PRACTICE EXAM 21

1. A Recreational Pilot may carry a maximum of how many passengers without additional endorsement?

A. No passengers

B. One passenger

C. Two passengers

D. As many as the aircraft seats

2. Without the cross-country endorsement, a Recreational Pilot may operate within what distance of the departure airport?

A. 25 nautical miles

B. 100 nautical miles

C. 50 statute miles

D. 50 nautical miles

3. A wing always stalls when it exceeds what?

A. A specific indicated airspeed

B. Its maximum gross weight

C. The never-exceed speed

D. Its critical angle of attack

4. The four forces acting on an airplane in flight are which of the following?

A. Pitch, roll, yaw, and trim

B. Lift, weight, thrust, and drag

C. Pressure, density, temperature, and humidity

D. Lift, gravity, power, and friction

5. Which instrument operates on a gyroscope?

A. The altimeter

B. The attitude indicator

C. The airspeed indicator

D. The vertical speed indicator

6. Carburetor ice is most likely to form under which conditions?

A. Very cold, dry air below freezing

B. Hot, dry air above 90°F

C. High humidity with temperatures around 50 to 70°F

D. Clear skies with low humidity

7. A leg of 90 nautical miles is flown at a groundspeed of 90 knots. How long does it take?

A. 30 minutes

B. 45 minutes

C. 90 minutes

D. 60 minutes

8. Density altitude is best defined as which of the following?

A. The height above the ground

B. Pressure altitude corrected for nonstandard temperature

C. The altitude shown when set to local pressure

D. The altitude at which icing begins

9. The center of gravity is found by which calculation?

A. Total weight divided by total moment

B. Total weight multiplied by total arm

C. Total moment divided by total weight

D. The sum of all arms divided by the number of items

10. A small temperature-dewpoint spread most strongly indicates the likelihood of what?

A. Strong, gusty winds

B. Rapidly clearing skies

C. High cloud bases

D. Fog or low clouds

11. A cold front is characterized by which of the following?

A. A shallow slope and slow movement

B. A broad area of layered clouds well ahead

C. Persistent drizzle over many hours

D. A steep slope, fast movement, and a narrow band of intense weather

12. On a METAR, the ceiling is defined as which cloud layer?

A. The highest scattered layer

B. The lowest broken or overcast layer

C. Any few or scattered layer

D. The average of all layers

13. One minute of latitude on a sectional chart equals what distance?

A. One nautical mile

B. One statute mile

C. One kilometer

D. Ten nautical miles

14. Which airspace requires a controlled-airspace endorsement for a Recreational Pilot to enter?

A. Class D at a towered airport

B. Class G near the surface

C. Class E away from airports

D. Class E below 10,000 feet en route

15. The recommended traffic-pattern entry at a non-towered airport is which of the following?

A. A straight-in approach

B. An overhead descent

C. A 45° entry to the downwind at pattern altitude

D. A base-leg entry from any direction

16. A pilot thinking "It won't happen to me" exhibits which hazardous attitude?

A. Macho

B. Invulnerability

C. Anti-authority

D. Resignation

17. The IMSAFE checklist is used by a pilot to assess what?

A. The aircraft's airworthiness

B. The weather forecast

C. Personal fitness to fly

D. The weight and balance

18. Following an occurrence with substantial damage, the operator must do what regarding the NTSB?

A. Notify the NTSB immediately by the most expeditious means

B. File a written report within 30 days only

C. Take no action unless the FAA requests it

D. Notify the local police only

19. The standard sea-level pressure in the standard atmosphere is which value?

A. 30.00 inches of mercury

B. 28.92 inches of mercury

C. 31.00 inches of mercury

D. 29.92 inches of mercury

20. The ailerons move the airplane about which axis?

A. The lateral axis

B. The vertical axis

C. The longitudinal axis

D. No single axis

21. For day VFR flight, the fuel reserve required beyond the first intended landing point is what?

A. 30 minutes at cruise

B. 45 minutes at cruise

C. 60 minutes at cruise

D. 15 minutes at cruise

22. Magnetos differ from the rest of the electrical system because they do what?

A. Require the battery to operate

B. Generate their own current independently of the battery

C. Are powered by the alternator

D. Stop when the master switch is off

23. A third-class medical issued to a pilot under age 40 is valid for these privileges for how long?

A. 24 calendar-months

B. 12 calendar-months

C. 60 calendar-months

D. 36 calendar-months

24. When two aircraft of the same category converge at the same altitude, which has the right of way?

A. The aircraft to the other's right

B. The faster aircraft

C. The higher aircraft

D. The larger aircraft

25. Wingtip vortices are strongest behind an aircraft that is which of the following?

