

01	☐ A	☐ B	☒ C	☐ D	☐ E
02	☒ A	☐ B	☐ C	☐ D	☐ E
03	☐ A	☐ B	☒ C	☐ D	☐ E
04	☐ A	☐ B	☐ C	☒ D	☐ E
05	☒ A	☐ B	☐ C	☐ D	☐ E
06	☒ A	☐ B	☐ C	☐ D	☐ E
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14	☐ A	☐ B	☒ C	☐ D	☐ E
15	☐ A	☐ B	☐ C	☐ D	☒ E
16	☐ A	☒ B	☐ C	☐ D	☐ E
17	☐ A	☐ B	☐ C	☒ D	☐ E
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19	☒ A	☐ B	☐ C	☐ D	☐ E
20	☐ A	☒ B	☐ C	☐ D	☐ E
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22	☒ A	☐ B	☐ C	☐ D	☐ E
23	☐ A	☐ B	☐ C	☒ D	☐ E
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25	☐ A	☐ B	☒ C	☐ D	☐ E
26	☐ A	☐ B	☐ C	☒ D	☐ E

27	☐ A	☐ B	☐ C	☐ D	☒ E
28	☐ A	☒ B	☐ C	☐ D	☐ E
29	☐ A	☐ B	☐ C	☒ D	☐ E
30	☐ A	☐ B	☐ C	☒ D	☐ E
31	☐ A	☐ B	☐ C	☒ D	☐ E
32	☒ A	☐ B	☐ C	☐ D	☐ E
33	☐ A	☐ B	☒ C	☐ D	☐ E
34	☒ A	☐ B	☐ C	☐ D	☐ E
35	☐ A	☐ B	☒ C	☐ D	☐ E
36	☐ A	☐ B	☐ C	☐ D	☒ E
37	☐ A	☒ B	☐ C	☐ D	☐ E
38	☐ A	☐ B	☐ C	☐ D	☒ E
39	☒ A	☐ B	☐ C	☐ D	☐ E

PRACTICE QUESTIONS

Colorado Certified Water Professionals

G953MRAQ

Colorado Wastewater Collection System Operator Class 4

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Colorado Certified Water Professionals **G953MRAQ**, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, **G953MRAQ**
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1

SINGLE CHOICE

During a manhole inspection, the operator notes that the frame and cover sit approximately 4 inches above the finished pavement grade and there is evidence of water infiltration along the chimney seals. Which condition should the operator record?

- ☐ A A correctly installed frame with normal infiltration
- ☐ B Sunken cover with infiltration
- ☒ C **Protruding cover with infiltration**
- ☐ D Frame offset with exfiltration

ANSWER C

WHY A frame and cover sitting above grade is described as a 'protruding cover.' Combined with visible infiltration at the chimney seals, the proper recording is 'protruding cover with infiltration.' Sunken covers sit below grade, and offset refers to horizontal displacement of the frame relative to the structure.

QUESTION 2

SINGLE CHOICE

A 12-inch diameter sewer is flowing at 75% of full depth. Using the proportional flow relationship for circular pipes ($Q/Q_{full} = (d/D)^{8/3}$ for $d/D < 0.5$ is not applicable here, use the standard depth/discharge tables), the flow is approximately what percentage of the full-pipe flow?

- ☐ A Approximately 60%
- ☐ B Approximately 75%
- ☒ C **Approximately 92%**
- ☐ D Approximately 100%

ANSWER C

WHY For a circular pipe flowing at 75% of full depth ($d/D = 0.75$), the standard hydraulic elements chart shows that the discharge (Q) is approximately 0.92 of the full-pipe discharge. Manning's equation and the proportional flow tables give a value near 92%, even though the cross-sectional area is only about 80% full, because the hydraulic radius at 75% depth is greater than at full flow.

QUESTION 3

SINGLE CHOICE

An operator must enter a manhole approximately 18 feet deep to perform an inspection. According to OSHA confined space requirements for wastewater collection systems, which of the following is required before entry?

- ☐ A A visual inspection only of the manhole from the surface
- ☒ B Atmospheric testing for oxygen, flammability, and toxic gases with results documented
- ☐ C Wearing steel-toed boots and a hard hat
- ☐ D Notification of the local police department

ANSWER B

WHY Confined space entry into a manhole (a permit-required confined space) under OSHA 29 CFR 1910.146 requires atmospheric testing for oxygen content, flammable gases/vapors, and toxic contaminants (commonly hydrogen sulfide) prior to and during entry, with the results documented on the entry permit. PPE such as boots and hard hats is required but does not replace atmospheric testing, and surface visual inspection is not a substitute for atmospheric testing.

