PRACTICE EXAM 16: HAZMAT & TANKER SIMULATION (50 QUESTIONS)

HAZMAT SECTION (Questions 1–30)

1. A driver is transporting a mixed load containing 1,500 pounds of Class 3 Flammable Liquid and 800 pounds of Division 5.1 Oxidizer. Both are Table 2 materials. The driver displays FLAMMABLE placards for the Class 3 exceeding 1,001 pounds. However, the driver does not display OXIDIZER placards because Division 5.1 at 800 pounds is below its individual threshold. A DOT inspector stops the vehicle. Is the current placarding compliant?

A. No, because both materials exceed 1,001 pounds when combined and both classspecific placards are always required in that case

B. No, because any time an oxidizer is loaded with a flammable liquid, special dualplacarding rules apply regardless of quantity

C. Yes, but the driver also has the option to display DANGEROUS placards instead of or alongside the FLAMMABLE placards

D. Yes, the FLAMMABLE placard is mandatory because Class 3 exceeds 1,001 pounds — the OXIDIZER at 800 pounds does not independently reach the threshold, though the driver could add OXIDIZER placards voluntarily

2. A driver arrives at a shipper's facility to pick up a load of hazardous waste. The Uniform Hazardous Waste Manifest is provided, but the driver notices the manifest is a photocopy rather than an original multipart carbon copy form. The shipper says the original was lost and the photocopy contains all the same information. Should the driver accept this manifest?

A. Yes, because photocopies are legally equivalent to originals for all federal hazardous waste documentation

B. The driver should not accept a photocopy as the manifest — the Uniform Hazardous Waste Manifest is a multicopy document where each copy serves a specific chainofcustody function, and a photocopy may not satisfy the regulatory requirements

C. Yes, as long as the shipper signs the photocopy and writes "COPY — ORIGINAL LOST" across the top of each page

D. No, but only because photocopied documents cannot be scanned at the disposal facility's automated intake system

3. A driver transporting placarded hazardous materials is driving on a highway when a deer runs onto the road approximately 150 feet ahead. The driver must decide between hard braking and swerving. What principle should guide the driver's decision in a standard dry van carrying packaged HazMat?

A. Always swerve because colliding with a deer will rupture the trailer and release all hazardous materials immediately

B. Always brake because swerving any commercial vehicle automatically causes a jackknife regardless of speed or road conditions

C. Hard braking is generally safer than a hard swerve in a loaded commercial vehicle because a swerve risks rollover or jackknife, and the consequences of losing vehicle control with a HazMat load are far worse than a deer strike

D. Neither option matters because deer are too small to cause any damage to a commercial vehicle regardless of speed

4. Under the Hazardous Materials Regulations, what must a driver do if they discover during transport that a package of hazardous material has begun leaking inside the trailer?

A. Stop the vehicle in a safe location, assess the situation from a safe distance without contacting the leaked material, and follow the ProtectNotifyContain priority sequence based on the severity and type of release

B. Continue driving to the nearest truck stop where better cleanup equipment and a paved surface are available

C. Open all trailer doors and vents while driving to ventilate the cargo area and dissipate any accumulated vapors

D. Remove the leaking package from the trailer by hand and leave it on the roadside with a note identifying the material

5. A vehicle displays POISON GAS placards (Division 2.3, Table 1). The driver delivers the entire poison gas shipment at the first stop. The driver then picks up 2,000 pounds of Class 8 Corrosive at the same facility. After the swap, what placards must be displayed?

A. Both POISON GAS and CORROSIVE placards, because the vehicle previously carried poison gas and residue may remain

B. DANGEROUS placards, because the vehicle has carried two different hazard classes during the same trip

C. POISON GAS placards must remain because Table 1 placards cannot be removed during a multistop trip

D. CORROSIVE placards only — the poison gas has been completely removed, and the Class 8 at 2,000 pounds exceeds the 1,001pound Table 2 threshold

6. A driver is at a chemical distribution center loading packages of hazardous materials. The dock supervisor asks the driver to sign a document certifying that the driver has personally inspected each package and confirmed the accuracy of all labels and markings. The driver has verified the labels and markings match the shipping papers. Should the driver sign this document?

A. No, because signing any document at a shipper's facility automatically transfers all liability for the shipment from the shipper to the driver

B. The driver may sign a facilityspecific acknowledgment that they have verified the packages match the shipping papers — this is a common industry practice that documents the driver's verification, not a transfer of the shipper's labeling responsibility

C. No, because only the shipper's quality control inspector is authorized to certify the accuracy of hazard labels under federal regulation

D. Yes, but the driver must also have the document notarized before it becomes legally binding

7. A driver is transporting 600 pounds of Division 4.3 Dangerous When Wet material (Table 1) and 1,200 pounds of Division 2.2 NonFlammable Gas (Table 2). What placards must be displayed?

