic load only.
- d) Traffic load only.

64. Consider the steady flow through a stream tube where the velocity of the stream is V. An increase in temperature of the flow at a constant value of V will:

- a) Increase the mass flow
- b) Not affect the mass flow
- c) Decrease the mass flow
- d) Increase the mass flow when the tube is divergent in the direction of the flow

ATPL - Airline Transport Pilot license - Principles of Flight



65. Loads must be adequately secured in order to:

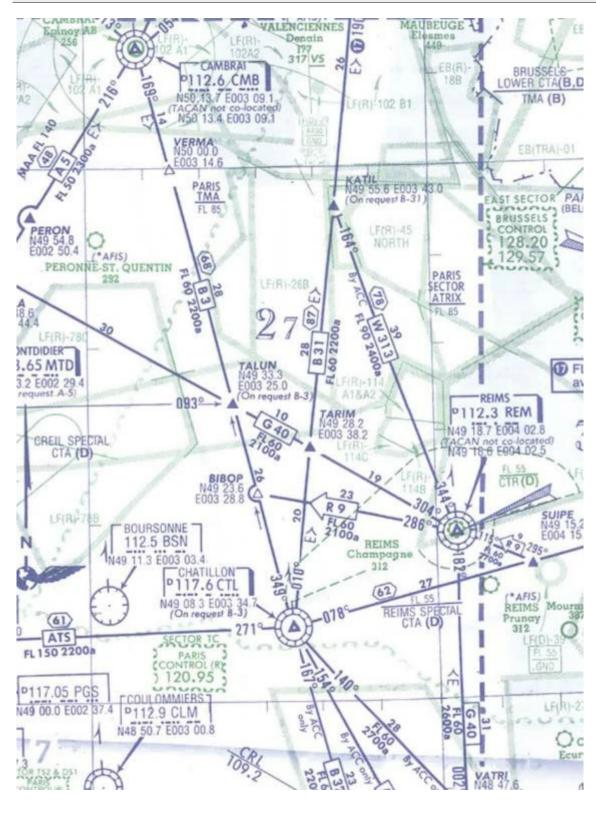
- a) Avoid unplanned centre of gravity (CG) movement and aircraft damage.
- b) Prevent excessive g-loading during the landing flare.
- c) Avoid any centre of gravity (CG) movement during flight.
- d) Allow steep turns.

66. Refer to the Student Pilot Route Manual: E LO 2An appropriate flight level for flight on airway B3 from CHATILLON CTL 117.6 (49°08'N 003°35'E) to CAMBRAI CMB 112.6 (50°14'N 003°09'E) is:

ATPL - Airline Transport Pilot license - Principles of Flight



QuizVds.it



- a) FL50
- b) FL80
- c) FL170
- d) FL60

ATPL - Airline Transport Pilot license - Principles of Flight



67. The value of magnetic variation:

- a) 1756
- b) 1752
- c) 1742
- d) 1820

68. Which of the following statements is true with regard to mountain waves?

- a) Mountain waves are not experienced beyond 100 miles downwind from initiating high ground, regardless of the height of the ground
- b) The absence of cloud over high ground indicates the absence of mountain waves
- c) Flight with headwind toward high ground is likely to be more hazardous than flight with tailwind toward high ground
- d) Flight with tailwind toward high ground is likely to be more hazardous than flight with headwind toward high ground

69. Hyperventilation is:

- a) A too high percentage of nitrogen in the blood
- b) A decreased lung ventilation
- c) An increased lung ventilation
- d) A too high percentage of oxygen in the blood.

70. What process in an air mass leads to the creation of wide spread NS and AS cloud coverage?

- a) Lifting
- b) Radiation
- c) Convection process
- d) Sinking

ATPL - Airline Transport Pilot license - Principles of Flight



Response Scheme Compare your answers with the following diagram and mark your score!

01: D	02: A	03: B	04: D
05: B	06: B	07: B	08: A
09: B	10: B	11: D	12: C
13: A	14: D	15: C	16: B
17: B	18: D	19: A	20: B
21: B	22: A	23: A	24: B
25: C	26: C	27: A	28: A
29: B	30: D	31: A	32: C
33: C	34: C	35: C	36: C
37: A	38: C	39: C	40: D
41: B	42: D	43: D	44: B
45: D	46: D	47: D	48: B
49: C	50: D	51: B	52: C
53: B	54: D	55: C	56: D
57: B	58: A	59: C	60: B
61: B	62: C	63: A	64: C
65: A	66: C	67: B	68: C
69: C	70: A		

ATPL - Airline Transport Pilot license - Principles of Flight



Response form Use this form to mark your answers

01:	02:	03:	04:
05:	06:	07:	08:
09:	10:	11:	12:
13:	14:	15:	16:
17:	18:	19:	20:
21:	22:	23:	24:
25:	26:	27:	28:
29:	30:	31:	32:
33:	34:	35:	36:
37:	38:	39:	40:
41:	42:	43:	44:
45:	46:	47:	48:
49:	50:	51:	52:
53:	54:	55:	56:
57:	58:	59:	60:
61:	62:	63:	64:
65:	66:	67:	68:
69:	70:		