

## Diamond Star DA40 Pre-Solo Written Exam

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Answer the following questions in the space provided, using the POH, Aircraft Checklist, FARs, AIM, and A/FD. If referencing any of these documents, annotate next to the answer for future reference.

### **AIRCRAFT SPECIFIC:**

Q: What type of engine does the DA40 have? \_\_\_\_\_

Q: What is the engine horsepower? \_\_\_\_\_

Q: What is the maximum gross weight? \_\_\_\_\_

Q: What is the empty weight? \_\_\_\_\_

Q: What is the service ceiling? \_\_\_\_\_

Q: What is the useful load with full fuel? \_\_\_\_\_

Q: What is the approximate standard useful load? \_\_\_\_\_

Q: What is the fuel capacity of N165PS (Total / Useable)? \_\_\_\_\_

Q: What is the oil capacity? \_\_\_\_\_

Q: Identify the following speeds (KIAS):

$V_X$  - \_\_\_\_\_

$V_Y$  - \_\_\_\_\_

$V_A$  - \_\_\_\_\_

$V_{SO}$  - \_\_\_\_\_

$V_{NE}$  - \_\_\_\_\_

$V_{S1}$  - \_\_\_\_\_

$V_G$  - \_\_\_\_\_

$V_{FE}$  - \_\_\_\_\_

Q: When should the electric fuel pump be used? (5)

Q: How often should you switch tanks? What is the maximum allowable fuel imbalance?

Q: What is the maximum allowable drop in RPM during the magneto check? What is the maximum allowable difference between the left and right?

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Q: Describe the procedures if an electrical fire occurs in flight.

Q: Describe the procedure for landing without engine power.

Q: What is the crosswind limit? \_\_\_\_\_

Q: What type and grade of fuel is used the DA40?

Q: How do you check the oil level in the DA40? What is the minimum allowable for a local flight?

Q: What is the maximum allowable flap setting for takeoff?

Q: What is the purpose of alternate air?

Q: What is difference about a flooded start vs. a normal start?

Q: What causes the low fuel caution light? a) tank sensor b) fuel counter

Q: Data for the green fuel ring displayed on the MFD comes from: a) tank sensor b) fuel counter

Q: How do you reset the fuel counter on the MFD?

Q: How many times during runup should you cycle the prop lever? Why?

Q: What is the proper procedure when reducing power in regards to the throttle & prop lever?

Q: What does hitting the essential bus switch do?

Q: What equipment is powered on the essential bus?

**GENERAL:**

Q: Describe aileron and elevator position for a left quartering headwind.

Q: What is the squawk code for radio failure? \_\_\_\_\_

Q: Describe the tower light signals if on the ground. If in flight.

Q: What preflight actions are required before a flight not in the vicinity of an airport? Before any flight?

Q: List the minimum equipment and instruments that must be working properly in your aircraft for flight.

Q: How many hours are required between consuming alcohol and flying? What is the maximum blood alcohol content to legally operate an aircraft?

Q: What altitude should you fly when operating in level cruising flight at more than 3,000 feet agl?

Q: Why is it necessary to drain fuel from the fuel sumps? When should this be done?

Q: Will the engine run with the master switch turned off? Why?

Q: What documents and endorsements are you required having in your possession to legally operate the airplane as a student pilot?

Q: Do you need your logbook in your possession when you fly solo? Why/Why not?

Q: Draw a diagram of the runways at KHND. Label each runway. Add one runway traffic pattern and label each leg, airspeed, airplane configuration, and power setting.

Q: What is the standard traffic pattern for each runway and pattern altitude for:

KHND, 17L:

KBVU, 27:

0L7, 2L:

20R:

Q: How do you enter and exit the traffic pattern at an uncontrolled airport?

Q: List the following frequencies at KHND:

- ATIS –
- Ground / Clearance –
- Tower –
- CTAF -

Q: Describe, “Wake turbulence”. In which type of aircraft and in which configuration is this most prominent? What is proper procedure to avoid wake turbulence?

Q: When are you required to wear a safety belt? Shoulder harness?

Q: What is the minimum altitude you can fly anywhere? Over congested areas? Over other than congested areas? Over sparsely populated areas or open water?

Q: List the documents that must be aboard the aircraft at all times.

Q: Who has the final authority and responsibility for the operation of the aircraft when you are flying solo?

Q: Can you operate in Class B airspace as a student pilot?

Q: What is the minimum fuel requirement for VFR day conditions?

Q: If the altimeter setting is not available at an airport, what setting should you use before departing on a local flight?

Q: What are the limitations of a student pilot, as stated in Part 91.89 of the Federal Aviation Regulations?

Q: What must you do before practicing maneuvers?

Q: When practicing Steep Turns, Stalls, and Slow Flight, the entry altitude must allow a recovery to be completed no lower than \_\_\_\_\_ feet agl.

Q: When two aircraft of the same category are converging head-on, which way do you turn to avoid the other aircraft?

Q: Give three situations that would necessitate a go-around. List the procedure for a go-around.

Q: What is the procedure for making a change in flight attitude? I.E., leveling off to cruise, climbing, descending, etc.

**PERFORMANCE:**

Q: What is landing distance to clear a 50 foot obstacle (std day)? \_\_\_\_\_

Q: If engine power is lost at 6000 ft AGL, how far can you expect to glide in calm conditions at  $V_G$ ?

Q: Complete a weight & balance for the following data:

Pilot: 250lbs, Co-pilot: 225lb

Rear pax: None

Baggage: 25lbs

Fuel: Full (40 gallons usable)

Overweight? Yes / No

In C.G. Limits? Yes / No

What could be done, if anything?

Instructor \_\_\_\_\_ Student Signature \_\_\_\_\_ Instructor

Signature \_\_\_\_\_

Date of Review/Logbook Endorsement \_\_\_\_\_