Sample questions from

"Instrument Procedures Training Manual. A Study Guide for Pilots and Instructors".

Available on Amazon in print and eBook.

Instrument Currency

1) What must an instrument pilot have documented in their logbook to legally file and fly under IFR (no matter if the actual conditions are VMC or IMC)? **See FAR 61.57, 61.3(e).**
2) How can an instrument pilot become current without using a flight instructor?
3) When is it required for an instrument pilot to use an instructor or to obtain an IPC? **FAR 61.57**
4) Who can be a safety pilot? What minimum qualifications must they possess? ***FAR 91.109, 61.3(c))***
5) *Can a pilot operating under basic med be a safety pilot? If so, can they log PIC? Can the pilot under the hood log PIC with a safety pilot operating under Basic Med?* ***91.109, 61.3 (c))***
6) *Can any pilot act as PIC under IFR or IMC?* ***FAR 61.3(e)***

Instrument Proficiency Check

1) When is a pilot required to have an instrument proficiency check? ***61.57(d)***
2) *Where are the minimum requirements for an IPC published?* ***(ACS, addendum?)***
3) *What are the minimum requirements for an IPC? (**see ACS Instrument Airplane**)*
4) *Is an IPC pass fail?*
5) *Can you issue both a BFR and IPC under the same training episode?*
6) *If you are training an instrument pilot out of currency or a student who does not yet have their instrument rating, when can they log PIC?* ***61.51(e))***
7) *After you determine if a pilot is proficient and endorse them for an IPC, how long can they legally file and fly in IMC without doing additional approaches, holds and tracking courses?* ***61.57***
8) *If you provide an IPC in a single engine sea plane, can the pilot then fly a single engine land or multi-engine aircraft under IFR if they are appropriately rated for these aircraft? Why?* ***61.57 (c) (1)***

Attitude Instrument Flying

1) What are the two FAA recognized methods of aircraft control using instrument scan? How are they fundamentally different (which instrument is emphasized/de-emphasized)?
2) *Which method requires the greatest number of instruments to include in a scan?*
3) *Using the primary and supporting method of aircraft control, which scan pattern would you recommend? Why? How would you have the student practice it and how would you be able to assess if they are doing it correctly? How do you integrate these scan patterns*

to place appropriate emphasis on the primary/supporting instrument for each phase of flight?

4) In the primary and supporting method, list which is the primary bank instrument when not turning? In a turn?
5) In the primary and supporting method, which is the primary pitch instrument in level flight or level turns*?*
6) *Which instrument is central to the Command and Performance method?*
7) In Command and Performance, which instruments do you emphasize on each phase of flight, climbs, turns, descents?
8) *Using command and performance method, how would you command a 500 ft/min descent rate in a Complex Aircraft? What power change or aircraft configuration change would you make?*
9) Using command and performance, how do you command a std rate turn if indicted air speed is 100 kts? 200 kts*?*
10) *What emphasis is there on the Airspeed Indicator with Command and performance method?*

Unusual Attitudes

1) *Why do we practice partial panel unusual attitudes in instrument training?*
2) What is the first instrument to check in and unusual attitude? Second? Third? **(Instrument Flying Handbook, FAA-H_8083-15B, 7-27)**
3) What is the recovery sequence for nose high, low airspeed? Nose low, high air speed? **(Instrument Flying Handbook, FAA-H_8083-15B, 7-27)**
4) *Why does the FAA require these recovery sequences?*
5) What instrument and indication tell us the nose is passing through level? **(VSI reverses, not zero)**
6) What phases of flight are most likely to get into an unusual attitude and how can we reduce the likelihood?
7) What two system failures are most likely to put us in an unusual attitude?
8) What is the importance of the ground instrument cockpit check to prevent unusual attitudes?

Fixation, omission, and emphasis Errors

1) *When and how can you tell if a student is fixating on an instrument?*
2) *What teaching techniques can you use to help them overcome fixation errors?*
3) *What is the most common error made in level off from a descent?*
4) *How can you tell if a student is "over controlling" aircraft?*
5) *How can you tell if student is not trimming correctly? How can you help them with this?*
6) *When leveling off from a climb, how do you know you are done trimming?*

NOTE to CFII: *Fixation is very common. The problem is we do not know what they student is fixated on, but we can deduce what they are "omitting." If their heading or altitude is off, look at*

the attitude indicator and you will see a pitch or bank anomaly. The student is not using the attitude indicator.

