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ATPL - Airline Transport Pilot license - Aircraft General Knowledge - Instrumentation



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STUDENT NAME:

DATE AND TIME:

01. Engine compartment decking and firewalls are manufactured from:

- a) Stainless steel or titanium sheet.
- b) Asbestos blankets.
- c) Composite materials such as carbon, kevlar and fibre glass.
- d) Aluminium alloy sheet.

02. The scale quoted on a Lambert's chart is:

- a) The scale at the standard parallels.
- b) The mean scale at the parallel of the secant of the cone.
- c) The mean scale between the pole and the equator.
- d) The scale at the equator.

03. In an auto-pilot slaved powered control circuit, the system which ensures synchronisation:

- a) Can itself, when it fails, prevent the automatic pilot from being engaged.
- b) Is inhibited when the automatic pilot is engaged.
- c) Prevents uncommanded surface deflection when the automatic pilot is disengaged.
- d) Intervenes only when the automatic pilot has been engaged.

04. What is the radiotelephony call sign suffix for the aeronautical station indicating clearance delivery?

- a) CLEARANCE
- b) DELIVERY
- c) RADIO
- d) CLEARANCE DELIVERY

05. Which of the following frequency-bands is used by the Loran C navigation system?

- a) 1750 - 1950 kHz
- b) 90 - 110 kHz
- c) 978 - 1213 MHz
- d) 10.2 - 13.6 kHz

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06. In the Flight Management Computer (FMC) of the Flight Management System (FMS), data relating to aircraft flight envelope computations is stored in the:

- a) Navigation database
- b) Air data computer
- c) Auto flight computers
- d) Performance database

07. Our body takes its energy from: 1: minerals 2: protein 3: carbohydrates 4: vitamins

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

08. Rolling is the rotation of the aeroplane about the:

- a) Vertical axis
- b) Lateral axis
- c) Longitudinal axis
- d) Wing axis

09. When an aeronautical station broadcasts information to more than one station, the call starts with:

- a) 'Message to all aircraft on this frequency'
- b) 'General broadcast'
- c) 'Please listen'
- d) 'All stations'

10. Which of the following statements concerning the lifting of a parcel of air is correct ?

- a) Unsaturated parcels cool more rapidly than saturated parcels
- b) Saturated parcels always cool at a rate of 0.65°C per 100m
- c) Unsaturated parcels cool at a rate of 0.65°C per 100m
- d) Unsaturated parcels cool less rapidly than saturated parcels

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11. If an aircraft is flying (with flaps and landing gear retracted) in proximity to terrain and its GPWS (Ground Proximity Warning System) gets activated, because it is detecting that the aeroplane has an excessive rate of descent, the system provides the following aural warning signals:

- a) 'SINK RATE, SINK RATE' followed by 'WHOOOP WHOOOP PULL UP' (twice)
- b) 'TOO LOW, TERRAIN' (twice) followed by 'TOO LOW GEAR' (twice)
- c) 'TERRAIN, TERRAIN' followed by 'WHOOOP WHOOOP PULL UP' (twice)
- d) 'DON'T SINK, DON'T SINK'

12. Any person who suffers damage on the surface shall, upon proof only that damage was caused by an aircraft in flight or by any person or thing falling therefore will be entitled to compensation as provided by:

- a) The Chicago Convention
- b) The Rome Convention
- c) The Montreal Convention
- d) The Warsaw Convention

13. The output of a generator is controlled by:

- a) Varying the length of wire in the armature windings.
- b) Varying the speed of the engine.
- c) The reverse current relay circuit breaker.
- d) Varying the field strength.

14. Given: SHA VOR/DME (N5243.3 W00853.1) radial 120°/35 NM. What is the aircraft position? Use chart E(LO)1

- a) N5225 W00805
- b) N5300 W00945
- c) N5250 W00950
- d) N5230 W00800

15. The transition from SW to NE monsoon in India occurs in

- a) September, October, November
- b) February, March, April
- c) December, January, February
- d) July, August, September

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16. When a person is found inadmissible and is returned to the operator for transport away from the territory of the state, the operator:

- a) Is not responsible for the person inadmissible for entry in the receiving state
- b) Shall not recover from such person any transportation costs arising from his (her) inadmissibility
- c) And the state of the operator are both responsible for the person inadmissible
- d) Shall not be preclude from recovering from such person any transportation costs arising from his (her) inadmissibility

17. When turning into a desired radial, FD bars indicate:

- a) 45° angle of bank.
- b) 30° angle of bank.
- c) Correct attitude to intercept radial.
- d) 15° angle of bank.