A. Both DANGEROUS WHEN WET and NONFLAMMABLE GAS placards — Division 4.3 is Table 1 at any quantity, and Division 2.2 exceeds the 1,001pound Table 2 threshold

B. Only NONFLAMMABLE GAS placards, because Division 2.2 has the greater weight and takes priority

C. DANGEROUS placards only, because two hazard classes are present and the combined total exceeds 1,001 pounds

D. Only DANGEROUS WHEN WET placards, because Table 1 materials always override all Table 2 placarding

8. A driver transporting Class 7 Radioactive material checks the packages during a stop and finds one package's YellowIII label has a transport index of 4.2 written on it. Another YellowIII package shows a TI of 3.8. What is the total transport index for these two packages, and why does it matter?

A. The TI values are averaged (4.0) to determine the applicable separation distance, because averages provide more accurate radiation estimates

B. The TI values are irrelevant for highway transport and are used only for air cargo loading calculations

C. The total transport index is 8.0 (4.2 + 3.8) — this sum determines the minimum separation distances from occupied spaces and the maximum number of packages that may be loaded on the vehicle

D. The higher TI value (4.2) is used alone for all calculations, because the more radioactive package dictates the response for the entire shipment

9. A driver picks up a load of hazardous materials and reviews the shipping papers. The shipper's certification reads: "This is to certify that the abovenamed materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation." The certification is followed by a printed name but no handwritten signature. Is this acceptable?

A. Yes, because a printed name constitutes a valid signature for all federal shipping document purposes

B. No, the certification must be signed — a printed name alone does not constitute a signature, and the driver should request that the shipper sign the certification before accepting the shipment

C. Yes, as long as the printed name matches the shipper's business license name on file with the state's department of commerce

D. No, but the driver may accept the shipment if the shipper provides a verbal confirmation of the certification over the phone

10. A vehicle is carrying 900 pounds of Class 3 Flammable Liquid and 200 pounds of Division 2.3 Poison Gas. The Class 3 is Table 2 and the Division 2.3 is Table 1. What is the correct placarding decision?

A. FLAMMABLE placards only, because Class 3 has the higher weight on the vehicle

B. DANGEROUS placards, because two different hazard classes are present and the combined total exceeds 1,001 pounds

C. No placards required because the Class 3 does not reach 1,001 pounds and the Poison Gas weight is only 200 pounds

D. POISON GAS placards for the Table 1 material at any quantity — the Class 3 at 900 pounds does not independently reach the Table 2 threshold, so no FLAMMABLE placard is required

11. A driver transporting placarded hazardous materials encounters a checkpoint established by local law enforcement. Officers are checking vehicles for compliance with a local emergency order related to a nearby chemical plant incident. The officers ask to see the driver's shipping papers, CDL, and HazMat endorsement. Must the driver comply?

A. Yes, the driver must cooperate with law enforcement and provide the requested documentation — shipping papers, CDL, and endorsement verification are all documents the driver must have readily available

B. No, only federal DOT inspectors have the authority to request HazMat documentation from commercial drivers

C. Yes, but the driver may refuse to show the shipping papers because they contain proprietary business information protected by trade secret laws

D. No, because local law enforcement has no jurisdiction over federal HazMat transportation regulations

12. A driver transporting Class 3 Flammable Liquid in a dry van trailer parks at a delivery location. While waiting for the dock to clear, the driver leaves the engine running to power the cab's air conditioning on a hot day. Is this acceptable?

A. Yes, because the engine is at the front of the tractor, far from the cargo in the trailer, and presents no risk to the flammable material

B. Yes, as long as the driver remains in the cab and the vehicle is attended at all times during the idle period

C. The driver should be cautious — while idling at a delivery location is common, the engine must be shut off before loading or unloading begins, as running engines are prohibited during HazMat loading and unloading operations

D. No, engines must be shut off at all times when a placarded vehicle is parked, including during wait times at delivery locations

13. A driver is preparing to transport a load of hazardous materials. The carrier provides the driver with a route plan that includes specific instructions to avoid certain tunnels, bridges, and residential areas. The driver discovers a shorter route that passes through a residential neighborhood but saves 30 minutes of drive time. Should the driver take the shorter route?

