

Exam simulation

PPL(H) - Private Pilot License - Principles of Flight (Helicopter)



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STUDENT NAME:

DATE AND TIME:

01. What process results in the formation of "advection fog"?

- a) Cold, moist air is being moved across warm ground areas
- b) Warm, moist air is moved across cold ground areas
- c) Prolonged radiation during nights clear of clouds
- d) Cold, moist air mixes with warm, moist air

02. Which ratio corresponds to the rotor disc loading?

- a) Rotor disc / helicopter mass
- b) Rotor thrust / rotor disc
- c) Rotor thrust / rotor disc
- d) Helicopter mass / rotor disc

03. During an approach the aeroplane experiences a windshear with an increasing headwind. If the pilot does not make any corrections, how do the approach path and the indicated airspeed (IAS) change?

- a) Path is higher, IAS increases
- b) Path is higher, IAS decreases
- c) Path is lower, IAS increases
- d) Path is lower, IAS decreases

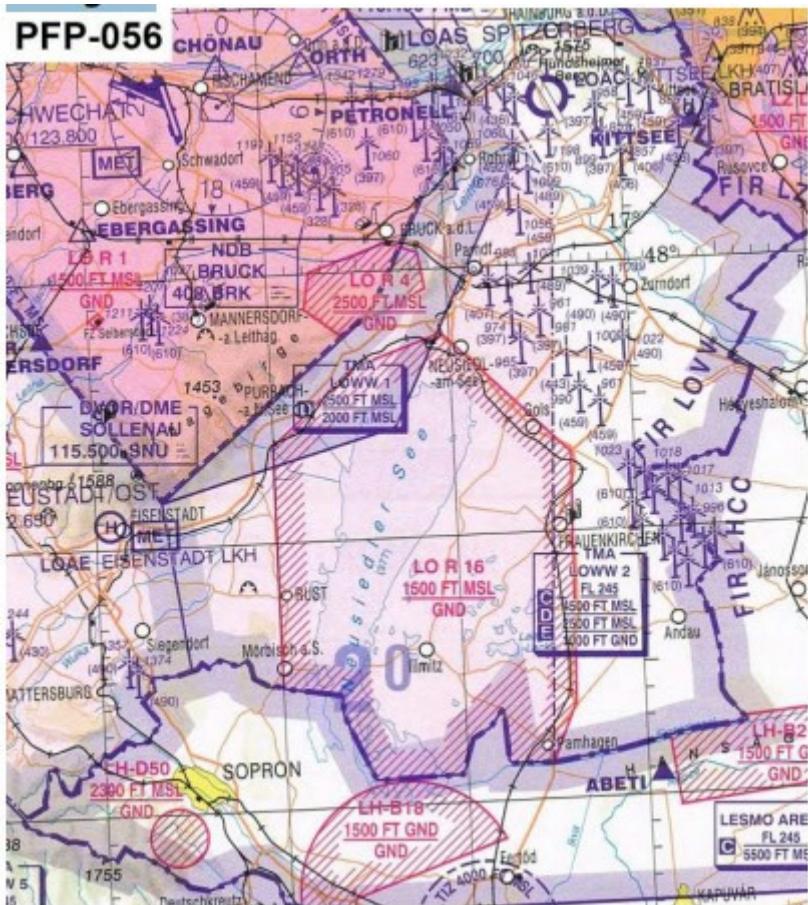
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04. The upper limit of LO R 16 equals... See annex (PFP-056) Siehe Anlage 7



- a) 1 500 ft MSL.
- b) 1 500 m MSL.
- c) 1.500 ft GND.
- d) FL150.

05. Which is the colour of runway end lights?

- a) White
- b) Red
- c) Blue
- d) Green

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06. What difference in altitude is shown by an altimeter, if the reference pressure scale setting is changed from 1000 hPa to 1010 hPa?

