FREE PRACTICE QUESTIONS · 313D RESIDENTIAL AC · ONTARIO

TEN FREE 313D RESIDENTIAL AIR CONDITIONING EXAM PRACTICE QUESTIONS.

Edited by Trevor Mulder · Sources: STO counselling sheet, e-Laws, CSA B52 cited · Last checked November 1, 2026

Ten practice questions for Ontario's 313D Residential Air Conditioning Systems Mechanic Certificate of Qualification exam, each with four options and one correct answer. Skilled Trades Ontario sets and delivers the exam; 313D is an Ontario trade, not a Red Seal trade. These are original questions written by TicketPrep from the trade's public training documents, the Ontario regulations and the makers' practices they describe; none of them comes from the exam. They are free to use, print and share. There is nothing to sign up for on this page.

01 How to use these

STO's 313D exam counselling sheet weights six skill sets: A 7 %, B 21 %, C 10 %, D 21 %, E 21 %, F 20 %. The sheet's body says it was updated on December 5, 2016, and it follows the older training standard, so the weights may not match today's exam exactly. The ten questions follow those weights the way our 130-question mock exam does: one from Plan and Prepare and from Commission, two each from the other four sets, each on a different one of our objectives. Four of the ten are calculations. Answer each one before opening the explanation. Every explanation covers all four options, because knowing *why* a wrong answer is wrong is most of the skill.

- **Pace.** STO says its exams run up to four hours and have between 90 and 150 multiple-choice questions; it publishes no question count for 313D. Our mock is 130 questions in four hours, a little under two minutes a question. Try these at that pace.

- **Books.** STO does not say whether the 313D exam is open book, so practise these without notes, with a calculator and a pressure-temperature chart where a question gives you the readings.
- **Print.** The printed version shows the questions and the answer key without the explanations, so it works as a handout. The explanations are on the web page.
- **Mark.** The pass mark is 70 per cent of the whole exam. STO publishes no minimum per skill set, but a weak set still costs you: Service, Maintain and Assemble and Install are 21 per cent each.

---

02 The questions

Q1 · PROCEDURAL · SKILL SET A PLAN AND PREPARE

A homeowner wants the old furnace and air conditioner replaced with a new gas furnace, an add-on coil and a condensing unit. You hold a 313D Certificate of Qualification but no gas technician certificate. Which division of the work is right?

A. You run the gas line to the furnace, and a gas technician lights it and starts it up.

B. You do all of the work, and a TSSA inspector checks the gas connection before start-up.

C. You do the cooling side and reconnect the old gas line, since no new gas pipe is run.

D. You do the coil, line set and condensing unit; a gas technician does gas and venting.

Q2 · CALCULATION · SKILL SET B ASSEMBLE AND INSTALL

You recover the R-22 from an old split system before removing it. The recovery cylinder weighed 14.6 kg (32.2 lb) before recovery and 17.0 kg (37.5 lb) after; the old unit's nameplate charge is 2.83 kg (6 lb 4 oz). What amount does your O. Reg. 463/10 service record show as recaptured?

A. 2.4 kg

B. 2.83 kg

C. 5.3 kg

D. 17.0 kg

Q3 · CRITICAL · SKILL SET B ASSEMBLE AND INSTALL

A brown stain is spreading on the bedroom ceiling below the attic line set of a two-storey house in July. Readings: suction line 9 °C (48 °F) and liquid line 38 °C (100 °F) in the attic; attic air 32 °C (90 °F) with a dew point of 19 °C (66 °F); the condensate drain runs elsewhere and is dry; at three straps the suction insulation is crushed thin and its seams are open. What is causing the water?

A. An undercharge making the suction line too cold.

B. Condensation on the liquid line running beside the suction line.

C. Condensation on the suction line at the crushed insulation.

D. Moisture driven out of the attic insulation by the hot roof.

Q4 · CALCULATION · SKILL SET C COMMISSION

A new R-410A heat pump's low-pressure switch on the compressor suction line opens at 207 kPa (30 psig) and recloses at 345 kPa (50 psig). At −25 °C (−13 °F) outdoors the maker's data show the outdoor coil at a −32 °C (−26 °F) dew point, for which a property table gives 248 kPa absolute (36.0 psia). What will the switch do in heating then?

A. Stay closed: suction is about 349 kPa (51 psig).

B. Stay closed: suction holds near 248 kPa (36 psig).

C. Open: suction falls to about 147 kPa (21 psig).

D. Stay closed: in heating the suction line carries discharge gas.

Q5 · CRITICAL · SKILL SET D SERVICE

An R-410A split's head pressure has run high since another company replaced the line set. After 10 hours off overnight, the outdoor unit sits at 8 °C (46 °F) and the indoor coil in a 20 °C (68 °F) basement. The P/T chart (bubble) gives 925 kPa (134 psig) at 8 °C and 1 345 kPa (195 psig) at 20 °C. The standing pressure reads 1 345 kPa (195 psig) and has not changed in the last hour. What does this show?