A. Yes, because the carrier's route plan is advisory only and drivers have final authority over routing decisions

B. Yes, as long as the driver maintains the posted speed limit through the residential area and does not stop for any reason

C. No, but only because the shorter route exceeds the driver's daily mileage allotment under the carrier's compensation structure

D. No, the driver should follow the carrier's route plan — it was developed to comply with HazMat routing regulations that require avoiding populated areas, and deviating to save time compromises this safety principle

14. A driver transporting Division 1.4 Explosives (1,100 pounds, Table 2) arrives at a delivery facility. After delivering 300 pounds of the explosives, the remaining load is 800 pounds. What placard change is required?

A. No change — the EXPLOSIVES 1.4 placards should remain because the vehicle previously carried over 1,001 pounds and the placard protects against residue

B. The EXPLOSIVES 1.4 placards should be removed because the remaining 800 pounds no longer meets the 1,001pound Table 2 threshold

C. Replace the EXPLOSIVES 1.4 placards with DANGEROUS placards because the quantity has dropped below the classspecific threshold

D. Add a secondary placard reading "PARTIAL LOAD" below the existing EXPLOSIVES 1.4 placards to indicate the reduced quantity

15. A driver is hauling a placarded load when a severe earthquake shakes the region. The vehicle is on a bridge when the earthquake begins. What should the driver do?

A. Continue driving off the bridge if possible — bridges are vulnerable to earthquake damage, and being on a bridge during or after an earthquake is extremely dangerous — then stop in a safe open area away from overpasses and structures

B. Stop the vehicle immediately on the bridge and duck under the dashboard for protection until the shaking stops

C. Accelerate to maximum speed to cross the bridge before it collapses from the earthquake damage

D. Exit the vehicle on the bridge and lie flat on the roadway between the tractor and trailer for protection

16. A shipping paper entry reads: "Acetone, 3, UN1090, PG II, 1,200 lbs." A second entry reads: "Toluene, 3, UN1294, PG II, 800 lbs." Both materials are Class 3 Flammable Liquid. How are these two entries treated for the purpose of calculating the placarding threshold?

A. Each entry is evaluated independently — Acetone at 1,200 lbs requires FLAMMABLE placards, but Toluene at 800 lbs does not independently reach 1,001 lbs

B. The entries cannot be combined because they have different UN identification numbers, making them different materials for placarding purposes

C. Both entries are in the same hazard class (Class 3), so their weights are combined: 1,200 + 800 = 2,000 pounds of Class 3 material, which exceeds the 1,001pound threshold — FLAMMABLE placards are required

D. Only the heavier material (Acetone) counts toward the threshold — the lighter material is exempt when two Class 3 materials are present

17. A driver transporting hazardous materials on a twolane highway encounters a road closure ahead due to a landslide. The only detour available is a narrow gravel road through a mountainous area with steep grades and sharp curves. The driver's vehicle is a loaded cargo tank. What should the driver consider before taking the detour?

A. The detour's steep grades and sharp curves present heightened rollover risk for a loaded cargo tank that may exceed the route's safe operating limits

B. Gravel road detours are prohibited for all commercial vehicles over 26,000 pounds gross vehicle weight

C. The detour is acceptable because any road open to public traffic is automatically safe for loaded commercial tank vehicles

D. The driver should take the detour at maximum speed to minimize the total time spent on the unfamiliar and potentially dangerous route

18. A driver is reviewing shipping papers for a multimaterial load. One entry shows "Flammable liquid, n.o.s. (contains methanol and toluene), 3, UN1993, PG II, 2,000 lbs." Why does the entry include two chemical names in parentheses after the n.o.s. proper shipping name?

A. The two names represent the previous and current lot numbers of the same material in the manufacturer's production tracking system

B. When an n.o.s. proper shipping name is used, the technical names of the hazardous components that contribute to the material's classification must be shown in parentheses for precise identification

C. The names in parentheses are optional marketing descriptions provided by the manufacturer for the customer's purchasing department

D. The two chemical names indicate the material was produced by blending two incompatible substances, which requires special dualentry documentation

19. A driver is transporting a placarded load on a highway and sees a sign reading "WEIGH STATION — 2 MILES — ALL TRUCKS." The driver knows the vehicle is within legal weight limits. Must the HazMat vehicle enter the weigh station?

A. Yes, all commercial vehicles must enter open weigh stations as directed by posted signs — HazMat vehicles are not exempt from weigh station requirements

B. No, because HazMat vehicles are exempt from weigh station entry requirements to minimize stopping with hazardous cargo

C. Yes, but only if the vehicle's gross weight exceeds 40,000 pounds — lighter HazMat vehicles may bypass open weigh stations

D. No, because stopping a placarded vehicle at a weigh station creates a security risk by exposing the cargo to public view

20. A driver is at a loading dock when the shipper tells the driver that the shipment includes packages of Division 6.1 Toxic material with a subsidiary hazard of Class 3 Flammable Liquid. The shipping papers confirm both hazards, and Column 6 of the Hazardous Materials Table specifies both TOXIC and FLAMMABLE LIQUID labels. If the total weight exceeds 1,001 pounds, what placards are required?

