PRACTICE EXAM 12: HAZMAT & TANKER SIMULATION (50 QUESTIONS)

HAZMAT SECTION (Questions 1–30)

1. A driver transporting placarded hazardous materials approaches a sharp curve on a mountain road. A sign reads "TRUCKS — 25 MPH." The driver is currently traveling at 35 mph. In addition to the general safety concern of excessive speed on a curve, what HazMatspecific risk does this speed present?

A. The excess speed will cause the placards to detach from the vehicle due to wind force on the curved road section

B. The 10 mph difference between current speed and advisory speed will trigger the vehicle's electronic stability control system to apply emergency braking automatically

C. If the vehicle rolls over due to the excess speed, the resulting HazMat release could contaminate the surrounding environment, endanger responders, and require extensive emergency cleanup

D. The vehicle's fire extinguisher will discharge automatically if the lateral Gforces from the curve exceed the mounting bracket's design threshold

2. A driver has completed a delivery of Division 5.1 Oxidizer at a warehouse. The trailer is now empty and has been swept clean. Before picking up the next load of nonhazardous freight, the driver checks the trailer and confirms no residue of the oxidizer remains. What must the driver do with the OXIDIZER placards currently on the vehicle?

A. Remove the placards before loading the nonhazardous freight, because displaying placards on a vehicle not carrying hazardous materials is a violation

B. Leave the placards in place until returning to the carrier's terminal, where the safety department handles all placard changes

C. Replace the OXIDIZER placards with DANGEROUS placards as a general precaution for the remainder of the trip

D. Cover the placards with blank white panels rather than removing them, to preserve the magnetic holders for future use

3. A hazardous material has been assigned to Class 4, Division 4.2. A driver transporting this material should understand that Division 4.2 materials are dangerous because of what specific characteristic?

A. They detonate violently when exposed to mechanical shock or impact during rough handling in transit

B. They produce toxic fumes when heated above 150°F, requiring refrigerated transport at all times

C. They react explosively with water, generating toxic and flammable gases in dangerous quantities

D. They are liable to spontaneous heating under normal transport conditions and may ignite without any external ignition source such as a spark or flame

4. A driver receives shipping papers for a load of hazardous materials. One entry reads: "Sodium cyanide, 6.1, UN1689, PG I, Poison Inhalation Hazard, Zone A, 500 lbs." Based on this description, what Table classification applies to this material?

A. Table 2, because the weight of 500 pounds is below the 1,001pound threshold required for Table 1 classification

B. Table 1, because Division 6.1 materials with Packing Group I and Inhalation Hazard Zone A are always Table 1 regardless of weight

C. Neither Table 1 nor Table 2, because Poison Inhalation Hazard materials have their own separate classification outside the table system

D. Table 2, because all Division 6.1 materials are classified as Table 2 unless they exceed 5,000 pounds aggregate weight

5. A driver is at a loading dock when a forklift operator accidentally drops a pallet of hazardous materials packages from a height of approximately four feet. The packages hit the ground hard but none are visibly leaking. Should the driver accept these packages for transport?

A. No, the dropped packages should be inspected by the shipper for internal damage that may not be externally visible — compromised packaging can fail during transport vibration and temperature changes

B. Yes, because HazMat packaging is designed and tested to withstand drops from heights up to six feet without any damage

C. No, but only if the packages contain Table 1 materials — Table 2 materials in DOTcertified packaging can withstand any reasonable impact

D. Yes, as long as the driver notes "dropped during loading" on the shipping papers as a precaution for the receiving party

6. Under 49 CFR Part 177, a driver transporting hazardous materials must examine tires at the beginning of each trip and at each stop during the trip. If a tire is found to be flat or leaking, what must the driver do before continuing?

A. Note the flat tire in the driver's daily log but continue driving at reduced speed to the nearest tire repair facility

B. Replace the flat tire with the spare tire carried on the vehicle, regardless of whether the vehicle is loaded with hazardous materials

C. Address the tire problem before continuing — a flat or leaking tire must be repaired or replaced, because tire failure near hazardous cargo can cause fires or loss of vehicle control

D. Continue driving if the flat tire is on a tandem axle, because the remaining good tire on that axle can support the load temporarily

7. A driver transporting a placarded load of hazardous materials is following another vehicle on a highway when the vehicle ahead begins dropping debris from its load — pieces of lumber are falling onto the roadway. The driver must avoid the debris. What unique risk does this evasive situation present for a HazMat vehicle compared to a standard truck?

A. The HazMat placards will create additional wind resistance during the evasive maneuver, making the vehicle harder to steer

B. The hazardous materials will amplify the impact force if any debris strikes the trailer, because chemical reactions can be triggered by impact

C. The fire extinguisher may become dislodged from its mounting bracket during the evasive maneuver, reducing emergency preparedness

D. A hard swerve to avoid debris carries rollover risk if the vehicle is a loaded tank, and hard braking carries surge risk regardless of vehicle type — both common evasive responses are more dangerous in a HazMat vehicle

8. A driver arrives at a shipper's facility to pick up a load of Class 7 Radioactive material. The shipper hands the driver the shipping papers, which include the transport index for each package. The total transport index for all packages is 48. The driver knows the maximum total transport index for a nonexclusiveuse vehicle is 50. What should the driver understand about loading these packages?

A. The transport index has no operational significance for the driver — it is used only by the shipper for billing and inventory purposes

B. At a total transport index of 48, the packages must be loaded with specific separation distances from the driver's cab and any occupied space, as determined by the TI value

C. The transport index of 48 means exactly 48 packages are in the shipment, each with an individual TI of 1.0

D. A total TI of 48 is below the threshold of 50, so no special loading or separation requirements apply beyond standard HazMat handling

9. A driver is reviewing a shipping paper and notices that one hazardous material entry is highlighted in yellow while the remaining twelve entries on the same page are not highlighted. What does this highlighting communicate?

A. The highlighted entry is a hazardous material, distinguished from the nonhighlighted nonhazardous entries — highlighting is one of the accepted methods for distinguishing HazMat entries

B. The highlighted entry has been flagged by the shipper's quality control department as a material that failed its most recent purity test

C. The highlighted entry is a priority shipment that must be delivered before any other item on the shipping paper

D. The highlighted entry is a material the shipper wants the driver to inspect personally rather than relying on the standard preloading dock inspection

10. A driver transporting hazardous materials is stopped at a red light when a pedestrian approaches the driver's window and asks what the diamondshaped signs on the truck mean. The driver explains they indicate hazardous materials. The pedestrian then asks if they can take a photo of the placards. How should the driver respond?