A. Non-condensables are present: it should settle at the 8 °C value.

B. The system is tight: the pressure matches the 20 °C basement value.

C. The system holds too much refrigerant, which raises the standing pressure.

D. Nothing yet: a standing test needs both sections at one temperature.

Q6 · CRITICAL · SKILL SET D SERVICE

A heat pump that heated well all winter cools poorly in June. In cooling at 30 °C (86 °F): suction 595 kPa (86 psig), dew −4.3 °C; suction line 10.0 °C; liquid 2 170 kPa (315 psig), bubble 37.3 °C. The liquid reads 27.5 °C leaving the outdoor coil and 11.0 °C (sweating) just past the outdoor metering assembly. Which cause fits?

A. The indoor piston is partly blocked with bits of debris.

B. The system is short of refrigerant charge.

C. The outdoor check valve is not opening to bypass.

D. The reversing valve is leaking hot gas through.

Q7 · CALCULATION · SKILL SET E MAINTAIN

A return filter rack holds two 16 × 25 in. filters side by side, and the blower moves 1 400 CFM through them. The filter maker's pressure-drop chart is read by face velocity. What is the face velocity at the filters?

A. 21 fpm

B. 175 fpm

C. 252 fpm

D. 504 fpm

Q8 · RECALL · SKILL SET E MAINTAIN

On an upflow furnace with a cased A-coil sitting on top of it, where does the dust that gets past the filter collect on the coil?

A. On the inside faces of the A, where the air enters the coil.

B. On the outside faces of the A, where the air leaves the coil.

C. On the drain pan's top edge, where the air turns upward.

D. At the apex of the A, where the two slabs meet and the air speeds up.

Q9 · CRITICAL · SKILL SET F SERVICE OR MAINTAIN ELECTRICAL COMPONENTS

A 240 V condensing unit with no neutral and no 120 V loads is running. Clamped one at a time at the disconnect, L1 reads 14.5 A and L2 reads 11.0 A, and a second meter gives the same readings. What do these readings show?

A. The weak run capacitor is pulling L1 harder than L2.

B. About 3.5 A is returning on the bonding conductor.

C. The compressor is on L1 and the fan motor is on L2.

D. The two legs of the house supply are out of balance.

Q10 · CALCULATION · SKILL SET F SERVICE OR MAINTAIN ELECTRICAL COMPONENTS

Before reading a compressor's windings, the mechanic touches the ohmmeter's leads together and reads 0.3 Ω. Across the run and common terminals the meter then reads 1.2 Ω. What is the run winding's resistance?

A. 0.6 Ω

B. 0.9 Ω

C. 1.2 Ω

D. 1.5 Ω

03 Answer key

QUESTION	ANSWER	SKILL SET
Q1	D	Skill set A Plan and Prepare
Q2	A	Skill set B Assemble and Install
Q3	C	Skill set B Assemble and Install
Q4	C	Skill set C Commission

QUESTION	ANSWER	SKILL SET
Q5	A	Skill set D Service
Q6	C	Skill set D Service
Q7	C	Skill set E Maintain
Q8	A	Skill set E Maintain
Q9	B	Skill set F Service or Maintain Electrical Components
Q10	B	Skill set F Service or Maintain Electrical Components

04 More free questions

For the exam itself, the 313D exam guide covers the format, the pass mark, the skill sets, booking and the fees, how to get your 313D licence covers the apprenticeship and challenge routes, and the 313D practice exam page has five more sample questions and describes the full TicketPrep bank. Each skill set also has eight free questions of its own: A Plan and Prepare, B Assemble and Install, C Commission, D Service, E Maintain, F Service or Maintain Electrical Components. Weighing 313D against the full trade? Read 313A vs 313D.

313D
313D practice exam: five more questions

313A
Refrigeration and AC Mechanic questions

G3
Ontario Gas Technician 3 questions

HUB
All free practice questions

GUIDES
Exam guides and tools

How these questions are written and checked: how our questions are made. Found a mistake? Tell us and we will fix it. TicketPrep is an independent study site; it is not affiliated with Skilled Trades Ontario or CSA Group. Nothing here is taken from the exam, and no CSA

B52, CSA F280 or Ontario Electrical Safety Code text is reproduced: the questions name the code and explain each requirement in their own words.