Because the brain cannot process verbal instructions while performing psychomotor tasks (flying), physically just tap on the attitude indicator to draw their attention back to it.

IF you want to give verbal instruction, it is best, in the early stages of training, to either turn on autopilot or the CFI flies so the student can listen and process. Gentle reminder to emphasize the Attitude indicator (70%), Heading bug (10%) and Altimeter (10%) as the primary instruments, occasionally referencing the navigation equipment and other instruments (10%). Percentages are listed as an example of emphasis, as we do not have a meter to measure!

Alternately, the aircraft is oscillating up and down on a glide path/slope, Airspeed is up and down, the student is again focusing on the CDI glide slope, and the heading will be way off. Tap on attitude indicator. You may have to give small verbal – "pitch up to zero" if low, or "pitch down to 5" if high. In debrief, A gentle reminder is to set power to a target descent rate and use yoke to buffer oscillations with a pitch up max of zero, and down of 5 degrees. Airspeed will remain stable with small pitch changes, then student can emphasize lateral directional control with heading bug and wings level on attitude indicator)

IFR Quiz 3 Departure Procedures

FAA-H-8083 16, Instrument Procedures Handbook, Chapter 1, AIM 5-2-6 through 8.

1) What is an Obstacle Identification Surface and for what is it used?
2) What are the basic IFR departure minima (take off minimums)? Who is required to use them?
3) Are there any "Non-Standard" departure (take off) minima listed for certain airports? If so, where do you find them? Do these provide obstacle clearance? If so, how far out from DER?
4) What types of flights are required to use take off minimums? Who does not?
5) How are take off minimums different than an ODP?
6) What is a good rule of thumb for "personal" departure minima for a newly rated instrument pilot or a pilot who only occasionally flies IFR?
7) List and describe the 5 types of instrument departures
8) What types of IFR flights do not need to use a departure procedure?
9) How do you know an airport has been surveyed for a departure procedure?
10) When can you use a "standard" or normal departure and be confident of obstacle clearance?
11) So, you have determined your Vy climb IAS for a departure, how do you convert this to a GS so you can use the climb table?
12) How can you determine if your aircraft has the climb performance required by a departure procedure?
13) If you are flying an aircraft with a cruise climb of 140 kts TAS that climbs at 750 ft/min, what is the climb rate per nm? What if you experience a 40 kt tail wind, what is your climb rate per nm?
14) What is the climb performance required for a "standard departure"?
15) When are you required to fly an ODP? Do you need clearance? How does ATC know you are flying an ODP if it was not assigned?
16) When are you required to fly a SID? What do you need to have to be able to fly a SID?
17) Can you request a SID in your flight plan? If so, what is the nomenclature used? Give an example.
18) Can you program in your own way points for a SID if not listed in your GPS database? Why?
19) Where do you find the printed ODPs and SIDS?
20) Where do you find them in your APP (Foreflight, Garmin Pilot, Flt Plan Go)?
21) When departing an busy class C or B airport in mountainous terrain at night, you receive a clearance that states "cleared to C77 via radar vectors, then as filed, climb and maintain 3000 ft, expect 10,000 ft 10 minutes after departure" will you be provided obstacle clearance or do you need to request at departure procedure?
22) What is a Diverse Vector Area and how is it used?
23) What are hot spots, where do find their locations? And their textual description?
24) What is the stated reason for the HS1 at KRFD? HS2 at KMSN?