A. Refuse and threaten to call law enforcement, because photographing HazMat placards is a federal crime under antiterrorism statutes

B. Ask the pedestrian for governmentissued photo identification before allowing any photographs of the vehicle or its placards

C. Respond professionally — placards are displayed publicly for visibility and there is no law prohibiting people from photographing them, though the driver should note any suspicious behavior

D. Demand that the pedestrian delete any photos already taken, because HazMat vehicle images are classified security information under TSA regulations

11. A driver is assigned to transport a load that includes 900 pounds of Division 2.1 Flammable Gas and 200 pounds of Division 4.3 Dangerous When Wet material. What placards must be displayed?

A. DANGEROUS WHEN WET placards for the Table 1 material at any quantity — the Division 2.1 at 900 pounds does not independently reach the Table 2 threshold, but DANGEROUS placards could also be considered for the combined 1,100pound total

B. Only FLAMMABLE GAS placards, because Division 2.1 gas hazards always take priority over solidstate Division 4.3 materials

C. DANGEROUS placards only, because two different hazard classes are present and neither individually exceeds its threshold

D. Both DANGEROUS WHEN WET and FLAMMABLE GAS placards, because both materials independently trigger their respective placarding requirements

12. A driver transporting Division 1.1 Explosives needs to stop for fuel. After fueling, the driver decides to go inside the truck stop to purchase a meal. The driver will be inside the restaurant for approximately 20 minutes. The vehicle will be in the parking lot approximately 60 feet from the restaurant's front door, visible through the window. Is this acceptable?

A. Yes, because the driver can see the vehicle through the window and is within 100 feet, satisfying the standard attendance requirement

B. Yes, because fuel stops create a specific exemption from attendance requirements for up to 30 minutes

C. No, because eating inside a restaurant constitutes an "extended absence" that automatically violates the attendance rule

D. This situation requires careful judgment — while the 60foot distance and line of sight technically meet the general attendance criteria, Division 1.1 Explosives require the vehicle to be attended at all times, and the strictest interpretation of attendance should apply

13. A driver is loading packages of hazardous materials into a dry van trailer. The trailer floor has several protruding nail heads from a previous repair. What hazard do these nail heads present for the HazMat cargo?

A. Protruding nail heads will scratch the trailer's interior paint, creating rust spots that could contaminate the hazardous materials packaging

B. Protruding nail heads can puncture, tear, or abrade the bottom of hazardous materials packages during loading and transport, potentially breaching the containment and causing a release

C. Protruding nail heads create tripping hazards for the loader but pose no risk to the packages themselves because DOT packaging is punctureproof

D. Protruding nail heads will interfere with the forklift's operation by catching on the fork tines during loading and unloading

14. Under the Hazardous Materials Regulations, a driver who accepts a shipment with incomplete or incorrect shipping papers may be held personally responsible for the documentation violation during a roadside inspection. What is the best way for the driver to avoid this situation?

A. Rely on the shipper's reputation and experience — if the shipper is a large, wellknown company, their shipping papers are always correct

B. Ask the carrier's dispatcher to verify the shipping papers by phone before the driver reviews them at the pickup location

C. Review every shipping paper entry carefully before accepting the shipment — verify that all five basic description elements are present, the emergency response number is valid, and the shipper's certification is signed

D. Photograph the shipping papers and email them to the carrier's compliance department for review while the driver begins loading

15. A driver is transporting a bulk quantity of a material classified as a "marine pollutant." The shipping papers include the marine pollutant designation and the packages bear the marine pollutant marking. The driver's route passes over a bridge spanning a large river. What should the driver understand about the marine pollutant designation during this portion of the route?

A. The driver must stop before the bridge and wait for a Coast Guard escort to guide the vehicle across the bridge over the waterway

B. The driver must use an alternate route that avoids all bridges over navigable waterways when carrying marine pollutant materials

C. The marine pollutant designation requires the driver to maintain a speed below 25 mph on all bridges over bodies of water

D. A release of this material near the river could cause significant environmental damage to aquatic ecosystems — the driver should exercise heightened awareness on the bridge and understand that a spill near waterways triggers additional environmental response obligations

16. A driver picks up a hazardous materials shipment. The shipping papers are complete and correct. However, the driver notices that one package has a hazard warning label that is partially torn — about half of the diamondshaped label is missing, and the hazard class symbol is no longer visible. Should the driver accept this package?

A. No, the driver should refuse the package because a torn label that no longer displays the hazard class symbol fails to communicate the required hazard information

B. Yes, because a partially torn label still provides some hazard indication and is acceptable as long as more than 25 percent of the label surface remains

C. No, but the driver should repair the torn label using clear packing tape to restore its visibility before loading the package

D. Yes, as long as the other packages in the same shipment have intact labels that convey the same hazard class information

17. A vehicle is carrying 2,500 pounds of Division 2.1 Flammable Gas in compressed cylinders. The driver's planned route includes a tunnel that is not posted with any HazMat restrictions. Should the driver use the tunnel?

A. Yes, without hesitation — the absence of posted restrictions means the tunnel is fully safe for all hazardous materials at any quantity

B. No, because federal regulations prohibit all Division 2.1 materials from passing through any tunnel regardless of posted signs

C. The driver may use the tunnel since no restrictions are posted, but should consider that a flammable gas release inside a confined tunnel space would be far more dangerous than on an open road — an alternate route may be the more prudent choice

D. The driver must call the tunnel authority before each trip to obtain verbal confirmation that HazMat vehicles are currently permitted

18. A driver transporting placarded hazardous materials arrives at a customer's facility for a delivery. The facility's loading dock has a sign reading "NO IDLING — SHUT OFF ENGINE UPON ARRIVAL." The driver typically leaves the engine running during short deliveries to maintain cab temperature. Must the driver comply with the facility's noidling sign during a HazMat delivery?

A. No, because federal HazMat regulations require the engine to remain running at all times during delivery to ensure the driver can move the vehicle in an emergency

B. Yes, the driver should comply — shutting off the engine during loading and unloading of hazardous materials is actually a regulatory requirement as well as a facility rule

C. No, because facility signs are advisory only and cannot override the driver's operational judgment about engine status during deliveries

D. Yes, but only if the facility sign includes a specific citation to 49 CFR Part 177 and has been approved by the local fire marshal

19. A driver is hauling a load of Class 3 Flammable Liquid when the driver's personal cell phone rings. The driver picks up the phone and begins a conversation while driving. Beyond the general distracted driving risk, what HazMatspecific concern does this create?