A. Light, fast, with flaps down

B. Light, clean, at high speed

C. Heavy, dirty, descending fast

D. Heavy, clean, and slow

26. A pilot must convert 20 gallons of avgas to weight. Approximately how many pounds is this?

A. 100 pounds

B. 120 pounds

C. 160 pounds

D. 80 pounds

27. The primary recovery action for a stall is which of the following?

A. Increase back pressure to raise the nose

B. Add power while holding the nose high

C. Apply full opposite aileron

D. Decrease the angle of attack by lowering the nose

28. A Recreational Pilot may operate an aircraft with a maximum of how much engine horsepower?

A. 200 horsepower

B. 160 horsepower

C. 180 horsepower

D. 150 horsepower

29. The DECIDE model is best described as which of the following?

A. A personal-fitness checklist

B. A weather-briefing sequence

C. A continuous decision-making loop

D. A weight-and-balance method

30. A blocked pitot tube, with the drain also blocked, causes the airspeed indicator to do what?

A. Drop immediately to zero

B. Read accurately with a slight lag

C. Freeze at the current value

D. Behave like an altimeter, reading higher in a climb

31. Stable air, when lifted, produces which type of weather?

A. Towering cumulus and showers

B. Severe turbulence and good visibility

C. Strong vertical currents

D. Stratiform clouds, steady precipitation, and smooth air

32. A satisfactorily completed knowledge test remains valid for how long?

A. 12 calendar-months

B. 24 calendar-months

C. 36 calendar-months

D. Indefinitely

33. The minimum safe altitude over a congested area is which of the following?

A. 1,000 feet above the highest obstacle within a 2,000-foot radius

B. 500 feet above the surface

C. 2,000 feet above the surface

D. 700 feet above the highest obstacle

34. Best angle of climb (Vx) provides what benefit?

A. The greatest altitude gain over the shortest horizontal distance

B. The fastest altitude gain over time

C. The lowest fuel burn in cruise

D. The smoothest ride in turbulence

35. A Recreational Pilot may share flight costs with a passenger only under what condition?

A. The pilot may keep a small profit

B. Full reimbursement is allowed

C. Only a pro-rata share of direct operating costs

D. Any agreed arrangement is permitted

36. A Convective SIGMET specifically warns of what?

A. Moderate turbulence for light aircraft

B. Sustained surface winds of 30 knots

C. Severe or embedded thunderstorms

D. Mountain obscuration

37. As bank angle increases in a level turn, load factor does what?

A. Decreases steadily

B. Increases, reaching about 2 G at 60°

C. Remains at 1 G

D. Becomes negative

38. A pilot whose departure is 7 hours away should request which briefing?

A. A standard briefing

B. An abbreviated briefing

C. No briefing

D. An outlook briefing

39. A center of gravity loaded aft of the limit is most dangerous because it can do what?

A. Make stall or spin recovery difficult or impossible

B. Raise the stall speed significantly

C. Increase elevator forces excessively

D. Reduce cruise speed and increase fuel burn

40. A Recreational Pilot with no logged PIC time in the preceding 180 days must do what?

A. Retake the knowledge test

B. Obtain a new medical

C. Receive flight training and an endorsement from an instructor

D. Wait an additional 180 days

41. Which document explains recommended procedures for pattern entry and ATC communication?

A. The Federal Aviation Regulations

B. The Pilot's Operating Handbook

C. The Chart Supplement

D. The Aeronautical Information Manual

42. Spatial disorientation is a hazard primarily because of what?

A. The balance senses produce false sensations without a visible horizon

B. The engine instruments fail in cloud

C. The compass stops working without sunlight

D. The ailerons reverse in low visibility

43. A Recreational Pilot certificate may be issued to an applicant who is at least what age?

A. 17 years

B. 15 years

C. 16 years

D. 14 years

44. Hypoxia is particularly dangerous because it does what?

A. Produces immediate severe pain

B. Impairs the judgment needed to recognize it

C. Affects only pilots above 18,000 feet

D. Causes the engine to lose power

45. A runway numbered "18" is aligned approximately with which magnetic heading?

A. 180 degrees

B. 018 degrees

C. 800 degrees

D. 108 degrees

46. A temperature inversion is a layer in which what occurs?

A. Temperature decreases sharply with altitude

B. Winds are strongest near the surface

C. Warmer air lies above cooler air, trapping moisture and haze

D. Pressure rises rapidly with height

47. The PAVE checklist reviews which set of factors?

A. Pilot, Aircraft, enVironment, External pressures

B. Illness, Medication, Stress, Alcohol

C. Detect, Estimate, Choose, Identify

D. True, Variation, Magnetic, Deviation

48. A lowering ceiling and reducing visibility, encountered by a daytime-VFR Recreational Pilot, calls for what decision?

