Exam simulation

ATPL - Airline Transport Pilot license - Radio Navigation

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STUDENT NAME:	DATE AND TIME:

01. An aeroplane is to depart from an airfield at a take-off mass of 302550 kg. Fuel on board at take-off (including contingency and alternate of 19450 kg) is 121450 kg. The Dry Operating Mass is 161450 kg. The useful load will be

a) 19650 kg
b) 141100 kg
c) 39105 kg
d) 121450 kg

02. Where is the projection of the polar front jet on the surface stream most likely to be found in relation to the cold and warm fronts of a depression?

a) Up to 100 NM either side of the cold front and up to 200 NM either side of the warm front
b) 50 to 200 NM behind the cold front and 300 to 450 NM ahead of the warm front
c) 300 to 450 NM behind the cold front and 50 to 200 NM ahead of the warm front
d) Up to 200 NM either side of the cold front and up to 200 NM either side of the warm front

03. When establishing the mass breakdown of an aeroplane, the empty mass is defined as the sum of the:

a) Basic mass plus variable equipment mass
b) Empty mass dry plus variable equipment mass
c) Basic mass plus special equipment mass
d) Standard empty mass plus specific equipment mass plus trapped fluids plus unusable fuel mass

04. If a pilot receives an instruction from ATC which cannot be carried out, the reply should use the phrase:

a) UNABLE
b) NEGATIVE INSTRUCTION
c) REGRET CANNOT FOLLOW INSTRUCTION
d) CANCEL INSTRUCTION

05. A VFR flight when flying inside an ATS airspace classified as C has to maintain the following minima of flight visibility and distance from clouds

a) 8 km at or above 3050 m (10.000 ft) AMSL 1500 m horizontal and 300 m vertical from clouds

b) 8 km at or above 3050 m (10.000 ft) AMSL, and clear of clouds

c) 5 NM at or above 3050 m (10.000 ft) AMSL, 1500 m horizontal and 300 m vertical from clouds

d) 5km at or above 3050 m (10.000 ft) AMSL 1500 m horizontal and 300 m vertical from clouds

06. An aircraft at FL310, M0.83, temperature -30°C, is required to reduce speed in order to cross a reporting point five minutes later than planned. Assuming that a zero wind component remains unchanged, when 360 NM from the reporting point Mach Number should be reduced to:

a) M0.76

b) M0.74

c) M0.80

d) M0.78

07. The two signals transmitted by a conventional VOR ground station are 90° out of phase on magnetic:

a) South

b) West

c) East

d) North

08. An aircraft airworthiness certificate states a maximum of eight occupants (including pilot). The pilot has a passenger load of six adults and two children (5 and 6 years old). The boarding of all passengers is:

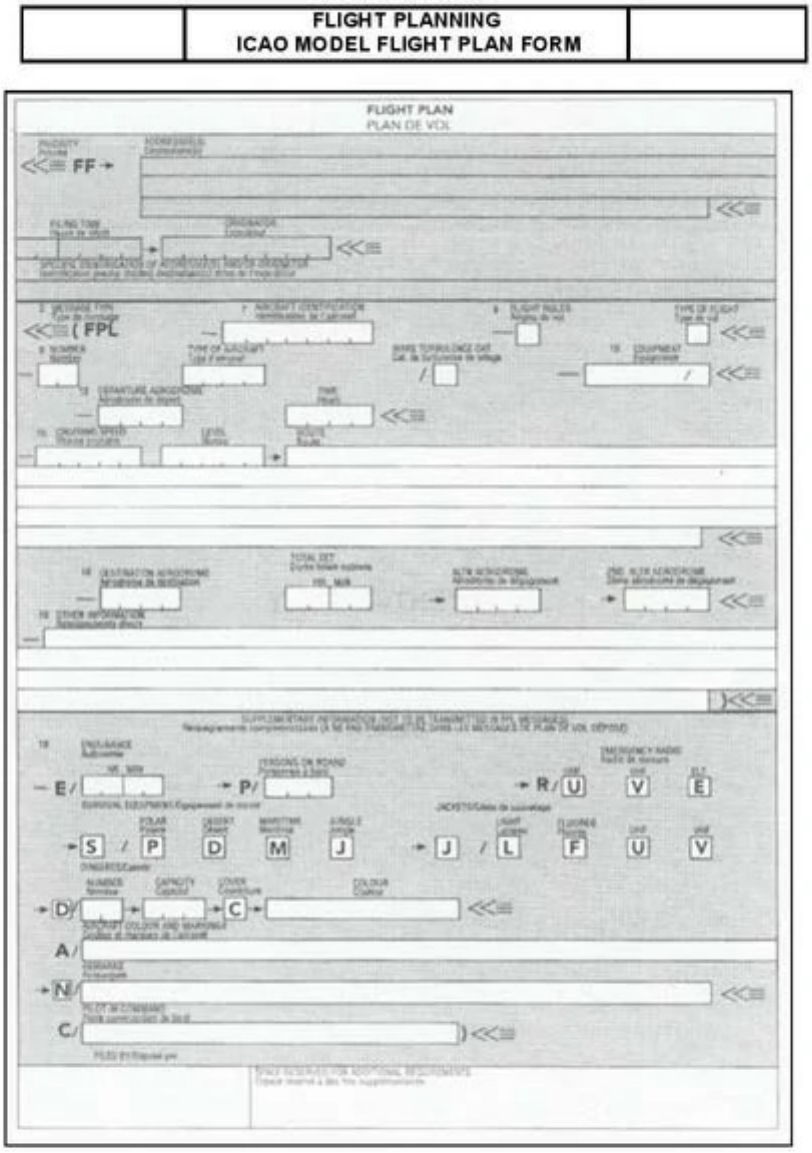
a) Authorized, providing both children are sitting on the same seat and using the same seat belt. No other particular precautions are necessary.

b) Forbidden.

c) Authorized, providing both children are of a similar stature, sitting on the same seat and using the same seat belt with an adult sitting on the seat next to them in order to release their seat belt.

d) Authorized, providing both children are sitting on the same seat, using the same seat belt with an adult sitting on the seat next to them, in order to release their seat belt if necessary.

09. Refer to General Student Pilot Route Manual: In the ATC flight plan Item 10, 'standard equipment' is considered to be:


FLIGHT PLANNING
ICAO MODEL FLIGHT PLAN FORM
FLIGHT PLAN
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a) VHF RTF, ADF, VOR and transponder
b) VHF RTF, ADF, VOR and ILS
c) VHF RTF, VOR, INS and transponder
d) VHF RTF, VOR, ILS and transponder

10. When is the RVR reported at most airports?

a) When the RVR decreases below 2000 m.

b) When the meteorological visibility decreases below 800 m.

c) When the meteorological visibility decreases below 1500 m.

d) When the RVR decreases below 800 m.

11. How does a NAVSTAR/GPS satellite navigation system receiver recognise which of the received signals belongs to which satellite?

a) Each satellite transmits its signal, on common frequencies, with an individual Pseudo Random Noise code

b) Each satellite transmits its signal on a separate frequency

c) The receiver detects the direction from which the signals are received and compares this information with the calculated positions of the satellites

d) The Doppler shift is unique to each satellite

12. The correct formula to calculate the multi-cylinder engine displacement is:

a) Cylinder volume * number of cylinders.

b) Piston area * piston stroke.

c) Cylinder length * cylinder diameter.

d) Piston area * piston stroke * number of cylinders.

13. The function of a constant speed drive (CSD) is to ensure:

a) That the generator produces a constant frequency.

b) An equal AC voltage output from all generators.

c) That the CSD output remains at a constant RPM irrespective of generator RPM.

d) That the starter-motor maintains a constant RPM irrespective of engine acceleration/deceleration.

14. If the static source of an altimeter becomes blocked during a descent the instrument will:

a) Under-read

b) Gradually indicate zero

c) Indicate a height equivalent to the setting on the millibar subscale

d) Continue to display the reading at which the blockage occurred

15. Signal reception is required from a minimum number of satellites that have adequate elevation and suitable geometry in order for a Satellite-Assisted Navigation System (GPS) to carry out independent three dimensional operation without the Receiver Autonomous Integrity Monitoring (RAIM) function. The number of satellites is:

a) 6

b) 5

c) 3

d) 4

16. Tuck under will happen

a) Only below the critical Mach number.

b) Only at the critical Mach number.

c) Above or below the critical Mach number depending on the angle of attack.

d) Only above the critical Mach number.