A. Cell phone signals can interfere with the chemical stability of Class 3 materials, potentially triggering a reaction inside the packages

B. Federal HazMat regulations specifically prohibit drivers from carrying any electronic devices in the cab while transporting flammable liquids

C. Cell phone batteries emit radiation that can penetrate the trailer walls and heat the flammable liquid packages, increasing vapor pressure

D. Distracted driving reduces the driver's ability to maintain the precise speed control, following distance, and hazard awareness that HazMat transport demands — any reduction in attention increases the risk of an incident with potentially catastrophic HazMat consequences

20. A driver transporting 3,000 pounds of Class 8 Corrosive in a cargo tank passes through a weigh station. The inspector checks the shipping papers and notes that the entry includes "PG II" as the packing group. The inspector asks the driver what "PG II" means. What is the correct answer?

A. "PG II" stands for "Packaging Grade 2" and indicates the drums holding the material are secondquality recycled containers

B. "PG II" stands for "Packing Group II" and indicates the material presents a medium degree of danger within its hazard class

C. "PG II" stands for "Pressure Gauge 2" and indicates the cargo tank must maintain an internal pressure of exactly 2 psi during transport

D. "PG II" stands for "Product Generation II" and indicates this is the second version of the chemical formula produced by the manufacturer

21. A driver's carrier requires all HazMat drivers to carry a copy of the Emergency Response Guidebook in their vehicles. During a pretrip inspection, the driver discovers the ERG is missing from the cab. The driver's load is a placarded shipment of Class 3 Flammable Liquid. Can the driver legally depart without the ERG?

A. No, because the ERG is a federally mandated document that must be physically present in every vehicle transporting hazardous materials

B. No, because the absence of the ERG automatically disqualifies the driver from operating any vehicle with a HazMat endorsement for 24 hours

C. Yes, but the driver should download the ERG mobile application as an alternative source of emergency response information during the trip

D. Yes, the ERG is not a federally mandated document for highway transport — it is a recommended best practice and a carrier policy, but its absence does not prevent legal departure

22. A driver is assigned a load that includes packages of Division 6.2 Infectious Substance. The driver has transported toxic chemicals (Division 6.1) many times but has never hauled infectious substances. What key distinction should the driver understand about Division 6.2 compared to Division 6.1?

A. Division 6.2 materials are toxic chemicals that cause immediate poisoning through skin contact, ingestion, or inhalation of chemical vapors

B. Division 6.2 materials contain biological agents — bacteria, viruses, parasites, fungi, or prions — that cause disease through infection rather than chemical toxicity

C. Division 6.2 materials are radioactive substances that emit ionizing radiation capable of causing genetic damage and cancer

D. Division 6.2 materials are corrosive liquids that destroy living tissue on contact through chemical reaction rather than biological mechanism

23. A shipper provides a driver with shipping papers for a multimaterial load. The papers correctly list all hazardous materials first, clearly separated from the nonhazardous entries below. However, the shipper has listed the hazardous materials in reverse alphabetical order (Z to A) rather than the standard alphabetical order (A to Z). Is this a violation?

A. No, the regulations require that HazMat entries be distinguished from nonHazMat entries but do not mandate any specific alphabetical ordering among the HazMat entries themselves

B. Yes, all hazardous materials entries must be listed in alphabetical order by proper shipping name to standardize the document for emergency responders

C. No, but only if the total number of hazardous materials entries is five or fewer — six or more entries must be alphabetized

D. Yes, because the Emergency Response Guidebook crossreferences shipping papers by alphabetical order and reverse ordering causes lookup errors

24. A driver discovers during a stop that the cargo area of the trailer smells strongly of ammonia. The load includes cylinders of anhydrous ammonia (Division 2.2 with subsidiary hazard of 8). No visible leak is apparent from outside the trailer. What should the driver do?

A. Open the trailer doors fully to ventilate the cargo area, then enter the trailer to visually inspect each cylinder for the source of the leak

B. Spray water into the trailer to absorb the ammonia vapors before conducting an inspection of the cylinder valves

C. Continue driving because anhydrous ammonia has a strong odor at very low concentrations and the smell does not necessarily indicate a dangerous leak

D. Do not open the trailer doors or enter the cargo space — a strong ammonia odor indicates a likely leak, and the driver should move upwind, secure the area, and contact the carrier and emergency services

25. A driver transporting placarded hazardous materials is driving on a highway when the vehicle ahead is involved in a collision. Traffic comes to a sudden stop. The driver of the HazMat vehicle stops safely but is now positioned approximately 200 feet behind the accident scene. Emergency vehicles have not yet arrived. What should the HazMat driver do?

A. Drive around the accident on the highway shoulder to continue the trip, because stopping near an accident scene unnecessarily exposes the HazMat vehicle to risk

B. Leave the HazMat vehicle unattended and walk to the accident scene to provide first aid to the injured motorists

C. Remain with the HazMat vehicle, monitor the situation ahead for any fire or hazard that could threaten the vehicle, and be prepared to move the vehicle if conditions change

D. Set out reflective triangles around the HazMat vehicle and then walk to the accident scene to direct traffic until law enforcement arrives

26. A driver is preparing to transport a hazardous material that the shipper identifies as "elevated temperature material." The shipping papers show the word "HOT" before the proper shipping name. What specific hazard does an elevatedtemperature material present that other hazardous materials in the same class may not?

A. Elevatedtemperature materials are more likely to be stolen because their commercial value increases proportionally with temperature

B. The material is being transported at temperatures high enough to cause severe burns on contact, and if heated above its flash point, it may also present a fire risk

C. Elevatedtemperature materials generate electromagnetic fields that interfere with the vehicle's electronic braking and stability control systems

D. The high temperature causes the material's packaging to expand, requiring larger trailer space and specialized loading equipment

27. A driver transporting 1,200 pounds of Class 3 Flammable Liquid receives a phone call from the dispatcher instructing the driver to also pick up 50 pounds of Division 2.3 Poison Gas at a facility along the route. After picking up the poison gas, what placards must the vehicle display?