A. Climb through the cloud layer

B. Turn back or divert before conditions deteriorate further

C. Descend to remain visual at very low altitude

D. Request an IFR clearance

49. An aircraft in distress has what right-of-way status?

A. It must yield to all powered aircraft

B. It shares equal priority with converging traffic

C. It has the right of way over all other traffic

D. It has right of way only over balloons

50. The leading cause of fatal general aviation accidents is generally attributed to what?

A. Pilot judgment and decision-making errors

B. Catastrophic engine failures

C. Air traffic control errors

D. Manufacturing defects

Answer Key & Explanations

1. B — A Recreational Pilot may carry no more than one passenger, regardless of how many seats the aircraft has. This is an absolute cap on the certificate.

2. D — Without the cross-country endorsement, the Recreational Pilot is limited to 50 nautical miles from the departure airport. The limit is nautical, not statute, miles.

3. D — A wing always stalls when it exceeds its critical angle of attack, regardless of airspeed or attitude. This is why a stall is defined by angle, not speed.

4. B — The four forces acting on an airplane are lift, weight, thrust, and drag. Pitch, roll, and yaw are motions, not forces.

5. B — The attitude indicator operates on a gyroscope. The altimeter, airspeed indicator, and VSI are pitot-static instruments.

6. C — Carburetor ice is most likely in high humidity at temperatures around 50–70°F, because vaporization can cool the carburetor below freezing even on a warm day. Carburetor heat is the remedy.

7. D — Time = 90 NM ÷ 90 kt = 1.0 hour = 60 minutes. Equal distance and speed give exactly one hour.

8. B — Density altitude is pressure altitude corrected for nonstandard temperature — the altitude at which the airplane performs. High density altitude degrades performance.

9. C — The center of gravity is found by dividing the total moment by the total weight. This locates the balance point relative to the datum.

10. D — A small temperature-dewpoint spread means the air is near saturation, indicating likely fog or low clouds. Watching the spread close warns of reducing visibility.

11. D — A cold front has a steep slope, moves fast, and produces a narrow band of intense weather followed by rapid clearing. A warm front, by contrast, is shallow and slow.

12. B — A ceiling is the lowest broken or overcast layer, or vertical visibility into an obscuration. Few and scattered layers do not constitute a ceiling.

13. A — One minute of latitude equals one nautical mile, allowing distance to be stepped off along the chart's side scale. This is the basis of chart distance measurement.

14. A — Class D airspace at a towered airport requires two-way communication with ATC, which a Recreational Pilot may establish only with the controlled-airspace endorsement. Class E and G near non-towered fields do not require it.

15. C — The recommended non-towered pattern entry is a 45° entry to the downwind at pattern altitude, allowing smooth merging while scanning. Straight-in and overhead descents are not the recommended standard.

16. B — "It won't happen to me" is the invulnerability attitude, the belief that accidents happen only to others. Its antidote is "It could happen to me."

17. C — IMSAFE — Illness, Medication, Stress, Alcohol, Fatigue, Emotion — assesses the pilot's personal fitness to fly. It addresses the human, not the machine or weather.

18. A — Substantial damage makes the occurrence a reportable accident, requiring immediate NTSB notification by the most expeditious means. A written report within 10 days follows separately.

19. D — Standard sea-level pressure in the standard atmosphere is 29.92 inches of mercury at 15°C. This is the reference baseline for altimetry and performance.

20. C — The ailerons move the airplane about the longitudinal axis, producing roll. The elevator and rudder act about the lateral and vertical axes.

21. A — For day VFR, the required reserve is enough to fly 30 minutes at cruise beyond the first intended landing point. Night VFR requires 45 minutes, but a Recreational Pilot flies only by day.

22. B — Magnetos are engine-driven and generate their own current independently of the battery. This is why the engine keeps running through a complete electrical failure.