18. On an aeroplane with 20 or more seats engaged on an inter-continental flight, the 'standard mass' which may be used for passenger baggage is

- a) 14 kg per passenger.
- b) 13 kg per passenger.
- c) 11 kg per passenger.
- d) 15 kg per passenger.

19. An aircraft encountering radio communication failure on an IFR flight in IMC has to hold over the designated navigation aid serving the destination aerodrome:

- a) 5 minutes in any case
- b) Under no circumstances
- c) 3 minutes, if an expected approach time is not acknowledged
- d) Until the expected approach time last received and acknowledged

20. The relevance of check procedures during flight becomes even more important when:

- a) Flying an aircraft which you have flown recently
- b) Flying an unfamiliar type of aircraft and experiencing mental pressure
- c) Flying an aircraft which you have flown many times before
- d) Conducting a longer flight than you would normally perform

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21. Which phrase shall be used if you want to say: 'Yes':

- a) Yes
- b) Affirm
- c) Affirmative
- d) Roger

22. To which frequency bands do the frequencies 118.000 - 136.975 MHz of the Aeronautical Mobile Service belong?

- a) Very high frequency
- b) Medium frequency
- c) Low frequency
- d) Very low frequency

23. Given: P_t = total pressure P_s = static pressure Dynamic pressure is:

- a) $(P_t - P_s) / P_s$
- b) $(P_t - P_s) / P_t$
- c) P_t / P_s
- d) $P_t - P_s$

24. Which word or phrase shall be used in order to repeat for clarity or emphasis?

- a) Confirm
- b) Read back
- c) I say again
- d) Verify

25. The landing field length required for jet aeroplanes at the alternate (wet condition) is the demonstrated landing distance plus

- a) 92%
- b) 67%
- c) 70%
- d) 43%

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26. An air mass is unstable when

- a) Temperature and humidity are not constant
- b) An ascending parcel of air continues to rise to a considerable height.
- c) Temperature increases with height
- d) Pressure shows a marked variation over a given horizontal area

27. 'Night Effect' which causes loss of signal and fading, resulting in bearing errors from NDB transmissions, is due to:

- a) Static activity increasing at night particularly in the lower frequency band
- b) Interference from other transmissions and is maximum at dusk when east of the NDB
- c) The effect of the Aurora Borealis
- d) Skywave distortion of the null position and is maximum at dawn and dusk

28. The speed V1 is defined as:

- a) Take-off climb speed
- b) Speed for best angle of climb
- c) Take-off decision speed
- d) Engine failure speed

29. An aircraft lands at an airport (airport elevation 540', QNH 993 hPa) with the altimeter set to 1013 hPa. What will it indicate?

- a) 1080'
- b) 0'
- c) 380'
- d) 700'

30. The speed V2 is:

- a) The lowest airspeed required to retract flaps without stall problems
- b) That speed at which the PIC should decide to continue or not the take-off in the case of an engine failure
- c) The lowest safety airspeed at which the aeroplane is under control with aerodynamic surfaces in the case of an engine failure
- d) The take-off safety speed

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31. You are flying from Munich to Amsterdam. Which of the following flight levels would you choose in order to avoid turbulence and icing?

- a) FL 180
- b) FL 320
- c) FL 140
- d) FL 260

32. The QNH at an airfield in California located 69 metres below sea level is 1018 hPa. The air temperature is 10°C higher than a standard atmosphere. What is the QFF?

- a) Less than 1018 hPa
- b) 1018 hPa
- c) More than 1018 hPa
- d) It is not possible to give a definitive answer

33. A bus-bar is:

- a) A distribution point for electrical power.
- b) A device which may only be used in DC circuits.
- c) The stator of a moving coil instrument.
- d) A device permitting operation of two or more switches together.

34. A ground feature was observed on a relative bearing of 315° and 3 min later on a relative bearing of 270°. The W/V is calm aircraft GS 180 KT. What is the minimum distance between the aircraft and the ground feature?

- a) 12 NM
- b) 9 NM
- c) 6 NM
- d) 3 NM

35. Which of these statements about a gust lock system are correct or incorrect? 1) Irreversible flight controls should have a gust lock. 2) There is no need for a gust lock on manual flight controls.

- a) 1) is incorrect, 2) is incorrect.
- b) 1) is correct, 2) is incorrect.
- c) 1) is incorrect, 2) is correct.
- d) 1) is correct, 2) is correct.