A. Both FLAMMABLE and POISON GAS placards — the Class 3 material exceeds 1,001 pounds (Table 2) and Division 2.3 is Table 1 at any quantity

B. Only FLAMMABLE placards, because Class 3 has the higher weight and takes priority over the 50pound poison gas shipment

C. DANGEROUS placards, because the vehicle now carries two different hazard classes and the DANGEROUS placard covers all combinations

D. Only POISON GAS placards, because Table 1 materials always supersede all Table 2 placards when both are present on the vehicle

28. A HazMat driver has been driving for three hours when a dashboard warning light indicates a potential problem with the vehicle's antilock braking system (ABS). The vehicle appears to brake normally during a gentle test application. Should the driver continue the trip?

A. Yes, because ABS is a supplementary system and the vehicle's standard brakes still function — ABS failure does not affect basic braking capability

B. Yes, because ABS warning lights are informational only and do not indicate any actual braking system problem

C. No, the driver must immediately stop and refuse to drive the vehicle until the ABS is repaired, regardless of the standard brakes functioning

D. The driver should continue to the nearest safe stop and have the ABS system inspected — while the base brakes still work, loss of ABS increases the risk of wheel lockup during hard braking, which is especially dangerous with a HazMat load where control is critical

29. A driver is transporting packages of hazardous materials in a dry van trailer. During loading, the driver notices that some packages have been stacked higher than the load securing points on the trailer walls. The top packages are above the securement straps and could shift or fall during transport. What should the driver do?

A. Accept the load because hazardous materials packages in DOTcertified packaging are designed to withstand any stacking height without damage

B. Ask the shipper to add additional securement above the current strap positions, or restack the load so all packages are below the securement points

C. Proceed with the load but drive at reduced speed to minimize the forces that could cause the unsecured top packages to shift or fall

D. Remove the top layer of packages and leave them at the shipper's dock, because they cannot be legally transported above the securing points

30. A driver is transporting hazardous materials when a severe weather warning is issued for the area, indicating a flash flood watch. The driver's route includes a section of highway that passes through a lowlying area known to flood during heavy rain. What should the driver consider about this route?

A. Flooding could damage or submerge the vehicle, potentially causing a release of hazardous materials into floodwater that could contaminate a wide area — the driver should monitor conditions and consider alternate routing if flooding occurs

B. Flash floods only affect vehicles that are parked in lowlying areas, not vehicles that are moving through at highway speed

C. The hazardous materials on board will neutralize floodwater, making the flooding less dangerous for the driver and surrounding area

D. Flash flood watches are advisory only and do not require any change to the driver's planned route or driving behavior

TANKER SECTION (Questions 31–50)

31. A tank vehicle driver is preparing to load a DOT 406 cargo tank with unleaded gasoline at a petroleum terminal. Before connecting the loading arm, the driver checks the specification plate and confirms the tank is DOT 406. The driver then opens the manhole cover for compartment 1. What should the driver check inside the compartment before loading begins?

A. The serial numbers stamped on each internal baffle to verify they match the serial numbers listed on the specification plate

B. The interior for residue from a previous load, contamination, standing water, debris, or any condition that could affect product quality or indicate a previous incompatible product

C. The compartment's internal temperature using a digital thermometer to verify it matches the ambient air temperature within 5 degrees

D. The color of the interior coating to determine whether the tank has been painted since its last qualification test

32. A driver operating a loaded tank vehicle on a straight highway at 55 mph must change lanes to pass a slower vehicle. The tank is a smooth bore design, approximately 75 percent full. What is the correct technique for executing this lane change?

A. Signal and jerk the steering wheel sharply to the left to complete the lane change as quickly as possible before oncoming traffic approaches

B. Apply the brakes to slow to 35 mph before beginning the lane change, then accelerate back to 55 mph once in the new lane

C. Signal early, check mirrors, and move the steering wheel gradually over several seconds — allowing the liquid to settle between the initial lane change and any subsequent steering corrections

D. Downshift two gears before beginning the lane change to reduce the vehicle's speed through engine braking without triggering forward surge

33. A cargo tank carrying a nonhazardous liquid develops a crack in a weld seam on the tank's exterior during transport. The crack is small and the leak is minimal — a slow drip. The liquid is water. Is this a safety concern even though water is nonhazardous?

A. Yes, a cracked weld seam indicates structural failure that could propagate under road vibration and pressure changes, potentially leading to a catastrophic tank rupture regardless of the product inside

B. No, because water is nonhazardous and a small water leak poses no environmental or safety risk that would require the driver to stop

C. Yes, but only because the leaked water creates a slippery road surface that could cause other vehicles to hydroplane

D. No, because weld cracks on nonhazardous product tanks are classified as cosmetic defects that are addressed during scheduled maintenance

34. A loaded tank vehicle approaches a steep downhill grade. The driver knows from previous trips that this grade is approximately 7 percent over three miles. Before beginning the descent, the driver selects a gear that holds the vehicle at 25 mph through engine braking. Halfway down the grade, the driver notices the speed has increased to 30 mph despite being in the correct gear. What is the most likely explanation?

A. The engine's compression braking has weakened due to altitude changes that reduce atmospheric pressure on the engine cylinders

B. The air brake system has developed a leak and is no longer supplementing the engine braking with service brake drag

C. The vehicle's cruise control has automatically increased the set speed to compensate for the downhill grade

D. The liquid cargo's forward surge on the downgrade is adding gravitational momentum that exceeds the engine braking's ability to hold the selected speed — the driver may need to supplement with controlled service brake applications

35. A tank vehicle driver is delivering heating oil to a residential customer. The customer's 275gallon tank is in the basement, with the fill pipe extending through the exterior wall. The driver connects the delivery hose, begins pumping, and steps away to complete paperwork in the cab. Why is this a problem?

A. The driver is too far from the vehicle to meet the attendance requirement for a placarded HazMat vehicle during the delivery

B. The driver must remain at the delivery point and actively monitor the fill process to detect the receiving tank becoming full and prevent an overfill spill

C. The delivery hose may disconnect from the fill pipe without the driver present, causing product to spray onto the house

D. The vehicle's PTO will automatically shut off after 30 seconds if the driver is not physically touching the pump controls

36. A driver is operating a loaded baffled tank vehicle carrying diesel fuel. The vehicle approaches a traffic circle (roundabout) with a posted advisory speed of 20 mph. What is the primary concern as the vehicle navigates the continuous curve of the roundabout?