17. The weight of an aircraft, which is in level non accelerated flight, is said to act

a) Vertically through the centre of pressure.

b) Vertically through the centre of gravity.

c) Always along the vertical axis of the aircraft.

d) Vertically through the datum point.

18. When the subscale is set to the QNH of an airfield the pressure altimeter indicates

a) Elevation while landing

b) Zero while landing only if conditions are as in the ICAO Standard Atmosphere

c) Elevation while landing only if conditions are as in the ICAO Standard Atmosphere

d) Zero while landing

19. What does the abbreviation 'RNAV' mean?

a) Radar aided navigation

b) Route navigation

c) Area navigation

d) Radio navigation

20. VNO is the maximum speed:

a) Which must never be exceeded.

b) Not to be exceeded except in still air and with caution.

c) With flaps extended in landing position.

d) At which the flight controls can be fully deflected.

21. A load placed aft of the datum:

a) Has a negative arm and therefore generates a negative moment and mass

b) Has a negative arm and therefore generates a negative moment but a positive mass

c) Has a positive arm and therefore generates a positive moment

d) Has a positive arm and therefore generates a positive moment but negative mass

22. What name is given to the low level wind system between the subtropical high pressure belt and the equatorial trough of low pressure (ITCZ) ?

a) Trade winds.

b) Monsoon.

c) Westerly winds.

d) Doldrums.

23. The oil system for a piston engine incorporates an oil cooler that is fitted:

a) Between the oil tank and the pressure pump

b) After the pressure pump but before the oil passes through the engine

c) In the return line to the oil tank after the oil has passed through the scavenge pump

d) After the oil has passed through the engine and before it enters the sump

24. Given: TAS = 135 kt, HDG (°T) = 278, W/V = 140/20kt. Calculate the Track (°T) and GS?

a) 279 - 152 kt

b) 272 - 121 kt

c) 283 - 150 kt

d) 275 - 150 kt

25. Healthy people are usually capable of compensating for a lack of oxygen up to:

a) 10000 - 12000 feet
b) 25000 feet
c) 20000 feet
d) 15000 feet

26. Air Traffic Service unit means:

a) Air Traffic Control units and Flight Information Centres.
b) Air Traffic Control units, Flight Information Centres or Air Traffic Services reporting offices.
c) Flight Information Centres and Air Services reporting offices.
d) Air Traffic Control units and Air Services reporting offices.

27. Fuel pumps submerged in the fuel tanks of a multi-engine aircraft are:

a) Low pressure variable swash plate pumps.
b) Centrifugal high pressure pumps.
c) Centrifugal low pressure type pumps.
d) High pressure variable swash plate pumps.

28. Below the tropopause, when descending at constant CAS:

a) Mach number decreases and the velocity of sound increases.
b) Mach number and the velocity of sound decrease.
c) Mach number and the velocity of sound increase.
d) Mach number increases and the velocity of sound decreases.

29. Fair weather cumulus often is an indication of:

a) Poor visibility at surface
b) Smooth flying conditions below the cloud level
c) Turbulence at and below the cloud level
d) A high risk of thunderstorms

30. Accommodation, which enables a clear image to be obtained, is accomplished by which of the following?

a) The rods

b) The crystalline lens

c) The retina

d) The cones

31. Is there any difference between the vertical speed versus forward speed curves for two identical aeroplanes having different masses? (assume zero thrust and wind)

a) Yes, the difference is that the heavier aeroplane will always glide a greater distance.

b) No difference.

c) Yes, the difference is that the lighter aeroplane will always glide a greater distance.

d) Yes, the difference is that for a given angle of attack both the vertical and forward speeds of the heavier aeroplane will be larger.