A. Only POISON placards, because the primary Division 6.1 hazard determines the sole placard and subsidiary hazards are displayed through labels only

B. Only FLAMMABLE placards, because the flammable hazard presents a greater immediate risk to emergency responders than the toxic hazard

C. Both POISON and FLAMMABLE placards on all four sides — when Column 6 requires both a primary and subsidiary label, the vehicle must display corresponding primary and subsidiary placards

D. DANGEROUS placards, because materials with two hazard designations always use the DANGEROUS placard as a universal substitute

21. A driver transporting hazardous materials discovers that the vehicle's headlights have failed while driving at night. The taillights and marker lights are still functioning. What should the driver do?

A. Continue driving using the marker lights and taillights for visibility, since the amber and red lights provide adequate warning to other motorists

B. Follow closely behind another truck and use their headlights to illuminate the road ahead for both vehicles

C. Pull over to a safe location immediately — driving at night without headlights is extremely dangerous regardless of cargo type, and with a HazMat load, a collision due to poor visibility could have catastrophic consequences

D. Turn on the vehicle's fourway hazard flashers as a substitute for the failed headlights and continue to the next exit

22. A driver picks up a hazardous materials shipment. The shipping papers are correct, but the driver notices that one package has two identical primary hazard labels — two Class 3 Flammable Liquid labels side by side on the same surface. Is this a problem?

A. No, having a duplicate label is not a regulatory violation — the requirement is that the correct label must be present, and having two of the same label does not create any compliance issue

B. Yes, because duplicate labels confuse emergency responders into thinking the package contains twice the amount of material listed on the shipping papers

C. Yes, because the second label position should be occupied by a subsidiary hazard label, and the duplicate indicates a missing subsidiary

D. No, but the driver should peel off the duplicate label because having two identical labels indicates the package was previously opened and resealed

23. A driver transporting Class 8 Corrosive in a cargo tank is making a delivery. During unloading, a small amount of corrosive liquid splashes onto the driver's bare forearm. The driver feels an immediate burning sensation. What is the correct first aid response?

A. Apply petroleum jelly to the affected area to seal the corrosive against the skin and prevent further absorption

B. Neutralize the corrosive with baking soda (for acid burns) or vinegar (for base burns) before flushing with water

C. Cover the affected area with a dry bandage and continue unloading, seeking medical attention after the delivery is complete

D. Immediately flush the affected skin with large amounts of clean water for at least 1520 minutes, then seek medical attention — delay allows the corrosive to cause deeper tissue damage

24. A driver is transporting 3,500 pounds of Division 5.1 Oxidizer. The shipping papers show "RQ" before the proper shipping name. What does the "RQ" designation require the driver to know?

A. The "RQ" means the material qualifies for the reducedquantity packaging exception, allowing smaller containers than normal

B. If any of this material is released during transport, mandatory notification to the National Response Center at 18004248802 is required because the quantity meets or exceeds the material's reportable quantity

C. The "RQ" indicates the material has been recalled by the manufacturer and must be returned to the origin point within 72 hours

D. The "RQ" designation requires the driver to carry an additional fire extinguisher rated specifically for oxidizer fires

25. A driver receives a call from the dispatcher saying, "Your next pickup is a rush load of cleaning chemicals — just grab it and go, no time for the usual paperwork review." When the driver arrives, the shipper hands over the shipping papers quickly. Should the driver skip the shipping paper review to save time?

A. Yes, because the dispatcher has assumed responsibility for the shipment by authorizing the expedited pickup

B. Yes, as long as the driver reviews the papers within the first hour of driving and corrects any issues by phone with the shipper

C. No, the driver must review the shipping papers before accepting any HazMat shipment regardless of time pressure — incomplete or incorrect papers could endanger the driver and emergency responders

D. No, but the driver may delegate the review to the dock worker who loaded the packages as long as the dock worker has a valid CDL

26. A driver's vehicle is loaded with hazardous materials. During the pretrip inspection, the driver discovers that one of the rear tires on the trailer has a visible sidewall bulge — the tire is still inflated and holds pressure. The tire has not yet failed. Should the driver depart with this tire?