A. The continuous curve creates sustained lateral surge that pushes the liquid to the outside of the turn throughout the entire roundabout, maintaining an elevated center of gravity for the full duration rather than just a momentary shift during a simple turn

B. The roundabout's paved surface is always more slippery than straight road sections due to accumulated tire rubber from turning vehicles

C. The baffles will redirect the liquid surge upward during the roundabout, creating a vertical force that lifts the front wheels off the pavement

D. The continuous curve will cause the engine to overheat because the vehicle must maintain a constant low speed for an extended period

37. During a cargo tank pretrip inspection, the driver tests the emergency shutoff system by activating one of the remote control handles. The internal valve closes as expected. However, when the driver attempts to reopen the valve using the remote handle, the valve does not reopen — the handle returns to the open position but the valve remains closed. What should the driver do?

A. Apply additional force to the remote handle using a pipe extension to provide more mechanical leverage

B. Access the valve directly from underneath the tank and manually reopen it using the valve's manual override mechanism

C. Report the malfunction to the carrier and have the valve mechanism professionally repaired — the valve must open and close reliably from the remote position for both normal operations and emergencies

D. Bypass the malfunctioning valve by routing the product through a different compartment's discharge system

38. A tank vehicle is loaded at a terminal early in the morning when temperatures are cool. The outage left in the tank is exactly 2 percent of the tank's total volume. The truck will travel through a desert region where afternoon temperatures regularly exceed 115°F. What specific concern does this combination of factors create?

A. The cool morning loading temperature and hot afternoon driving conditions are ideal because the thermal differential actually stabilizes the liquid inside the tank

B. The 2 percent outage may be insufficient for the extreme temperature differential — the liquid will expand significantly in 115°F heat, potentially exceeding the available outage space and creating dangerous overpressure

C. The desert heat will evaporate the liquid faster than normal, causing the liquid level to drop and creating excessive surge from the increased outage

D. The extreme heat will cause the exterior of the tank to expand while the liquid inside remains cool, creating a vacuum effect that collapses the tank inward

39. A tank vehicle driver is unloading product at a customer facility using a PTOdriven pump. During the delivery, the engine suddenly overheats and the driver must shut it off. This also shuts off the PTO and the pump. Product flow stops immediately. What should the driver do?

A. Restart the engine immediately and continue pumping because the brief interruption will not cause any operational or safety problems

B. Switch to gravity discharge by opening the bottom valve and allowing the remaining product to drain by gravity while the engine cools

C. Attempt to restart the engine at regular intervals until it cools enough to run, keeping the discharge valves open during each attempt

D. Close all discharge valves, disconnect the product hose, and do not resume unloading until the engine overheating issue is diagnosed and resolved — an overheating engine poses fire risk near the cargo tank

40. A driver operating a tank vehicle at highway speed notices in the mirrors that liquid appears to be dripping from the bottom of the trailer near the rear discharge valve area. The driver is carrying a nonhazardous liquid. What should the driver do?

A. Continue driving because nonhazardous liquid drips do not constitute a safety concern and the loss is commercially insignificant

B. Pull over safely at the next available location and inspect the discharge valve area to identify the source of the drip — even a nonhazardous leak indicates a valve, gasket, or fitting problem that could worsen

C. Increase speed to create additional air pressure around the discharge area, which may temporarily stop the drip until the driver reaches the destination

D. Call the dispatcher and describe the drip, allowing the dispatcher to decide whether a stop is necessary based on the product value

41. A driver is hauling a loaded tank vehicle through a construction zone where steel plates have been placed over road cuts in the pavement. The steel plates are wet from rain. What specific hazard do these wet steel plates present for a tank vehicle?

A. The steel plates will damage the vehicle's tires due to the sharp edges of the plate cuts, causing multiple flat tires simultaneously

B. The wet steel plates may produce electromagnetic interference that affects the vehicle's electronic stability control system

C. Wet steel plates are extremely slippery and dramatically reduce tire traction — if the driver brakes or steers on these plates, the combination of reduced traction and liquid surge creates a heightened risk of loss of control

D. The steel plates will cause the tank to vibrate at a resonant frequency that amplifies liquid surge beyond normal levels

42. What is the primary safety advantage of a DOT 412 cargo tank over a DOT 406 cargo tank when transporting corrosive liquids?

A. DOT 412 tanks are constructed with materials and designs specifically resistant to chemical attack from corrosive products, while DOT 406 aluminum tanks can be rapidly degraded by strong acids or bases

B. DOT 412 tanks have twice the wall thickness of DOT 406 tanks, making them physically stronger against road impact

C. DOT 412 tanks are equipped with doublewalled construction like cryogenic MC 338 tanks, providing secondary containment

D. DOT 412 tanks operate at higher internal pressure than DOT 406 tanks, preventing corrosive vapors from escaping through vents

43. A tank vehicle driver is making a delivery at a facility where the receiving tank's fill pipe is located in a belowgrade concrete pit approximately three feet deep. The driver must descend into the pit to connect the delivery hose to the fill pipe. What hazard does this belowgrade pit present, particularly when delivering volatile liquids?

A. The concrete walls of the pit may be structurally unsound and could collapse on the driver during the hose connection process

B. The belowgrade pit may accumulate rainwater that could contaminate the product during the hose connection and delivery

C. The metal fill pipe in the pit may be electrified by a ground fault from the facility's electrical system, creating a shock hazard

D. Heavierthanair flammable or toxic vapors from the product can settle into the belowgrade pit and accumulate to dangerous concentrations, creating an asphyxiation, poisoning, or explosion hazard for anyone inside the pit

44. A driver operating a loaded tank vehicle feels the vehicle pull sharply to the right when braking. The pull occurs consistently during every brake application. What is the most likely cause, and what is the concern for a tank vehicle?

A. The rightside tires have more tread than the leftside tires, creating uneven rolling resistance during braking

B. A brake on the right side is grabbing harder than the left side, creating uneven braking force — in a tank vehicle, this asymmetric braking can combine with liquid surge to cause a directional control problem during emergency stops

C. The liquid cargo has permanently shifted to the right side of the tank due to a failed internal baffle or bulkhead

D. The rightside suspension springs have weakened, lowering that side of the vehicle and causing the brakes to contact the drums unevenly

45. A tank vehicle equipped with a vapor recovery system is loading gasoline at a terminal. The vapor recovery hose is connected from the tank's vapor recovery valve to the terminal's vapor recovery system. During loading, the driver notices that the vapor recovery hose has separated from the tank's connection point and displaced gasoline vapors are now being released into the atmosphere rather than being captured. What should the driver do?