32. The centre of gravity of an aircraft

a) Is in a fixed position and is unaffected by aircraft loading.

b) May only be moved if permitted by the regulating authority and endorsed in the aircraft's certificate of airworthiness.

c) Must be maintained in a fixed position by careful distribution of the load.

d) Can be allowed to move between defined limits.

33. Which statement is true ?

a) QNH can not be 1013.25 hPa

b) QNH can be lower as well as higher than 1013.25 hPa

c) QNH can be 1013.25 hPa only for a station at MSL

d) QNH is lower than 1013.25 hPa at any time

34. The system which controls breathing, digestion, heart rate, etc., over which there is no voluntary control, is:

a) The critical nervous system

b) The local nervous system

c) Non-existent, as all these functions are under conscious control

d) The autonomic nervous system

35. 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?

a) The required lateral control force does not change.

b) The required lateral control force decreases.

c) The stick force per g decreases.

d) The required lateral control force increases.

36. On a TCAS2 (Traffic Collision Avoidance System), a corrective 'resolution advisory' (RA) is a 'resolution advisory':

a) Asking the pilot to modify effectively the vertical speed of his aircraft.

b) Asking the pilot to modify the speed of his aircraft.

c) Asking the pilot to modify the heading of his aircraft.

d) Which does not require any action from the pilot but on the contrary asks him not to modify his current vertical speed rate.

37. A descent is planned from 7500 ft AMSL so as to arrive at 1000 ft AMSL 6 NM from a VORTAC. With a GS of 156 kt and a rate of descent of 800 ft/min. The distance from the VORTAC when descent is started is:

a) 15,0 NM

b) 27,1 NM

c) 30,2 NM

d) 11,7 NM

38. Which one of the displayed cloud forms is representative of altocumulus castellanus?

a) 1

b) 3

c) 4

d) 2

39. You would use a halon extinguisher for a fire of: 1 - solids (fabric, plastic, ...). 2 - liquids (alcohol, gasoline, ...). 3 - gas. 4 - metals (aluminium, magnesium, ...). The combination regrouping all the correct statements is:

a) 1,2,3,4

b) 1,2,3

c) 1,2,4

d) 2,3,4

40. A Procedural Service is:

a) A surveillance-based service for VFR flights in Class E airspace.

b) An ATS for IFR flights in Class G airspace based on procedures rather than surveillance-derived traffic information.

c) A service that guarantees separation from all aircraft.

d) Another name for a Basic Service.

41. The vertical speed indicator (VSI) is fed by:

a) Dynamic pressure

b) Total pressure

c) Static pressure

d) Differential pressure

42. The measured output power components of a constant frequency AC system are:

a) kVA and kVAR.

b) Amperes and kilowatts.

c) Volts and kilowatts.

d) Volts and amperes.

43. Given: SHA VOR (N5243.3 W00853.1) radial 223°, CRK VOR (N5150.4 W00829.7) radial 322°. What is the aircraft position?

a) N5230 W00910

b) N5210 W00910

c) N5220 W00920

d) N5210 W00930

44. Induced drag may be reduced by:

a) An increase in the taper ratio of the wing

b) A decrease of the aspect ratio

c) An increase in aspect ratio

d) The use of a wing tip with a much thinner aerofoil

45. The operator shall include in the operations manual a Minimum Equipment List which shall be approved by the Authority of:

a) The country of the operator.

b) It is not mandatory that such a book be approved by aviation authorities.

c) The country where the aircraft was manufactured.

d) The country where the aircraft is operated.

46. What type of satellite navigation system NAVSTAR/GPS receiver is most suitable for use on board an aircraft?

a) Multiplex

b) Sequential

c) Any hand held type

d) Multichannel

47. One method to compensate adverse yaw is:

a) A differential aileron.

b) A balance panel.

c) An anti-balance tab.

d) A balance tab.