QUESTION 4

SINGLE CHOICE

A duplex lift station has two identical pumps rated at 400 GPM each. During a routine run, only one pump operates and the wet well level continues to rise until the high-level alarm activates. The cause is most likely:

- ☒ **A** The lead pump's check valve is stuck closed
- ☐ **B** The lag pump's check valve is stuck closed
- ☐ **C** The forcemain is air-bound
- ☐ **D** The floats are set too low

ANSWER A

WHY If the lead pump runs but the wet well level continues to rise, water is not being discharged by the lead pump. A check valve stuck closed would prevent pumped flow from reaching the forcemain. Since only the lead pump operates (lag pump has not yet started because the level is rising toward the lag float), the failure is on the lead pump's discharge path. A stuck-closed check valve on the lag pump would not affect the lead pump's discharge.

QUESTION 5

SINGLE CHOICE

Which of the following is considered an inflow source rather than an infiltration source in a wastewater collection system?

- ☐ **A** Defective pipe joints below the ground surface
- ☐ **B** Cracked sewer mains below the groundwater table
- ☒ **C** Roof drains or yard drains connected to the sanitary sewer
- ☐ **D** Porous vitrified clay pipe barrel

ANSWER C

WHY Inflow is stormwater that enters the sanitary sewer through direct connections or point sources during wet weather, such as roof drains, yard drains, sump pumps, and manhole covers with holes. Infiltration is groundwater that enters through defects in the pipe or joints below grade. Roof or yard drains connected to the sanitary sewer are a classic inflow source.

QUESTION 6

SINGLE CHOICE

When using high-velocity sewer cleaning equipment, the most effective nozzle for removing hardened deposits such as grease or scale from the pipe wall is a:

- ☐ A Penetrator nozzle
- ☒ B Rotary (chain flail) nozzle
- ☐ C Sand nozzle
- ☐ D Standard spray nozzle

ANSWER B

WHY Rotary nozzles (chain flail or spinning nozzle) cut and scour the pipe wall and are the most effective at removing hardened deposits like grease, scale, and roots. Penetrator nozzles are used to break through blockages, and standard spray nozzles are used for general flushing and moving debris.

QUESTION 7

SINGLE CHOICE

The alternating action of pumps in a duplex lift station is normally controlled by:

- ☒ A Float or pressure transducers connected to a pump controller that alternates lead/lag on each call
- ☐ B A mechanical ratchet on the discharge piping
- ☐ C Manual valve changes by the operator each cycle
- ☐ D The utility billing cycle

ANSWER A

WHY Duplex lift stations alternate the lead/lag pump assignment on each call to equalize wear on both pumps. This is typically done by a pump controller using float switches, pressure transducers, or ultrasonic level sensors. There is no mechanical ratchet on the discharge piping, manual changes are not required each cycle, and the billing cycle has no relationship to pump alternation.

QUESTION 8

TRUE FALSE

Hydrogen sulfide (H₂S) is heavier than air and can accumulate in low or unventilated spaces such as manholes and wet wells, posing a serious inhalation hazard to collection system workers.

☒ **A True**☐ **B False****ANSWER A**

WHY Hydrogen sulfide (H₂S) has a molecular weight of about 34 g/mol compared to air at about 29 g/mol, so H₂S is slightly heavier than air. It tends to accumulate in low, confined, or poorly ventilated spaces like manholes, wet wells, and pump stations. Exposure at elevated concentrations can cause loss of consciousness or death, which is why atmospheric monitoring is mandatory before confined space entry in wastewater collection systems.

QUESTION 9

MULTIPLE CHOICE

During a CCTV inspection of a vitrified clay pipe (VCP) sewer, the operator identifies structural defects. Which of the following are examples of structural defects as defined by the National Association of Sewer Service Companies (NASSCO) PACP coding? (Choose two.)

☒ **A Longitudinal crack**☐ **B Sag in the pipe run**☐ **C Deposits of settled solids**☒ **D Hole in the pipe wall****ANSWER A - D**

WHY Under NASSCO's Pipeline Assessment Certification Program (PACP), structural defects are those that affect the structural integrity of the pipe, including cracks, fractures, holes, missing pipe wall, and deformed/defective pipe. A longitudinal crack (A) and a hole in the pipe wall (D) are structural defects. Sag (B) is an operational/constructural condition, and deposits (C) are a maintenance/operational condition, not structural defects.