A. Continue loading because the disconnected vapor recovery hose is an environmental compliance issue, not a safety concern

B. Increase the loading flow rate to finish loading faster and minimize the total volume of vapors released into the atmosphere

C. Stop loading immediately, reconnect the vapor recovery hose, and verify the connection is secure before resuming — released gasoline vapors in the loading area create a fire and explosion hazard

D. Report the disconnection to the terminal operator by phone after departing the terminal, allowing them to fix the problem for the next truck

46. A tank vehicle driver completing a delivery notices that the product hose, while being disconnected from the customer's fill pipe, has residual product trapped inside it. Approximately 3 gallons of liquid remain in the 50foot hose. What should the driver do with this residual product?

A. Drain the residual product back into the cargo tank or into an approved container — never drain it onto the ground, into a storm drain, or into any unauthorized receptacle

B. Leave the residual product in the hose and stow the hose on the vehicle with the product still inside for the return trip

C. Drain the residual product onto the ground because 3 gallons is below the reportable quantity threshold for all common products

D. Ask the customer to accept the residual product by draining the hose into a bucket, since the product was purchased by the customer

47. A driver operating a loaded tank vehicle is following a school bus that makes frequent stops. Each time the bus stops, the driver must also stop. After several stopandgo cycles, the driver notices the vehicle seems to be swaying more than usual between stops. What is causing this and what should the driver do?

A. The bus exhaust fumes are affecting the driver's perception of vehicle stability, creating an illusion of increased swaying

B. The pavement near school bus stops is typically in worse condition than highway pavement, causing the vehicle to bounce and sway

C. The swaying is caused by wind gusts created by the school bus's repeated stopping and starting movements

D. The repeated stopandgo cycling is building cumulative surge oscillations that are amplifying with each cycle — the driver should increase following distance to reduce the frequency of stops and allow surge to dampen between cycles

48. A driver is performing a pretrip inspection on a DOT 407 stainless steel cargo tank used to transport industrial chemicals. The driver checks the tank's lining and notices small blisters forming on the interior coating surface visible through the manhole opening. What concern do these blisters indicate?

A. The blisters are a cosmetic defect in the coating that has no effect on the tank's structural integrity or chemical compatibility

B. The blisters indicate that the interior lining is failing — the coating is separating from the tank wall, potentially exposing the underlying metal to chemical attack and compromising the tank's ability to safely contain corrosive products

C. The blisters are actually condensation droplets that formed overnight and will evaporate once the tank is loaded with warm product

D. The blisters indicate the tank was overpressurized during its last qualification test, and the coating stretched beyond its elastic limit

49. A driver operating a partially loaded (40%) smooth bore tank vehicle is traveling on a highway when traffic ahead suddenly stops. The driver applies the brakes firmly. The vehicle has ABS. Despite the firm brake application, the vehicle seems to take noticeably longer to stop than the driver expected. After coming to a complete stop with adequate distance remaining, the driver feels the vehicle rock forward and backward several times. What has occurred?

A. The ABS system malfunctioned and prevented the brakes from applying full force to the wheels during the stop

B. The rear trailer brakes have worn beyond their effective range and are no longer generating sufficient friction to slow the vehicle

C. The smooth bore tank at 40 percent capacity produced significant forward surge during braking, pushing the vehicle forward and extending the stopping distance — the poststop rocking is the liquid oscillating back and forth as it settles

D. The drive tires lost traction on a patch of oil or fluid on the road surface, causing the vehicle to slide farther than expected

50. A tank vehicle driver has been making deliveries from a multicompartment tank all day. The final delivery empties the last compartment. The driver has one more task: returning the empty vehicle to the terminal, a 90mile highway drive. The tank previously carried Class 3 Flammable Liquid. Before departing on the empty return trip, what must the driver verify regarding placards?

A. All placards must be removed immediately because the tank is empty and no product remains on the vehicle

B. The placards should be replaced with "EMPTY" placards for the return trip to indicate the tank has been drained but not cleaned

C. New DANGEROUS placards should be applied for the return trip because the previous classspecific placards only apply while the tank contains liquid product

D. The FLAMMABLE placards must remain in place until the tank is properly cleaned and purged of all residue and vapors — an "empty" gasoline tank still contains flammable vapor and residue

Practice Exam 12: Answer Key and Explanations

1. C — A HazMat vehicle rollover is far more consequential than a standard vehicle rollover because the resulting release of hazardous materials can contaminate soil, waterways, and air, endanger emergency responders and the public, and require extensive environmental cleanup. Exceeding the advisory speed on a curve directly increases rollover probability, compounding the HazMatspecific consequences.

2. A — Displaying placards on a vehicle that no longer contains hazardous materials is a regulatory violation because it communicates false hazard information to emergency responders, law enforcement, and other motorists. Once the trailer is confirmed empty, clean, and free of hazardous residue, all placards must be removed or covered before loading nonhazardous freight.

3. D — Division 4.2 Spontaneously Combustible materials are those that are liable to spontaneous heating under normal transport conditions and may ignite without any external ignition source. They can selfheat through oxidation or other chemical processes and reach their ignition temperature without sparks, flames, or external heat. Division 4.3, not 4.2, is the class that reacts with water.

4. B — Division 6.1 materials with Packing Group I and Inhalation Hazard Zone A are classified as Table 1 materials, requiring POISON INHALATION HAZARD placards at any quantity regardless of weight. The 500pound weight is irrelevant — Table 1 classification is based on the material's inherent danger level, not on the quantity being transported.

5. A — Packages dropped from four feet may have sustained internal damage — cracked liners, weakened seams, loosened closures — that is not externally visible. This hidden damage can manifest as a leak during the vibration, pressure changes, and temperature fluctuations of highway transport. The shipper should inspect the dropped packages before the driver accepts them.

6. C — A flat or leaking tire must be addressed before the driver continues transporting hazardous materials. Tire failure during transport can cause loss of vehicle control, and a tire fire — which develops from friction on a flat tire's rim or sidewall — is particularly dangerous near hazardous cargo that may be flammable, reactive, or explosive.

7. D — Evasive maneuvers that are routine in a standard truck become significantly more dangerous in a HazMat vehicle. A hard swerve in a loaded tank vehicle carries extreme rollover risk from lateral liquid surge and high center of gravity. Hard braking in any HazMat vehicle triggers forward cargo surge that extends stopping distance. Both common evasive responses carry amplified risks.

8. B — At a total transport index of 48, the radioactive packages must be loaded with specific separation distances between the packages and the driver's cab and any other occupied space. The transport index determines these distances — higher TI values require greater separation to limit cumulative radiation exposure. The driver must consult the separation distance tables in 49 CFR §177.842.