48. When may the name of the location or the call sign suffix in the call sign of an aeronautical station be omitted?

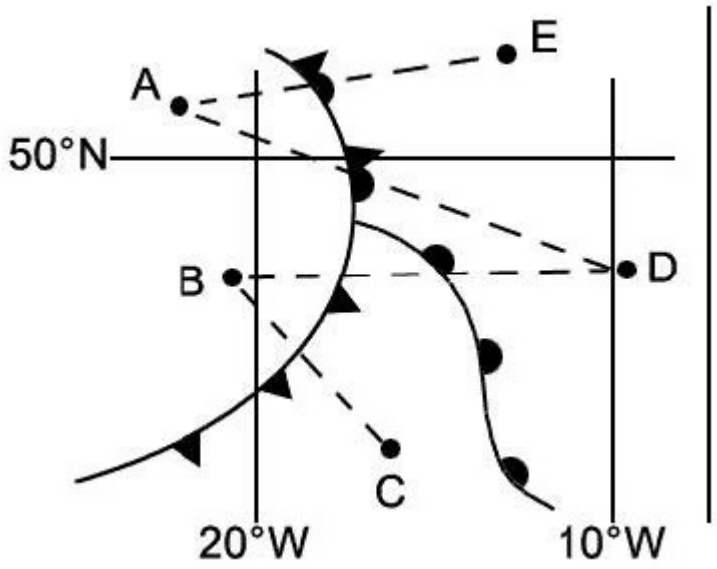
a) Only after the aeronautical station has used the abbreviated call sign

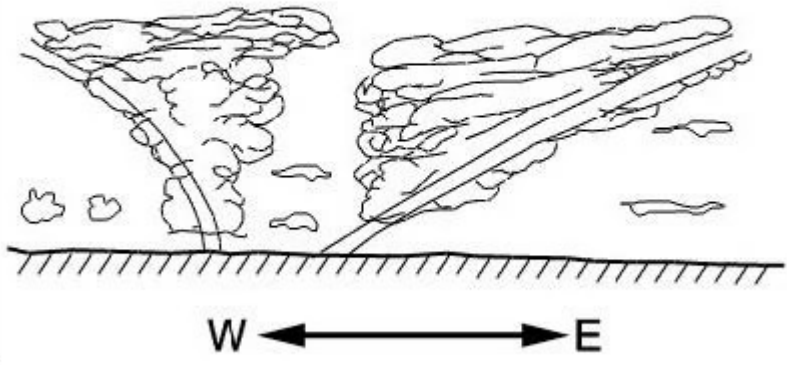
b) Never

c) In dense traffic during rush hours

d) When satisfactory communication has been established and provided it will not be confusing to do so

49. Examining the pictures, on which one of the tracks (dashed lines) is this cross-section to be expected?





a) Track B-D
b) Track A-E
c) Track A-D
d) Track B-C

50. The Maximum Zero Fuel Mass is a structural limiting mass. It is made up of the aeroplane Dry Operational mass plus

a) Traffic load, non-revenue load and crew standard mass.
b) Unuseable fuel and crew standard mass.
c) Traffic load
d) Traffic load and potable water.

51. Mass-balancing of control surfaces is used to:

a) Limit the stick forces.
b) Ensure that the control surfaces are in the mid-position during taxiing.
c) Prevent flutter of control surfaces
d) Increase the stick force stability.

52. Which phenomena will normally influence the reception of VHF transmission?

a) Electrical discharges as they happen frequently in thunderstorms

b) The ionosphere

c) Day and night effect

d) Level of aircraft and terrain elevations

53. What does the symbol indicate on a significant weather chart?

a) The upper limit of significant weather at FL 400.

b) The lower limit of the tropopause.

c) The center of a tropopause "high", where the tropopause is at FL 400.

d) The center of a high pressure area at 400 hPa.

54. Minimum planned take-off fuel is 160 kg (30% total reserve fuel is included). Assume the groundspeed on this trip is constant. When the aircraft has done half the distance the remaining fuel is 70 kg. Is diversion to a nearby alternate necessary?

a) Diversion to a nearby alternate is not necessary, because it is allowed to calculate without reserve fuel.

b) Diversion to a nearby alternate is not necessary, because the reserve fuel has not been used completely.

c) Diversion to a nearby alternate is necessary, unless the captain decides to continue on his own responsibility.

d) Diversion to a nearby alternate is necessary, because the remaining fuel is not sufficient.

55. The range of movement of a control surface is limited by:

a) Primary stops at the surface.

b) Secondary stops at the control column.

c) Primary stops at the control column.

d) Control cable tension.