A. No, a sidewall bulge indicates internal structural damage that makes the tire susceptible to sudden failure — the tire should be replaced before departing, especially with a HazMat load where a tire blowout creates amplified risks

B. Yes, because a tire that is still inflated and holding pressure is serviceable regardless of visible bulges or deformities

C. No, but only because tire sidewall bulges are specifically prohibited for vehicles carrying Division 1 Explosives — other hazard classes are unaffected

D. Yes, as long as the bulge is smaller than a golf ball in diameter, which is the regulatory threshold for tire surface defects

27. A driver is transporting a load of hazardous materials through a city. The driver's route passes by a large outdoor concert venue where thousands of people are gathered. Is there any regulatory concern about the proximity of the HazMat vehicle to this large crowd?

A. No, because HazMat routing restrictions apply only to residential neighborhoods and school zones, not entertainment venues

B. Yes, HazMat vehicles should avoid places where crowds assemble when practicable — if an alternate route avoiding the venue is available, the driver should consider using it

C. No, because the posted speed limit on the road past the venue automatically provides adequate safety clearance for all vehicle types

D. Yes, but only if the concert venue is within 500 feet of the roadway — venues more than 500 feet from the road are unaffected

28. A driver transporting Division 2.1 Flammable Gas discovers during a stop that one compressed gas cylinder has a small dent in its side wall. The dent does not appear to have punctured the cylinder, and no gas is leaking. However, the dent is in an area that the cylinder's DOT specification requires to be free of defects. What should the driver do?

A. Continue transporting the cylinder because it is not actively leaking and the dent is only cosmetic

B. Spray the dented area with soapy water to test for leaks — if no bubbles appear, the cylinder is safe to transport

C. Mark the dented cylinder with a "DAMAGED" label and continue to the delivery destination where it can be professionally inspected

D. The driver should refuse to continue transporting the damaged cylinder — a dent in a specificationrequired defectfree zone compromises the cylinder's structural integrity under pressure and the cylinder should be isolated for professional evaluation

29. A driver has been transporting hazardous materials all day and is approaching the end of available driving time under hoursofservice regulations. The next delivery is approximately 45 minutes away. The driver is alert and feels fine. Can the driver continue to the delivery?

A. Yes, because the driver feels alert and 45 minutes is a short enough distance to complete safely regardless of hoursofservice limits

B. Yes, because HazMat drivers are exempt from hoursofservice limits when the remaining trip distance is under 50 miles

C. The driver must comply with hoursofservice regulations regardless of how they feel — if driving time will be exhausted before reaching the delivery, the driver must stop and rest, even if the delivery is close

D. Yes, as long as the driver calls the carrier and obtains verbal authorization to exceed the hoursofservice limit for this single trip

30. A vehicle is carrying 400 pounds each of Class 3 Flammable Liquid, Class 8 Corrosive, and Division 5.1 Oxidizer — a total of 1,200 pounds of Table 2 materials from three different hazard classes. No single class reaches 1,001 pounds. What is the correct placarding approach?

A. DANGEROUS placards may be used because the combined aggregate of all Table 2 materials exceeds 1,001 pounds while no single class reaches that threshold independently

B. All three classspecific placards must be displayed because carrying three or more hazard classes always triggers individual placarding

C. No placards are required because no individual class reaches 1,001 pounds and the DANGEROUS placard requires only two classes

D. Only FLAMMABLE placards are needed because Class 3 takes automatic priority when three or more hazard classes are present

TANKER SECTION (Questions 31–50)

31. A tank vehicle driver is hauling a full load of liquid product in a smooth bore tank at 55 mph on a straight highway. A vehicle two cars ahead suddenly brakes for no apparent reason, causing the vehicle directly ahead of the tank truck to brake as well. The tank vehicle driver begins braking to maintain following distance. What sequence of events should the driver anticipate inside the tank?

A. The liquid will immediately settle to the bottom of the tank and become denser, increasing the vehicle's traction and shortening the stopping distance

B. The liquid will surge forward as a single unrestricted mass, slam against the front head, rebound backward, and oscillate back and forth — each forward surge pushes the vehicle closer to the vehicle ahead even while the brakes are applied

C. The liquid will split into two equal halves — one pressing forward and one pressing backward — creating a balanced force with no net effect on stopping distance

D. The liquid will spiral in a circular motion inside the smooth bore tank, converting forward momentum into rotational energy that assists with deceleration

32. A driver operating a loaded tank vehicle needs to cross a single set of railroad tracks at a crossing equipped with flashing lights and automatic gates. The lights are not flashing and the gates are up. The vehicle is placarded. What must the driver do?