9. A — Highlighting a hazardous material entry in a contrasting color is one of the accepted methods for distinguishing HazMat entries from nonhazardous entries on the same shipping paper. The highlighted entry stands out visually from the unhighlighted entries, allowing immediate identification of the hazardous material by the driver, inspectors, or emergency responders.

10. C — Placards are displayed on the exterior of vehicles specifically for public visibility — they are designed to be seen by other motorists, law enforcement, and emergency responders. There is no law prohibiting members of the public from photographing placards on vehicles traveling on public roads. The driver should respond professionally while remaining alert to any genuinely suspicious behavior.

11. A — Division 4.3 Dangerous When Wet is a Table 1 material requiring DANGEROUS WHEN WET placards at any quantity — the 200 pounds triggers this automatically. Division 2.1 Flammable Gas at 900 pounds does not independently reach the 1,001pound Table 2 threshold. However, the combined total of all Table 2 materials (with the Table 1 material counted) exceeds 1,001 pounds, so DANGEROUS placards could supplement the mandatory Table 1 placard.

12. D — Division 1.1 Explosives carry the most restrictive attendance requirements. While the general attendance rule allows the driver to be within 100 feet with clear view, the extreme danger of Division 1.1 materials means the strictest interpretation should apply. The driver should exercise careful judgment — a 20minute restaurant visit, even with line of sight, may not satisfy the heightened standard expected for the most dangerous explosive materials.

13. B — Protruding nail heads on the trailer floor can puncture, tear, or abrade the bottom surfaces of hazardous materials packages as they are slid into position during loading or as they shift during transport vibration. A punctured package can begin leaking hazardous material onto the trailer floor. The driver should require the nail heads to be flattened or covered before loading HazMat packages.

14. C — The most effective way to avoid being held responsible for shipping paper violations is to review every entry carefully before accepting the shipment. The driver should verify the five basic description elements, confirm the emergency response telephone number is present and appears to be a valid 24hour number, and check that the shipper's certification is signed.

15. D — The marine pollutant designation indicates the material can cause significant environmental damage to aquatic ecosystems if released. While the designation does not change basic transport requirements, the driver should understand that a release near waterways — including from a bridge over a river — triggers additional environmental response obligations and can cause widespread ecological harm.

16. A — A hazard warning label that is partially torn to the point where the hazard class symbol is no longer visible fails to communicate the required hazard information. Labels must be visible, legible, and complete to serve their communication function. The driver should refuse the package until the shipper replaces the torn label with an intact one.

17. C — While no posted restriction means the tunnel is not officially prohibited for HazMat vehicles, the driver should consider the heightened consequences of a flammable gas release inside a confined tunnel space — limited ventilation, restricted evacuation, and difficulty for

responders to access the scene. Professional judgment may favor the alternate route even when the tunnel is technically permitted.

18. B — Shutting off the engine during loading and unloading of hazardous materials is both a facility requirement and a regulatory requirement under 49 CFR Part 177 (unless the engine is needed to operate essential transfer equipment like a PTO). The facility's noidling sign aligns with the regulatory requirement, and the driver must comply.

19. D — While there is no HazMatspecific regulation prohibiting cell phone use beyond general distracted driving laws, the consequences of distracted driving are amplified when transporting hazardous materials. Reduced attention means slower reaction times, delayed hazard recognition, and imprecise vehicle control — all of which increase the probability and severity of a HazMat incident.

20. B — "PG II" stands for Packing Group II, which indicates the material presents a medium degree of danger within its hazard class. Packing Group I indicates great danger, PG II indicates medium danger, and PG III indicates minor danger. The packing group affects packaging requirements and helps communicate the relative severity of the hazard to everyone in the transportation chain.

21. C — The driver should take practical steps to have access to emergency response information. While the ERG is not federally mandated for highway drivers to carry physically, it is strongly recommended and is the carrier's policy. The ERG mobile application provides the same information and is a practical substitute. However, the absence of the physical book does not legally prevent departure.

22. B — Division 6.2 Infectious Substances contain biological agents — bacteria, viruses, parasites, fungi, or prions — that cause disease through infection of living organisms. This is fundamentally different from Division 6.1 Toxic materials, which cause harm through chemical poisoning. The packaging, handling, and emergency response for infectious substances focus on preventing biological exposure rather than chemical toxicity.

23. A — The regulations require that HazMat entries be distinguished from nonhazardous entries on the same shipping paper, but they do not mandate any specific alphabetical ordering among the HazMat entries themselves. Listing them first and separating them from nonhazardous items satisfies the distinguishing requirement regardless of the internal order of the HazMat entries.

24. D — A strong ammonia odor indicates a likely leak from one or more cylinders. Anhydrous ammonia is corrosive and toxic by inhalation — entering an enclosed trailer with elevated ammonia concentrations can cause severe respiratory injury or death. The driver should not open the trailer doors (which could release a concentrated vapor cloud) and should move upwind, secure the area, and call for professional response.

25. C — The driver should remain with the HazMat vehicle and monitor the accident scene ahead for any developing hazard — fire, spreading debris, or fuel spills — that could threaten the placarded vehicle. Leaving the vehicle unattended to assist at the accident scene violates the attendance requirement and removes the driver from the ability to move the vehicle if conditions deteriorate.

26. B — Elevatedtemperature materials are transported at temperatures high enough to cause severe thermal burns on contact — at or above 212°F for liquids and 464°F for solids. The "HOT" designation on shipping papers alerts everyone in the transportation chain that the material presents an immediate burn hazard beyond its primary chemical hazard classification.

27. A — Division 2.3 Poison Gas is a Table 1 material requiring POISON GAS placards at any quantity — the 50 pounds triggers this automatically. Class 3 Flammable Liquid at 1,200 pounds exceeds the 1,001pound Table 2 threshold, requiring FLAMMABLE placards. Both materials independently trigger their respective placarding requirements, so both must be displayed on all four sides.

28. D — An ABS warning light indicates a potential problem with the antilock braking system, but the base brakes still function. The driver can continue to the nearest safe stop for inspection, but should understand that without ABS, hard braking could cause wheel lockup — which is particularly dangerous with a HazMat load where maintaining directional control is critical. The system should be inspected promptly.

29. B — Packages stacked above the securing points are unsecured and can shift, topple, or fall during transport due to vehicle movement, braking, curves, and road irregularities. For hazardous materials, a fallen package could rupture and cause a release. The driver should require additional securement to be installed or have the load restacked so all packages are within the secured zone.