- a) Values depending on QNH
- b) Zero
- c) 80 m less than before
- d) 80 m more than before

07. What is caused by an increase of stability in a helicopter?

- a) A decrease of the required control forces
- b) A relief of the pilot in command
- c) An enhance of control under all load factors
- d) An optimization of the maximum helicopter mass

08. What is the correct way of acknowledging "You are now entering airspace Delta"?

- a) Wilco
- b) Entering
- c) Roger
- d) Airspace Delta

09. Given values: Calculated take-off mass = 746 kg calculated CG = 37.1 cm fuel burn = 30.5 l on station 45 cm. Where is the CG situated after the landing?

- a) 37.5 cm
- b) 36.3 cm
- c) 36.9 cm
- d) 37.2 cm

10. What is the percentage of nitrogen in the atmosphere?

- a) 78 %
- b) 21 %
- c) 0.1 %
- d) 1 %

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11. "Foehn" conditions usually develop with...

- a) Instability, widespread air blown against a mountain ridge.
- b) Stability, widespread air blown against a mountain ridge.
- c) Instability, high pressure area with calm wind.
- d) Stability, high pressure area with calm wind.

12. Which kind of engine is susceptible to carburettor fire?

- a) Turboprop engines
- b) Turbine engines
- c) Piston engines
- d) Electric motors

13. The pitch angle of a tail rotor blade is changed...

- a) Cyclically.
- b) Collectively.
- c) Symmetrically.
- d) Asymmetrically.

14. Which of the instruments listed below obtain their readings through pressure measurement?

- a) Oil pressure gauge, fuel pressure gauge, manifold pressure gauge, altimeter, vertical speed indicator, airspeed indicator, suction gauge
- b) Oil pressure gauge, fuel pressure gauge, fuel quantity gauge, manifold pressure gauge, differential pressure gauge, altimeter
- c) Airspeed indicator, vertical speed indicator, altimeter, directional gyro, turn and bank coordinator, oil pressure gauge, fuel pressure gauge
- d) Airspeed indicator, vertical speed indicator, altimeter, magnetic compass, oil pressure gauge, fuel pressure gauge

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

- a) The total mass of the aeroplane ready for a specific type of operation including crew, navigation instruments and engine cowling.
- b) The mass of the aeroplane plus standard items such as unusable fuel and other unusable liquids, lubricating oil in engine and auxiliary units, fire extinguishers, pyrotechnics, emergency oxygen equipment, supplementary electronic equipment.
- c) The total mass of an aeroplane ready for a specific type of operation including the required fuel and crew, but excluding traffic load.
- d) The total mass of the aeroplane ready for a specific type of operation excluding unusable fuel and traffic load. The mass includes items such as crew and crew baggage.

16. In what situation is it appropriate to set the transponder code 7600?

- a) Emergency
- b) Hijacking
- c) Flight into clouds
- d) Loss of radio

17. Which transponder code should be set during a radio failure without any request?

- a) 7700
- b) 7500
- c) 7600
- d) 7000

18. What does the abbreviation "QTE" stand for?

- a) Magnetic bearing to the station
- b) True bearing to the station
- c) True bearing from the station
- d) Magnetic bearing from the station

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19. (For this question, please use annex PFP-063) According ICAO, what symbol indicates a general spot elevation? (2,00 P.) Siehe Anlage 18

- A **300**
- B **(300)**
- C **• 1737**
- D **• 1737**

PFP-063

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

20. What types of airflow can be observed around a rotor blade aerofoil?

- a) Laminar airflow on the entire upper surface
- b) Laminar airflow at the leading edge, turbulent airflow further back
- c) Turbulent airflow at the leading edge, laminar airflow further back
- d) Turbulent airflow on the entire upper surface

21. What are the air masses that Central Europe is mainly influenced by?

- a) Polar cold air and tropical warm air
- b) Arctic and polar cold air
- c) Tropical and arctic cold air
- d) Equatorial and tropical warm air

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22. What is the effect of vortex ring state?