A. Proceed across the tracks at normal speed because the inactive signals confirm no train is approaching

B. Slow to 15 mph and proceed across without stopping, which provides adequate caution at a signalized crossing

C. Stop only if the driver can physically see a train approaching from either direction through clear sightlines

D. Stop the vehicle within 50 feet but not closer than 15 feet from the nearest rail, look and listen in both directions, and proceed only when certain no train is approaching

33. A tank vehicle carrying a nonhazardous liquid has been involved in a lowspeed sideswipe collision with a guardrail. The collision scraped the right side of the tank shell. Upon inspection, the driver can see a shallow gouge in the tank's exterior surface but no perforation or leak. What should the driver do?

A. Report the damage to the carrier and have the gouge professionally evaluated — even a shallow gouge reduces the shell's wall thickness at that point, and road vibration plus internal pressure could cause the weakened area to fail during continued transport

B. Continue to the destination because nonhazardous liquid tanks do not require structural integrity beyond basic containment

C. Fill the gouge with epoxy putty from a roadside repair kit and continue driving after the repair cures for 30 minutes

D. Continue driving but reduce the tank's internal pressure by opening the pressurevacuum vent manually

34. A tank vehicle equipped with a fivecompartment petroleum tank is fully loaded. The driver begins deliveries and empties compartments 1, 3, and 5 (alternating loaded and empty). Compartments 2 and 4 remain fully loaded. What unique handling characteristic does this alternating loadedempty pattern create?

A. The alternating pattern creates ideal weight distribution because the loaded compartments are evenly spaced along the trailer

B. The alternating pattern causes the product in loaded compartments to vibrate at the trailer's resonant frequency, creating excessive noise

C. The weight is concentrated at two nonadjacent points along the trailer, creating an unusual weight distribution that may produce unpredictable handling, potential axle loading issues, and uneven braking response

D. The empty compartments between loaded compartments create air pockets that cushion the loaded compartments from road shock

35. A driver operating a loaded tank vehicle at highway speed encounters a sudden, strong headwind that causes the vehicle to decelerate slightly without any brake application. How does this headwind affect the liquid inside a smooth bore tank?

A. The headwind has no measurable effect on the liquid because the tank is sealed and the wind cannot enter

B. The headwindinduced deceleration causes a mild forward surge as the liquid continues at its original velocity while the vehicle slows from aerodynamic drag — the driver may feel a slight push forward similar to a gentle brake application

C. The headwind creates a negative pressure zone behind the tank that pulls the liquid rearward, improving the vehicle's aerodynamic stability

D. The headwind compresses the air inside the tank's headspace, forcing the liquid toward the bottom and lowering the center of gravity

36. A cargo tank driver is delivering fuel to a customer whose receiving tank is partially buried underground with the fill pipe protruding approximately 18 inches above grade. Before connecting the delivery hose, the driver notices the fill pipe cap is missing and the pipe opening is exposed. What should the driver check before beginning the delivery?

A. Verify that the customer's insurance policy covers spills that may result from deliveries to tanks with missing fill pipe caps

B. Verify that the exposed fill pipe has not accumulated water, debris, or foreign objects that could contaminate the product or obstruct flow during the delivery

C. Check whether the fill pipe cap was recalled by the manufacturer, which would explain its absence

D. Inspect the fill pipe's interior coating for corrosion, which may indicate the cap has been missing for an extended period and the pipe is deteriorating

37. A tank vehicle driver is operating a partially loaded (45%) baffled tank at highway speed when traffic ahead comes to a gradual stop for a construction zone. The driver begins braking approximately 1,000 feet before the end of the line of stopped vehicles. Despite early braking, the driver feels the liquid pushing the vehicle forward with each surge cycle. What technique should the driver use to manage this situation?

A. Pump the brakes rapidly in short bursts to break up the surge into smaller, more manageable pulses

B. Release the brakes entirely between surge pulses to allow the vehicle to coast, then reapply when the surge subsides

C. Maintain steady, consistent brake pressure throughout the deceleration — steady pressure allows the liquid to settle progressively rather than amplifying the surge through pulsed braking

D. Shift into neutral and rely solely on engine compression braking to avoid any surge interaction with the service brakes

38. A tank vehicle driver discovers during a pretrip inspection that the tank's grounding cable is present and the clamp is in good condition, but the cable itself has a visible break approximately halfway along its length. The two broken ends are touching but are not mechanically connected. Can the driver use this cable for grounding?

A. No, a broken cable — even with ends touching — cannot reliably conduct static electricity to ground, because the break can separate during use and interrupt the grounding path at the critical moment when static discharge occurs

B. Yes, as long as the broken ends remain in contact the cable provides adequate conductivity for grounding purposes

C. Yes, but only if the driver wraps the break point with electrical tape to maintain contact between the broken ends

D. No, but the driver may substitute the grounding cable with a standard jumper cable connected from the tank to a metal fence post

39. A loaded tank vehicle approaches a section of highway with a posted advisory sign reading "PAVEMENT ENDS — GRAVEL SURFACE AHEAD — 2 MILES." The tank is carrying a nonhazardous liquid. What handling concern does the gravel surface create for a tank vehicle?