30. A — Flash flooding in a lowlying area could submerge or damage a vehicle carrying hazardous materials, potentially causing containers to rupture or float away, releasing their contents into floodwater. Contaminated floodwater can spread hazardous materials over a vast area, affecting water supplies, ecosystems, and populated areas downstream. The driver should monitor conditions and consider alternate routing.

31. B — Before loading any product into a cargo tank compartment, the driver should visually inspect the interior through the manhole opening for residue from a previous load, standing water, debris, or contamination that could affect product quality or indicate a previous incompatible product was carried. Crosscontamination between loads is a serious concern for product integrity and safety.

32. C — Lane changes in a smooth bore tank at 75 percent capacity must be executed gradually to minimize lateral liquid surge. The driver should signal early, check mirrors thoroughly, and move the steering wheel gradually over several seconds. Abrupt steering inputs can trigger lateral oscillations that build rapidly in an unbaffled tank, potentially reaching the rollover threshold within two to three cycles.

33. A — A cracked weld seam is a structural failure regardless of the product inside the tank. Weld cracks propagate under road vibration, pressure fluctuations, and thermal cycling. What starts as a small crack producing a slow drip can rapidly expand into a major structural failure, potentially causing a catastrophic tank rupture. The driver should stop and report the crack to the carrier immediately.

34. D — On a downhill grade, the liquid cargo settles toward the front of the tank, adding gravitational momentum to the vehicle's forward motion. This additional forward force from the liquid's weight component can exceed the engine braking's retardation capability, causing

the speed to increase beyond the selected gear's holding capacity. The driver should supplement with controlled, brief service brake applications.

35. B — The driver must remain at the delivery point and actively monitor the fill process throughout the entire delivery. Residential heating oil tanks are small (275 gallons), and the pump can fill them quickly. Walking away to the cab means the driver cannot detect when the tank is full, resulting in an overfill spill that releases heating oil into the customer's basement, yard, or foundation area.

36. A — A traffic circle creates a continuous curve rather than a momentary turn. The liquid surges to the outside of the curve and remains there for the entire duration of the vehicle's time in the roundabout. This sustained lateral displacement maintains an elevated center of gravity for a prolonged period, creating a persistent rollover risk that is more sustained than a single turn.

37. C — An internal valve that closes properly from the remote handle but will not reopen from the remote handle indicates a mechanical malfunction in the valve or control linkage. The valve must operate reliably in both directions — closing in an emergency and opening for normal operations. A valve that cannot be remotely reopened makes the compartment inoperable for loading and delivery until repaired.

38. B — A 2 percent outage loaded in cool morning temperatures may be insufficient to accommodate the extreme thermal expansion that occurs when the liquid heats up to 115°F or higher in desert conditions. If the liquid expands beyond the available outage space, the tank can become hydraulically full, and any further expansion produces rapid pressure increases that could rupture the tank or blow gaskets.

39. D — An overheating engine near a cargo tank is a fire risk — engine fires can spread to the tank area, and the heat alone could affect tank fittings and product. The driver should close all discharge valves to secure the remaining product, disconnect the hose, and not resume operations until the overheating is diagnosed and resolved. Attempting to restart a knownoverheating engine compounds the fire risk.

40. B — Any drip from the discharge valve area indicates a valve, gasket, or fitting problem that should be investigated promptly, even with a nonhazardous liquid. What starts as a minor drip can worsen during continued transport vibration and temperature changes. The driver should pull over safely and inspect the discharge area to identify and address the source before the leak worsens.

41. C — Wet steel plates are among the most slippery road surfaces a driver can encounter — traction drops dramatically compared to even wet asphalt. In a tank vehicle, the combination of minimal traction on steel plates and unchanged liquid surge forces during braking or steering creates a significantly heightened risk of loss of directional control. The driver should reduce speed and avoid braking or steering inputs while on the plates.

42. A — DOT 412 cargo tanks are specifically designed for corrosive liquid transport, constructed with materials resistant to chemical attack — typically stainless steel or lined carbon steel. DOT 406 tanks are aluminum, which can be rapidly corroded by strong acids or bases. Using a DOT 406 for corrosives could result in the acid eating through the tank wall during transport.

43. D — Belowgrade pits are confined spaces where heavierthanair vapors from volatile products can accumulate and concentrate. Flammable vapors can reach explosive concentrations in the pit, and toxic vapors can displace oxygen or reach lethal inhalation levels. A person entering the pit without monitoring the atmosphere could be overcome by vapors before realizing the danger.

44. B — A brake pulling consistently to one side indicates uneven braking force — one side is grabbing harder than the other. In a tank vehicle, this asymmetric braking creates a rotational force on the vehicle during every brake application. During an emergency stop, the combination of uneven braking and liquid surge could cause the vehicle to spin or jackknife, creating a lossofcontrol scenario.

45. C — A disconnected vapor recovery hose during gasoline loading allows displaced flammable vapors to escape into the open air around the loading area. These vapors can accumulate to explosive concentrations near the manhole opening and around the vehicle. Loading must be stopped immediately, the hose reconnected and secured, and the connection verified before resuming the transfer.

46. A — Residual product in the delivery hose must be drained back into the cargo tank or into an approved container. Draining product onto the ground, into storm drains, or into unauthorized containers is an environmental violation that can contaminate soil and waterways. Even small quantities of certain products can cause significant environmental damage and regulatory consequences.

47. D — Repeated stopandgo cycles behind a school bus create cumulative surge oscillations in the tank. Each braking event triggers a surge that may not fully dampen before the next stop is required, progressively amplifying the rocking motion. The driver should increase following distance to reduce the stopstart frequency and allow the liquid more time to settle between each cycle.

48. B — Blisters in the interior coating indicate the lining is separating from the tank wall — a condition called coating delamination. Failed coating exposes the underlying metal to chemical attack from the products the tank carries. Over time, unprotected metal corrodes, thins, and can eventually fail. The driver should report the blistering for maintenance evaluation before loading corrosive products.

49. C — A smooth bore tank at 40 percent capacity produces significant forward surge during braking because the liquid has extensive room to build momentum with no baffles to slow it. This surge extends the stopping distance beyond what the driver expected. The poststop rocking is the liquid oscillating back and forth between the front and rear heads as it dissipates energy through friction and viscosity.

50. D — An "empty" cargo tank that previously carried Class 3 Flammable Liquid still contains residual liquid film and flammable vapors that present the same fire and explosion hazards as the original product. The FLAMMABLE placards must remain in place until the tank is properly cleaned and purged of all residue and vapors. Simply draining the last gallon does not eliminate the hazard.