- a) High rate of descent and irregular pitch, roll, and yaw motions
- b) Stable descent and high-frequency vibrations in the helicopter
- c) Decreased rate of descent and strong vibrations from the engine
- d) Fluctuations in rotor and engine RPM

23. What is the purpose of the semi-circular rule?

- a) To avoid collisions by reducing the probability of opposing traffic at the same altitude
- b) To allow safe climbing or descending in a holding pattern
- c) To fly without a filed flight plan in prescribed zones published in the AIP
- d) To avoid collisions by suspending turning manoeuvres

24. Which of the following symptoms may indicate hypoxia?

- a) Blue discolouration of lips and fingernails
- b) Muscle cramps in the upper body area
- c) Blue marks all over the body
- d) Joint pain in knees and feet

25. Why does the VNE decrease with increasing pressure altitude?

- a) The groundspeed (GS) decreases
- b) The rotor thrust exceeds the permissible structure limitations
- c) The true airspeed (TAS) increases
- d) The tail rotor effectiveness does not provide directional stability

26. QFE is the...

- a) Barometric pressure adjusted to sea level, using the international standard atmosphere (ISA).
- b) Magnetic bearing to a station.
- c) Barometric pressure at a reference datum, typically the runway threshold of an airfield.
- d) Altitude above the reference pressure level 1013.25 hPa.

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27. The occurrence of a vertigo is most likely when moving the head...

- a) During a descent.
- b) During a turn.
- c) During a climb.
- d) During a straight horizontal flight.

28. What is the meaning of the abbreviation "VMC"?

- a) Variable meteorological conditions
- b) Visual meteorological conditions
- c) Visual flight rules
- d) Instrument flight conditions

29. What is the correct way of acknowledging the instruction "Next report PAH"?

- a) Roger
- b) Report PAH
- c) Wilco
- d) Positive

30. What factors may indicate a tendency to fog formation?

- a) Low spread, increasing temperature
- b) Low pressure, increasing temperature
- c) Strong winds, decreasing temperature
- d) Low spread, decreasing temperature

31. Which approximate, geometrical form describes the shape of the Earth best for navigation systems?

- a) Ellipsoid
- b) Sphere of ecliptical shape
- c) Flat plate
- d) Perfect sphere

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32. (For this question, please use annex PFP-061) According ICAO, what symbol indicates a group of unlighted obstacles? (2,00 P.) Siehe Anlage 16

- A
- B
- C
- D

PFP-061

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

33. Which statement is correct with regard to the short-term memory?

- a) It can store 3 (± 1) items for 5 to 10 seconds
- b) It can store 5 (± 2) items for 1 to 2 minutes
- c) It can store 10 (± 5) items for 30 to 60 seconds
- d) It can store 7 (± 2) items for 10 to 20 seconds

34. A vertical speed indicator measures the difference between...

- a) Instantaneous total pressure and previous total pressure.
- b) Total pressure and static pressure.
- c) Instantaneous static pressure and previous static pressure.
- d) Dynamic pressure and total pressure.

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35. The empty weight and the corresponding center of gravity (CG) of an aircraft are initially determined...

- a) Through data provided by the aircraft manufacturer.
- b) For one aircraft of a type only, since all aircraft of the same type have the same mass and CG position.
- c) By weighing.
- d) By calculation.

36. The majority of aviation accidents are caused by...

- a) Geographical influences
- b) Meteorological influences.
- c) Human failure.
- d) Technical failure.

37. A distance of 7.5 cm on an aeronautical chart represents a distance of 60.745 NM in reality. What is the chart scale?

- a) 1 : 1 000000
- b) 1 : 150000
- c) 1 : 500000
- d) 1 : 1500000

38. What happens to thrust and tangential force if the rotor RPM decreases by about 10 % in cruise flight?

- a) The thrust and the tangential force decrease
- b) The thrust and the tangential force increase
- c) The thrust decreases and the tangential force remains constant
- d) The thrust remains constant and the tangential force increases

39. What is the call sign of the flight information service?

- a) Advice
- b) Flight information
- c) Info
- d) Information

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40. What is the function of the red blood cells (erythrocytes)?