25) List 4 ways you can get an instrument clearance at C29. What if the ceilings are below 3700 ft?
26) List 3 ways you can get an instrument clearance at C77? What if ceilings are below 2400 ft?
27) What is an RCO? What is a GCO? How do you use them?
28) Describe how you would fly the RWY 8 ODP (not named, listed in Take off min) at KRIL to join V8 to RLG. Draw a diagram to show your flight path
29) You are departing KDVT at night from 25L, ceilings are 800 ft, visibility 1 sm. Describe how you are going to se. p your equipment and fly the Deer Valley departure to PXR to join V16 to KMYF. What vertical speed would a Cessna 172 climbing at 75 KIAS need? What vertical speed would be required if you were in a light twin with a cruise climb of 130 KIAS?
30) You are departing KMYF in San Diego to KPSP Palm Springs at 10:30 pm local time. It is 600 ft overcast. How are you going to obtain your clearance? You are cleared, surprisingly, direct to PSP with no assigned SID. How are you going to safely depart to PSP? What final altitude are you climbing too for terrain clearance to PSP? You have no oxygen on board a Cessna 172, do you really want to accept a clearance direct too KPSP? What route could you take (hint-use airways), how would you be sure you could meet climb gradient to get safely over the mountains?
31) You are departing KCOS Colorado Springs on 17L via the Springs Six Departure to Boise Idaho via the Red Table Transition DBL. Shortly after departure you lose radio communication. What procedure do you follow?

IFR quiz 4 Enroute structure

FAA-H-8083-16 Instrument Procedures Handbook, Chapter 2
Aeronautical Chart Users GUIDE

1) What FAA publication gives us all we need to know about IFR charts? Aeronautical Chart Users Guide **(ACUG)**
2) **Using the Low altitude enroute chart:**
    a. What type of lighting is available at KFEP, C77, KRFD and C59? **ACUG page 74**
    b. What class airport is JEF, MCI, DSM? **ACUG page 69, page 87-88**
    c. What are the airport elevations and longest runway at FEP, CFO, and SNY? **ACUG page 73**
    d. What is the frequency to get the ATIS or AWOS at EFT, FEP, RFD and JVL**? ACUG page 73**
    e. Why is "MON" above DPA airport? **ACUG page 73**
3) What is a Tower enroute control? Give an example.

4) What type of nav aid is GSH? YJQ? DPA? **ACUG page 74**.
5) What is a "T" route and how are they depicted on low altitude charts? **ACUG page 68, 79**
6) How are unusable airways depicted on low altitude charts? **ACUG page 68, 79**
7) How are MOA, Prohibited, Restricted and Warning areas depicted on Low Alt enroute charts? **ACUG page 90**
8) How is Class B, C, D, and mode C veil airspace depicted on Low Alt enroute charts? **ACUG page 87, 88**
9) What is the difference between "blue" airport and a "green" airport. How do you distinguish a military airport from a civilian airport? **ACUG page 61, 73**
10) If brown airports have no IAP, why are they shown on enroute charts? **ACUG page 61, 73**
11) What is the difference between a low and high altitude enroute chart? Give some examples of how JET routes are depicted differently.
12) What is an OROCA and how is it depicted on low altitude chart? **ACUG page 69**
13) What are the dimensions (limits) of a victor airway, left, right, top and bottom?
14) What navigational signal and obstruction clearance are provided with an MEA? **ACUG page 67**
15) How does the nomenclature for an RNAV MEA differ from a regular MEA? **ACUG page 84**
16) What is a MOCA and what Nav and obstruction clearance does this provide? **ACUG page 67.** When might you request this?

IFR quiz 6 Precision Approaches

FAA-H-8083-16 Instrument Procedures Handbook, Chapter 4
Aeronautical Chart User's Guide
Digital Terminal Procedures
AIM

1) What types of precision approaches are available to the GA pilot?
2) What is LAAS? How does it work? What is it also called?
3) Which category of ILS approaches do GA pilots fly*? Who, what and where can a CAT III approach be flown and to what minima?*
4) What are the four (4) basic components of an ILS system?
5) How does the localizer signal work? Where on the airport is the localizer usually located?
6) How many degrees in width is the localizer signal? How much lateral deviation in feet is there at full deflection at the runway threshold?
7) How does the Glide slope signal work and where is it usually located on the airport?
8) What is a false glideslope and where will it typically be encountered? How does the needle behave? What is the best way to avoid a false glide slope?
9) What is the normal descent gradient in degrees for a typical glide slope on an ILS?
10) How do you estimate your descent rate to stay on GS in any aircraft?