23. C — A third-class medical for a pilot under 40 is valid for 60 calendar-months for these privileges. The 24-month duration applies at age 40 and older.

24. A — When same-category aircraft converge at the same altitude, the aircraft to the other's right has the right of way. The other must yield.

25. D — Wingtip vortices are strongest behind an aircraft that is heavy, clean, and slow, the configuration producing the most lift-induced vorticity. The defense is to stay above and upwind of its path.

26. B — Avgas weighs about 6 pounds per gallon, so 20 × 6 = 120 pounds. Fuel must be converted to weight before computing moments.

27. D — The primary stall recovery is to decrease the angle of attack by lowering the nose, which reattaches the airflow. Raising the nose deepens the stall.

28. C — A Recreational Pilot may operate an aircraft with no more than 180 horsepower. Higher-horsepower aircraft are outside the certificate.

29. C — The DECIDE model is a continuous decision-making loop — Detect, Estimate, Choose, Identify, Do, Evaluate. IMSAFE and PAVE are checklists, not loops.

30. D — With both the pitot inlet and drain blocked, trapped pressure makes the airspeed indicator behave like an altimeter, reading higher in a climb. This produces dangerously misleading airspeed.

31. D — Stable air resists vertical motion, so when lifted it produces stratiform clouds, steady precipitation, and smooth air, often with haze. Unstable air produces cumuliform clouds and turbulence.

32. B — A passed knowledge test remains valid for 24 calendar-months; the practical test must be completed within that window. Otherwise the knowledge test must be retaken.

33. A — Over a congested area, the minimum safe altitude is 1,000 feet above the highest obstacle within a 2,000-foot horizontal radius. This protects people below and allows a safe glide.

34. A — Best angle of climb (Vx) gives the greatest altitude gain over the shortest horizontal distance, which clears an obstacle. Best rate of climb (Vy) gains altitude fastest in time.

35. C — A Recreational Pilot may share only a pro-rata portion of the direct operating costs with a passenger. Profit or full reimbursement would be flying for compensation, which is prohibited.

36. C — A Convective SIGMET warns of severe thunderstorms, embedded thunderstorms, or lines of thunderstorms affecting all aircraft. It is among the most serious advisories a VFR pilot can encounter.

37. B — Load factor increases with bank angle, reaching about 2 G at a 60° bank, independent of weight. Beyond 45° the rise becomes steep.

38. D — An outlook briefing is appropriate when departure is six or more hours away, providing forecast information. A standard briefing applies when no prior information exists.

39. A — An aft CG beyond limits reduces stability and may leave insufficient elevator authority to lower the nose, making stall or spin recovery difficult or impossible. This is the most dangerous loading error.

40. C — The Recreational-specific 180-day PIC recency rule requires instructor training and an endorsement after 180 days without logged PIC time. A current flight review does not satisfy this separate rule.

41. D — The Aeronautical Information Manual explains recommended procedures such as pattern entry and ATC communication. The FARs state legal requirements, not procedures.

42. A — Without a visible horizon, the body's balance senses can produce powerful but false sensations of attitude, causing spatial disorientation. The VFR defense is to keep the horizon in sight.

43. A — A Recreational Pilot certificate may be issued to an applicant at least 17 years old, even though the knowledge test may be taken at 15. The age floor reflects the pilot-in-command authority granted.

44. B — Hypoxia is especially dangerous because it impairs the judgment needed to recognize it, often producing euphoria. The pilot may feel fine while performance degrades.

45. A — A runway numbered "18" is aligned approximately with magnetic heading 180 degrees, since the number is the heading with the last digit dropped. Thus "18" means 180°.

46. C — A temperature inversion is a layer in which warmer air lies above cooler air, trapping moisture, smoke, and haze beneath it. It is associated with stable air and poor visibility.

47. A — The PAVE checklist reviews Pilot, Aircraft, enVironment, and External pressures to identify risk. IMSAFE assesses fitness and DECIDE is the decision loop.

48. B — A daytime-VFR Recreational Pilot facing a lowering ceiling and reducing visibility must turn back or divert before conditions trap the flight. Continuing into instrument conditions is a leading cause of fatal accidents.

49. C — An aircraft in distress has the right of way over all other traffic. Distress is the top priority in the right-of-way hierarchy.

50. A — Pilot judgment and decision-making errors are the leading cause of fatal general aviation accidents. Mechanical, ATC, and manufacturing causes are far less frequent.