- a) Blood sugar regulation
- b) Oxygen transport
- c) Immune defense
- d) Blood coagulation

41. The transitional lift can be noticed by...

- a) An aural warning.
- b) Strong load factors.
- c) Vibrations.
- d) A loss of engine rpm.

42. What information is provided in the general part (GEN) of the AIP?

- a) Map icons, list of radio nav aids, time for sunrise and sunset, airport fees, air traffic control fees
- b) Table of content, classification of airfields with corresponding maps, approach charts, taxi charts, restricted and dangerous airspaces
- c) Access restrictions for airfields, passenger controls, requirements for pilots, license samples and validity periods
- d) Warnings for aviation, ATS airspaces and routes, restricted and dangerous airspaces

43. Which answer states a risk factor for diabetes?

- a) Alcohol consumption
- b) Sleep deficiency
- c) Smoking
- d) Overweight

44. What should be observed when taxiing behind a commercial airliner?

- a) To avoid the jet blast, a minimum distance of 200 m should be maintained
- b) To avoid the jet blast, a minimum distance of 600 m should be maintained
- c) To avoid wake turbulence, a minimum distance of 300 m should be maintained
- d) To avoid wake turbulence, a minimum distance of 700 m should be maintained

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45. What is the reason for static dischargers on aircraft?

- a) To improve the quality of radio transmission in high altitudes
- b) To discharge static charging during flight
- c) To ensure grounding during refueling
- d) To eliminate electrical interferences during intensive radio traffic

46. Fading in LF/MF frequency range occurs mainly...

- a) During the night.
- b) In the late afternoon.
- c) At midday.
- d) In the daytime.

47. Why do helicopters with a semi-rigid rotor system react slower than others?

- a) The central flapping hinge does not transmit any moments
- b) The missing lag hinges cause a rotor imbalance
- c) The lowered attachment of the rotor blades allows a transmission of forces
- d) The angled lag hinges prevent the transmission of aerodynamic forces on the helicopter frame

48. When should turns at low altitudes above villages be avoided with regard to noise abatement procedures?

- a) In horizontal flight
- b) In climb
- c) In descent
- d) During the approach

49. Wake turbulence is particularly strong...

- a) When flying at low speeds.
- b) When flying at high altitudes.
- c) When flying at low altitudes.
- d) When flying at high speeds.

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50. What is the distance between the parallels of latitude 48°N and 49°N along a meridian line?

- a) 111 NM
- b) 10 NM
- c) 1 NM
- d) 60 NM

51. The advance angle is the angle between the...

- a) Advancing rotor blade and retreating rotor blade.
- b) Fixed control rod and lower scissors.
- c) Circumferential control rod and rotor blade longitudinal axis.
- d) Delta-three-flapping hinge and rotor blade longitudinal axis.