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36. After a cabin pressure loss at approximately 35 000 FT the TUC (Time of Useful Consciousness) will be approximately:

- a) 30-40 seconds
- b) 5 minutes or more
- c) 3-4 minutes
- d) 10-15 seconds

37. Given: Distance from departure to destination 150 NM True track 142 W/V 200/15 TAS 132 kt What is the distance of the PET from the departure point?

- a) 79 NM
- b) 134 NM
- c) 75 NM
- d) 71 NM

38. During the transmission of numbers containing a decimal point:

- a) The term DECIMAL must always be transmitted.
- b) The term DECIMAL must be spoken only if followed by three digits.
- c) The term DECIMAL can be omitted if no chance of misunderstanding exists.
- d) The term DECIMAL can be omitted with friendly ATS units only.

39. How long will it take to fly 5 NM at a groundspeed of 269 Kt ?

- a) 2 MIN 30 SEC
- b) 1 MIN 55 SEC
- c) 0 MIN 34 SEC
- d) 1 MIN 07 SEC

40. Given: True Heading = 090° TAS = 180 kt. GS = 180 kt. Drift 5° right. Calculate the W/V?

- a) 190° / 15 kt
- b) 005° / 15 kt
- c) 185° / 15 kt
- d) 355° / 15 kt

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41. 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?

- a) (1) reduces (2) reduces
- b) (1) reduces (2) increases
- c) (1) increases (2) increases
- d) (1) increases (2) reduces

42. The geostrophic wind is less than the gradient wind around an anticyclone because the

- a) Centrifugal force opposes the pressure gradient
- b) Effect of coriolis is added to friction
- c) Centrifugal force is added to the pressure gradient
- d) Coriolis effect opposes the centrifugal force

43. What is meant by the phrase 'readability 4'?

- a) Readable
- b) Readable but with difficulty
- c) Perfectly readable
- d) Readable now and then

44. Given are:- Maximum structural take-off mass: 72 000 kg- Maximum structural landing mass: 56 000 kg- Maximum zero fuel mass: 48 000 kg- Taxi fuel: 800 kg- Trip fuel: 18 000 kg- Contingency fuel: 900 kg- Alternate fuel: 700 kg- Final reserve fuel: 2 000 kgThe actual take-off mass can never be higher than:

- a) 69 600 kg
- b) 70 400 kg
- c) 72 000 kg
- d) 74 000 kg

45. In a directional gyro, gimbaling errors are due to:

- a) The vertical component of the earth's magnetic field
- b) An apparent weight and an apparent vertical
- c) The aircraft's movement over the earth
- d) A banked attitude

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46. What does the abbreviation 'HJ' mean?

- a) No specific working hours.
- b) Sunset to sunrise.
- c) Continuous day and night service.
- d) Sunrise to sunset.

47. If the aircraft mass, in a horizontal unaccelerated flight, decreases:

- a) The minimum drag increases and the IAS for minimum drag increases
- b) The minimum drag increases and the IAS for minimum drag decreases
- c) The minimum drag decreases and the IAS for minimum drag increases
- d) The minimum drag decreases and the IAS for minimum drag decreases

48. An aircraft has two certified landing flaps positions, 25° and 35°. If a pilot chooses 25° instead of 35°, the aircraft will have:

- a) A reduced landing distance and better go-around performance
- b) An increased landing distance and better go-around performance
- c) A reduced landing distance and degraded go-around performance
- d) An increased landing distance and degraded go-around performance

49. An aircraft experiencing radio communication failure on an IFR flight in IMC is assumed to:

- a) Proceed to an area from where the flight can be continued according to the visual flight rules
- b) Proceed in accordance with the current flight plan to the designated navigation aid serving the destination aerodrome
- c) Execute a VMC approach at the nearest suitable aerodrome
- d) Divert to the most suitable aerodrome according to the route of flight

50. The Ground Proximity Warning System (GPWS) is a system working according to a height span ranging from:

- a) 50 ft to 2 500 ft
- b) The ground to 500 ft
- c) 30 ft to 5 000 ft
- d) The ground to 1 000 ft

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51. Where, in relation to the runway, is the ILS localiser transmitting aerial normally situated?