A. Gravel surfaces provide better traction than pavement for loaded tank vehicles because the gravel conforms to the tire contact patch

B. Gravel surfaces reduce traction significantly compared to pavement — combined with the liquid surge forces in the tank, the reduced traction means the vehicle is more likely to lose directional control during braking, acceleration, or steering inputs

C. Gravel surfaces are prohibited for commercial vehicles over 26,000 pounds and the driver must find an alternate route

D. Gravel surfaces generate excessive vibration that can damage the tank's internal baffles and weaken their weld connections

40. A cargo tank is equipped with a pressure relief valve set to open at 35 psi. The MAWP shown on the specification plate is 25 psi. During a pretrip inspection, the driver reads the incab pressure gauge showing 20 psi inside the tank. Is this reading acceptable?

A. No, 20 psi is dangerously close to the MAWP of 25 psi and the driver should investigate why the pressure is this high before departing

B. Yes, 20 psi is within the normal operating range — well below the MAWP of 25 psi and the relief valve setting of 35 psi

C. No, the pressure should always read zero for nonpressurized atmospheric tanks, and any positive reading indicates a malfunction

D. Yes, but only if the product loaded is a nonhazardous liquid — hazardous liquids must maintain zero internal pressure during transport

41. A driver operating a loaded tank vehicle is traveling on a highway at 55 mph. The driver sees a highway sign reading "EXIT 47 — 1 MILE — ADVISORY SPEED 25 MPH." The driver plans to take this exit. When should the driver begin reducing speed?

A. Begin reducing speed well before the exit ramp entrance to reach 25 mph or below before entering the curve — speed reduction must be completed on the straight highway, not during the ramp's curved section

B. Maintain 55 mph until the exit ramp begins, then brake firmly at the start of the curve to reach 25 mph by the midpoint

C. Begin decelerating at the exit ramp entrance and use the curve's geometry to help slow the vehicle through centrifugal resistance

D. Accelerate slightly before the exit to build momentum, then coast through the ramp without braking to avoid any surge effects

42. A tank vehicle driver is making a delivery at a customer site. During the delivery, a sudden rainstorm begins. The driver is unloading a flammable liquid from the cargo tank through a product hose connected to the customer's receiving tank. Lightning is visible in the distance. What should the driver do?

A. Stop the unloading operation, close all discharge valves, and wait for the lightning to pass — lightning can strike the vehicle or grounding system, and flammable vapors present during unloading create an ignition risk

B. Continue unloading because the grounding and bonding cables protect against lightning strikes

C. Increase the unloading flow rate to finish the delivery faster before the storm arrives at the delivery location

D. Disconnect the grounding cable to prevent lightning from traveling through it into the cargo tank

43. A tank vehicle driver is operating a fully loaded baffled tank on a winding mountain road. The road has numerous curves with varying advisory speeds. The driver has been reducing speed to well below each advisory speed before every curve. On one particularly tight curve, the driver feels the vehicle begin to lean but the lean does not worsen. The driver maintains steady speed through the curve and the vehicle straightens as the road straightens. What can the driver conclude from this experience?

A. The baffles have completely eliminated all lateral surge, and the lean was caused solely by the vehicle's suspension compression on the outside of the curve

B. The vehicle's electronic stability control system activated and prevented any additional lean beyond the initial tilt

C. The driver's speed was at or near the safe limit for this curve — the lean indicates lateral forces were significant, and the driver should consider whether even further speed reduction is warranted for similar curves ahead

D. The lean was caused by uneven tire pressure and is unrelated to the liquid cargo or the vehicle's center of gravity

44. A driver is backing a loaded smooth bore tank vehicle into a tight delivery bay. During the backing maneuver, the driver must make several steering adjustments. What effect do these steering inputs have on the liquid inside the smooth bore tank?

A. Steering inputs during backing have no effect on the liquid because the vehicle's reverse gear isolates the cargo from directional changes

B. Each steering adjustment shifts the liquid laterally — in a smooth bore tank, this lateral surge is unrestricted by baffles and can cause the vehicle to sway or rock during the backing maneuver, requiring the driver to steer gently and pause between corrections to let the liquid settle

C. The liquid rotates in the opposite direction of the steering input, stabilizing the vehicle through a gyroscopic effect

D. Steering during backing compresses the liquid against the rear head of the tank, reducing its volume and increasing internal pressure

45. A loaded tank vehicle's specification plate shows the tank was most recently tested (RT marking) 4 years and 10 months ago. The tank specification requires retesting every 5 years. The driver is performing a pretrip inspection before a trip that will take approximately 3 days. What should the driver consider?