52. Which danger exists during engine start?

- a) Sparking
- b) Cable fire
- c) Smoke emission
- d) Carburettor fire

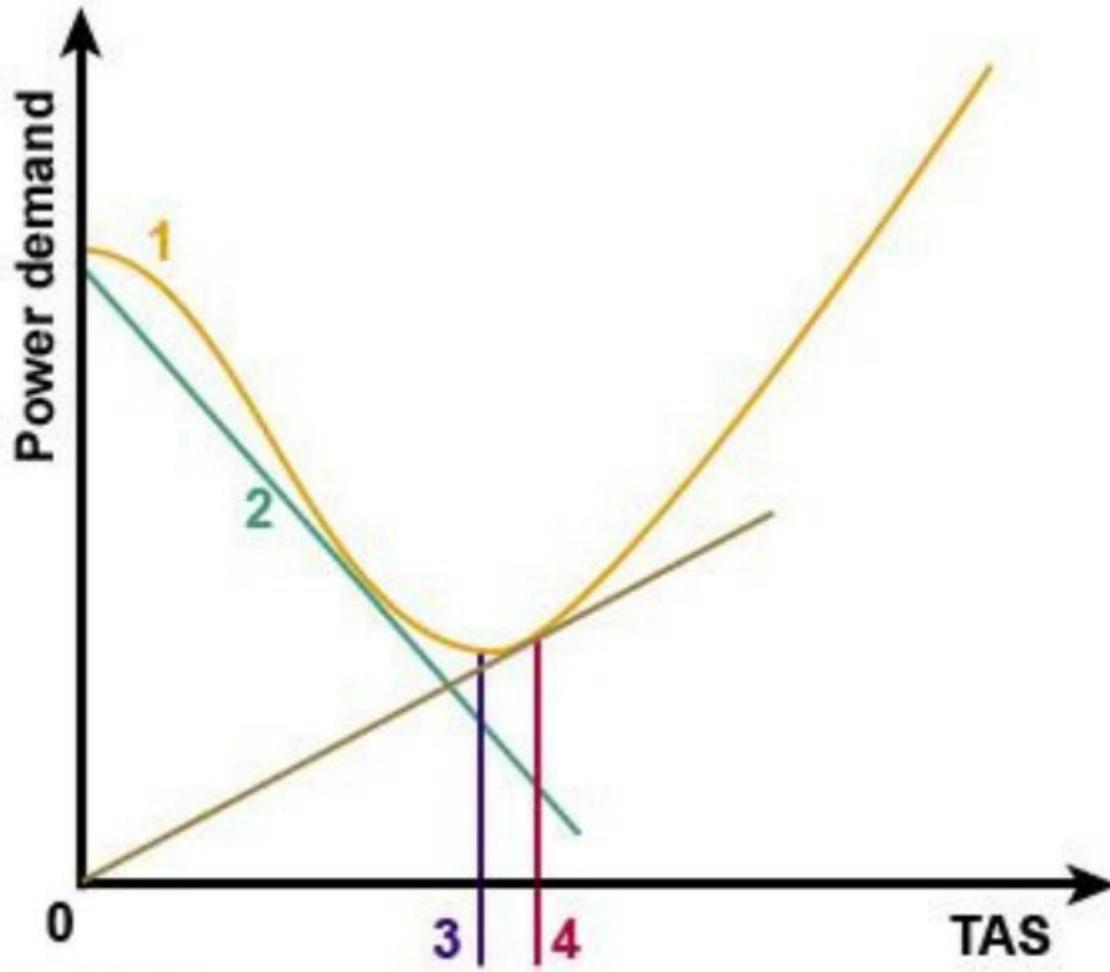
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53. Which point indicates the speed for maximum range? See figure (PFP-044) Siehe Anlage 15



PFP-044

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

54. The sun moves 10° of longitude. What is the difference in time?

- a) 0.4 h
- b) 0.66 h
- c) 0.33 h
- d) 1 h

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55. Which factor affects the available response time to initiate an autorotation after engine failure?

- a) Movement of the pressure point
- b) Functionality of the coupling
- c) Inertia of the main rotor system
- d) Profile shape of the rotor blades

56. Two aircraft of the same type, same gross weight and same flap configuration fly with different speeds and altitude. Which aircraft will cause more wake turbulence?

- a) The aircraft flying at a lower altitude
- b) The aircraft flying at a higher altitude
- c) The aircraft flying at lower speed.
- d) The aircraft flying at higher speed.

57. Which instrument can be affected by the hysteresis error?

- a) Direct reading compass
- b) Altimeter
- c) Vertical speed indicator
- d) Tachometer

58. What is the great circle distance between two points A and B on the equator when the difference between the two associated meridians is exactly one degree of longitude?

- a) 120 NM
- b) 216 NM
- c) 400 NM
- d) 60 NM

59. Wake turbulence is particularly strong...

- a) When flying with high thrust.
- b) At a high aeroplane weight.
- c) At a low aeroplane weight.
- d) When flying with low thrust.

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60. What is the meaning of a flashing green light signal at a controlled aerodrome directed to an aircraft in flight?