56. An engine fire warning will switch on the relevant fire shut off-handle. The fire shut-off handle will be switched off when:

a) The fire shut-off handle has been pulled.

b) The fire-extinguisher has been triggered.

c) Fire is no longer detected.

d) All the fire-extinguishers connected to this engine have been triggered.

57. Which is true of a typical non frontal thermal depression?

a) It forms over the ocean in winter

b) It forms over the ocean in summer

c) It forms over land in winter

d) It forms over land in summer

58. The trailing edge flaps when extended:

a) Degrade the best angle of glide

b) Significantly lower the drag

c) Significantly increase the angle of attack for maximum lift

d) Increase the zero lift angle of attack

59. Who in the aviation industry is responsible for flight safety?

a) Aircrew and Ground crew

b) Aircrew

c) Management, Aircrew, Ground crew and ATC

d) Everyone involved

60. What will be the influence on the aeroplane performance if aerodrome pressure altitude is increased?

a) It will increase the take-off distance available

b) It will decrease the take-off distance

c) It will decrease the take-off run

d) It will increase the take-off distance

61. The prime factor in determining the maximum unambiguous range of a primary radar is the:

a) Pulse recurrence rate

b) Height of the transmitter above the ground

c) Size of parabolic receiver aerial

d) Power output

62. Which parameter will change first, when penetrating an horizontal windshear ?

a) Indicated airspeed.

b) Groundspeed.

c) Vertical speed.

d) Pitch angle.

63. One type of flap used on aircraft moves down and increases the wing area by moving aft when lowered. This flap is known as:

a) Slotted flap.

b) Aft moving flap.

c) Fowler flap.

d) Split flap.

64. Which phrase shall be used to confirm that a message has been repeated correctly:

a) Correct

b) That is affirmative

c) Affirm

d) That is right

65. In VFR public transport on an aircraft for which the flight manual indicates a minimum crew of one pilot, when do the regulations require the presence of a second pilot ?

a) Never.

b) If the flight lasts more than 3 hours.

c) If part or all the flight is done at night.

d) If the aircraft is a twin-engine.

66. The clearance: 'cleared for immediate take-off runway 03' is:

a) An urgency message.

b) An unauthorized message.

c) A flight safety message.

d) A flight regularity message.

67. What does the word 'Monitor' mean?

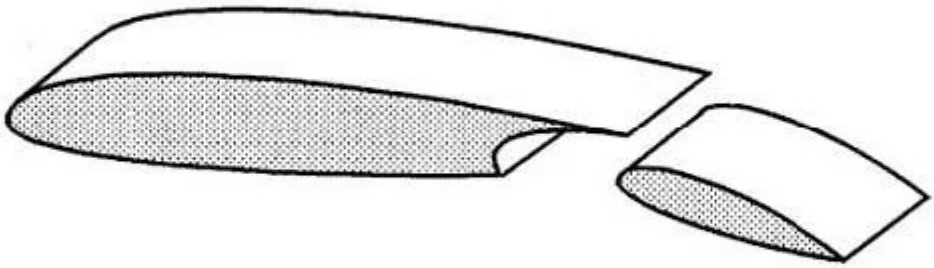
a) Wait and I will call you

b) Establish radio contact with...

c) Listen out on (frequency).

d) Examine a system or procedure

68. Which type of flap is shown in the picture?



a) Double slotted flap
b) Fowler flap
c) Split flap
d) Plain flap

69. QFE is the RTF Q-code to indicate:

a) The atmospheric pressure corrected to the aircraft cockpit height
b) The atmospheric pressure referred to the highest fixed obstacle located on the surface of an aerodrome
c) The altimeter sub-scale setting to obtain the flight level reference datum
d) The atmospheric pressure at aerodrome elevation (or at runway threshold)

70. When an aircraft is no longer in distress, it shall transmit a message cancelling the distress condition. Which words shall this message include?

a) ... MAYDAY, resuming normal operations

b) ... MAYDAY cancelled

c) ... cancel distress

d) ... distress condition terminated

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Response Scheme

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

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

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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:
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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:		