- a) At the approach end of the runway about 300 m from touchdown on the centreline
- b) At the non-approach end about 150 m to one side of the runway and 300 m along the extended centreline
- c) On the non-approach end of the runway about 300 m from the runway on the extended centreline
- d) At the approach end about 150 m to one side of the runway and 300 m from touchdown

52. What does the abbreviation 'RVR' mean?

- a) Runway visibility report
- b) Radar vectors requested
- c) Recleared via route...
- d) Runway visual range

53. According to international agreements wind direction shall be adjusted to the local variation and given in degrees magnetic:

- a) In upper wind forecast for areas north of lat 60° north or 60° south.
- b) When the local variation exceeds 10° East or 10° West.
- c) When an aircraft on the request by a meteorological watch office (MWO) or at specified points transmits a PIREP
- d) Before landing and take-off

54. Which of the following are to be taken into account for the runway in use for take-off?

- a) Airport elevation, runway slope, standard temperature, pressure altitude and wind components
- b) Airport elevation, runway slope, standard temperature, standard pressure and wind components
- c) Airport elevation, runway slope, outside air temperature, standard pressure and wind components
- d) Airport elevation, runway slope, outside air temperature, pressure altitude and wind components

55. Which of the following cloud types can project up into the stratosphere?

- a) Cirrostratus
- b) Cumulonimbus
- c) Altostratus
- d) Altocumulus

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56. In a given configuration the endurance of a piston engine aeroplane only depends on:

- a) Altitude, speed, mass and fuel on board.
- b) Speed, mass and fuel on board.
- c) Speed and mass.
- d) Altitude, speed and mass.

57. On the readability scale what does 'Readability 5' mean:

- a) Unreadable
- b) Perfectly readable
- c) Readable but with difficulty
- d) Problem to understand

58. How many operational satellites are required for Full Operational Capability (FOC) of the satellite navigation system NAVSTAR/GPS?

- a) 24
- b) 30
- c) 12
- d) 18

59. The touchdown areas located at both ends of the runways are typical for the appearance of:

- a) Viscous hydroplaning
- b) Rubber steaming hydroplaning
- c) Rubber reversion hydroplaning
- d) Dynamic hydroplaning

60. When an aircraft has turned 360 degrees with a constant attitude and bank, the pilot observes the following on a classic artificial horizon:

- a) Attitude and bank correct
- b) Too much nose-up and bank too high
- c) Too much nose-up and bank correct
- d) Too much nose-up and bank too low

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61. 'Instrument runways' are the following runways intended for the operation of aircraft using instrument approach procedures.

- a) Precision approach runways category I, II and III.
- b) Instrument approach runways, precision approach runways category I, II and III.
- c) Non precision approach runways, precision approach runways category I, II and III.
- d) Precision approach runways in general.

62. What does the instruction 'Orbit right' mean?

- a) Turn right to avoid other traffic
- b) Make 360° turns to the right
- c) Leave the runway to the right
- d) Right-hand circuits are in use

63. Which of the following data, in addition to the Pseudo Random Noise (PRN) code, forms part of the so called 'Navigation Message' transmitted by NAVSTAR/GPS satellites?

- a) Time
- b) Data to impair the accuracy of the position fix
- c) Almanac data
- d) Data to correct receiver clock error; almanac data

64. Consider the following statements on meridians:

- a) Any two meridians will form a great circle.
- b) The meridians are parallel only at equator.
- c) Any two halves great circle will form a meridians.
- d) The meridians are not of equal length.

65. The resistance phase of stress:

- a) Allows fats to be transformed into sugars, thereby prolonging the mobilization of energy in the body
- b) Is very short duration and is unlikely to give a pilot the opportunity to resolve a problem
- c) May cause a person to die by stopping the defence mechanisms of the body
- d) Is characterised by the secretion of adrenalin, increased heart rate and blood pressure

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66. See TRM, De Kooy Area chart (19- 1) What is the minimum altitude it is permissible to fly over the "Quiet Zone" in the vicinity of DE KOOY?

- a) 3000 ft
- b) 3500 ft
- c) 32800 ft
- d) 1500 ft

67. Basic RNAV requires a track-keeping accuracy of:

- a) +/- 3NM or better for 90% of the flight time
- b) +/- 5NM or better for 95% of the flight time
- c) +/- 5NM or better throughout the flight
- d) +/- 2NM or better for 75% of the flight time

68. The normal arterial blood-pressure of a healthy adult at rest is (systolic/diastolic):

- a) 120/80 mm Hg
- b) 220/180 mm Hg
- c) 180/120 mm Hg
- d) 80/20 mm Hg

69. Which of the following circumstances most favour the development of radiation fog?

- a) Warm moist air at the windward side of a mountain
- b) Maritime tropical air flowing over cold sea
- c) Moist air over land during clear night with little wind
- d) Advection of very cold air over much warmer sea

70. In order to make sound decisions it is important to:

- a) Avoid situational awareness.
- b) Understand why and how we make decisions.
- c) Accept that the captain, because of his/her authority, tends to be correct.
- d) Keep a low level of stress by excluding non-verbal communication.

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Response Scheme

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

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

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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: _____		