- a) Airport unsafe, do not land
- b) Return for landing, followed by steady green at the appropriate time
- c) Cleared to land
- d) Give way to other aircraft and continue circling

61. Which components do rotor blades made of synthetic material contain?

- a) Spar of lead and synthetic material, filling material and outer skin of synthetic material, erosion protection of stainless steel
- b) Spar of synthetic material, filling material and outer skin of synthetic material, erosion protection of aluminum
- c) Spar of aluminum and synthetic material, filling material and outer skin and erosion protection of synthetic material
- d) Spar of stainless steel, filling material and outer skin and erosion protection of synthetic material

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62. The aircraft is on radial... See annex (NAV-024) Siehe Anlage 6



NAV-024

- a) 060°.
- b) 246°.
- c) 066°.
- d) 234°.

63. Given: QDM: 138° VAR: 10° E The QUD equals...

- a) 148°.
- b) 328°.
- c) 168°.
- d) 318°.

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64. Air traffic control service is conducted by which services?

- a) FIS (flight information service) AIS (aeronautical information service) AFS (aeronautical fixed telecommunication service)
- b) APP (approach control service) ACC (area control service) FIS (flight information service)
- c) TWR (aerodrome control service) APP (approach control service) ACC (area control service)
- d) ALR (alerting service) SAR (search and rescue service) TWR (aerodrome control service)

65. What conditions are favourable for the formation of thunderstorms?

- a) Warm humid air, conditionally unstable environmental lapse rate
- b) Warm and dry air, strong inversion layer
- c) Clear night over land, cold air and patches of fog
- d) Calm winds and cold air, overcast cloud cover with St or As

66. What is the meaning of the phrase "Correction"?

- a) I understand your message and will comply with it
- b) Permission for proposed action is granted
- c) An error has been made in this transmission. The correct version is...
- d) I have received all of your last transmission

67. Which of the following is responsible for the blood coagulation?

- a) White blood cells (leucocytes)
- b) Blood plates (thrombocytes)
- c) Red blood cells (erythrocytes)
- d) Capillaries of the arteries

68. Smoke enters the cockpit during an engine fire. Which actions have to be taken immediately?

- a) Switching off the pitot and front window heating
- b) Switching off the master switch and the ignition
- c) Switching off the heating and the ventilating system
- d) Switching off the avionics and the cabin lighting

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69. A deceleration during a straight horizontal flight can lead to the illusion of...

- a) An inverted flight.
- b) A descent.
- c) A climb.
- d) A bank.

70. The altimeter can be checked on the ground by setting...

- a) QNE and checking that the indication shows zero on the ground.
- b) QFF and comparing the indication with the airfield elevation.
- c) QNH and comparing the indication with the airfield elevation.
- d) QFE and comparing the indication with the airfield elevation.

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Response Scheme

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

01: **B**

02: **D**

03: **A**

04: **A**

05: **B**

06: **D**

07: **B**

08: **C**

09: **C**

10: **A**

11: **B**

12: **C**

13: **B**

14: **A**

15: **B**

16: **D**

17: **C**

18: **C**

19: **A**

20: **B**

21: **A**

22: **A**

23: **A**

24: **A**

25: **C**

26: **C**

27: **B**

28: **B**

29: **C**

30: **D**

31: **A**

32: **B**

33: **D**

34: **C**

35: **C**

36: **C**

37: **D**

38: **A**

39: **D**

40: **B**

41: **C**

42: **A**

43: **D**

44: **A**

45: **B**

46: **A**

47: **A**

48: **B**

49: **A**

50: **D**

51: **C**

52: **D**

53: **B**

54: **B**

55: **C**

56: **C**

57: **B**

58: **D**

59: **B**

60: **B**

61: **A**

62: **D**

63: **A**

64: **C**

65: **A**

66: **C**

67: **B**

68: **C**

69: **B**

70: **C**

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Response form

Use this form to mark your answers

01: _____

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