11) What is the difference between a marker beacon and a locator beacon? Where do they project their signals?
12) Typically, where will a locator beacon be located on an ILS? What is the purpose of a locator beacon on an ILS?
13) Describe where the outer marker, middle marker and inner marker are located in relation to the threshold of the runway and what altitudes on the glide slope do they correlate with?
14) Do all ILS have OM, MM, and IM?
15) The outer marker is located and defines the FAF for what type of approach?
16) When in a GA aircraft and you hear the middle marker sounding and you are on glide slope, but do not see the runway environment, what should be done next?
17) How do you determine the FAF on an ILS?
18) What is an IAF? After crossing an IAF and you are established on the published approach, what must you have before you can begin descent to the published altitudes?
19) In a complex aircraft, at what specific point for a full approach or when given vectors to final (VTF) is it advisable to reduce power and slow the aircraft? To what speed would you recommend stabilizing the aircraft?
20) When would you recommend deploying gear? Approach Flaps? How do you handle the trim? How do you maintain altitude with all these configuration changes? How are you going to practice this before beginning to learn/teach approaches?
21) List all the things that should be accomplished at or before the FAF on any approach, especially in a complex aircraft. At night? *In a non-GPS non-DME equipped aircraft? What typical communications occur just prior to the FAF at a towered airport? Non-towered airport? How are you going to prepare and learn/teach these skills efficiently?*
22) Where is the Missed approach point on an ILS compared to a LOC approach?
23) When do you brief the approach? What elements do you include? Please consider simplicity if flying single pilot vs first officer briefing your Capt.

24) Enroute to KFEP and 10 miles south of ADOSE for the ILS 24. You are instructed to cross ADOSE at 4000 ft, cleared for the ILS 24 into Freeport. At what point can you descend below 4000 ft? Do you have to fly the course reversal? How would you enter reversal? What direction would you turn after crossing ADOSE and why? How would you estimate this direction if you were behind the aircraft and did not have time to look at the approach plate?
25) You are given VTF for ILS 24 KFEP. Then you are given the following clearance after being vectored around for several miles: “Cessna 23PG, you are 5 miles from LUNDN, Turn to heading 275, maintain 3000 ft till established on the final approach course, Cleared ILS 24 Freeport”. When can you descend below 3000 ft? How do you know you are established on the final approach course? Do you have to do the published course reversal?

26) What if you are being vectored around, until you are directly north of ADOSE then suddenly, the controller gives you this clearance: “Cessna 23PG, you are cleared direct ADOSE, cleared for the approach”. Do you have to do the course reversal? Why? What can you do to be certain? What if you were cleared direct to JVL, cleared for the approach, would you fly the course reversal?
27) You pass LUNDN and masterfully nail ILS 24 approach to KFEP down to minimums, what do you have to see at a minimum to descend below DA of 1047 MSL? How much further can you descend without seeing the end of the runway or lights marking the end of the runway?
28) You are on the same approach ILS 24 to KFEP, the ATIS is reporting winds 060 at 24 kts. You do not have GPS so this is the only approach available, but you do have a glide slope. What descent rate will you use if your indicated air speed is approximately 100 kts? Ceilings are reported at 600 ft. What is your DA now? Are you going to land straight in? What if you were in a light twin with an approach speed of 130 kts, what is your DA now?
29) Unfortunately, you reach minimums and cannot see the runway environment ILS 24 KFEP. Describe how you would execute the Missed approach beginning with how many degrees do you pitch up, aircraft configuration, what heading do you initially fly? What altitude will you climb too before initiating a turn? Which direction will you turn too specifically (right, left) and to what heading? Why this particular heading? Would you have thought to brief this detail prior to initiating the approach?
30) What portion of the initial approach must reference ground-based navigation? Which portion of the missed approach must reference ground-based navigation? On the missed approach for ILS 24 into KFEP, if your VOR failed, what two GPS techniques could you use to fly to the hold?
31) On your way to the hold, what power settings would you set? How would you enter the hold? What radio calls are required? Once in the hold, now what?
32) What is the difference between a PAR and ASR approaches? Where might you encounter each? Do you think an ASR would be offered to you or do you have to request it? When might you consider asking for an ASR?