A. The testing will expire during the trip — the driver should verify with the carrier whether the vehicle can legally complete the trip before the 5year testing interval expires, or whether the tank must be retested before departing

B. The 5year testing interval has not yet expired, so the driver may depart without any concern about testing currency

C. The testing has already expired because the 5year interval is measured from the date of manufacture, not from the last retest

D. Testing intervals are calculated in months, not years, and 4 years 10 months converts to 58 months, which exceeds the 48month testing cycle

46. A tank vehicle carrying Class 3 Flammable Liquid in a cargo tank is parked at a delivery site. The driver has completed the delivery and the tank is empty (drained but not cleaned). While preparing to depart, the driver smells gasoline vapors near the rear of the vehicle. Upon inspection, the driver discovers that the discharge valve is fully closed but a small amount of liquid is pooling beneath a piping joint near the valve. What should the driver do?

A. Ignore the drip because the tank is empty and the small amount of residual product is commercially insignificant

B. Drive the vehicle to the nearest truck wash and flush the piping system with water to clear the residual product

C. Apply pipe thread sealant to the leaking joint while the residual product continues to drip, then verify the repair after the sealant cures

D. Clean up the pooled liquid with absorbent material, tighten the leaking piping joint if possible, and verify the leak has stopped — if the joint cannot be tightened or continues leaking, report the issue to the carrier for maintenance before departing

47. A driver operating a partially loaded (35%) smooth bore tank vehicle on a straight highway feels the vehicle begin rocking gently from side to side without any steering input. The rocking gradually increases in amplitude. What is causing this, and what should the driver do?

A. The rocking is caused by uneven tire wear on the trailer tandem axle and will stop when the tires are rotated at the next scheduled maintenance

B. The liquid is oscillating laterally inside the smooth bore tank at or near the vehicle's natural roll frequency — this sloshing resonance can amplify rapidly, and the driver should gradually reduce speed to break the resonance cycle before it reaches the rollover threshold

C. The rocking is caused by a crosswind that varies in intensity and will stop when the vehicle passes through the wind zone

D. The vehicle's electronic stability control system is testing the suspension by intentionally inducing a rocking motion

48. A tank vehicle driver is performing an enroute inspection and checks the cargo tank's manhole covers. One cover appears tight, but the driver notices a faint whistling sound coming from the gasket area. The sound is barely audible and can only be heard when standing directly next to the manhole. What does this indicate?

A. The whistling is a normal characteristic of cargo tanks in transit caused by wind passing over the manhole cover surface

B. The whistling is caused by the vehicle's engine vibration resonating with the manhole cover's natural frequency

C. The faint whistling indicates a small pressure differential — either internal pressure or vacuum — is forcing air or vapor through a minor gap in the gasket seal, suggesting the gasket may not be seating perfectly and could worsen during continued transport

D. The whistling is produced by the pressurevacuum vent operating normally to equalize internal and external pressures

49. A driver transporting a full load of liquid in a baffled tank approaches a long, steep downgrade. Before beginning the descent, the driver selects a low gear for engine braking. As the descent progresses, the driver notices the liquid settling forward against the front baffles due to the downhill angle. What effect does this forward liquid settlement have on the vehicle's braking?

A. The forward liquid settlement shifts weight to the front axle, which improves frontaxle braking but reduces braking effectiveness on the rear axles — the driver may need to adjust braking technique and be prepared for reduced overall deceleration from the service brakes

B. The forward settlement has no effect on braking because the baffles prevent any longitudinal movement of the liquid

C. The forward settlement actually improves braking because the additional frontaxle weight provides better overall deceleration response

D. The forward settlement causes the engine brake to disengage because the changed weight distribution confuses the vehicle's loadsensing system

50. A tank vehicle has been loaded at a terminal and the driver is departing on a delivery route. Two miles from the terminal, the driver performs a brief stop to check the load. Upon opening the manhole cover slightly, the driver observes the liquid level is higher than expected — the outage appears to be less than the minimum required. What should the driver do?

A. Continue to the delivery because the product will settle during highway driving and the level will appear to normalize

B. Close the manhole, increase speed to generate more vibration that will help the liquid settle into a lower, more accurate level reading

C. Continue with the delivery but drive at reduced speed and avoid any roads with speed bumps or rough surfaces that could stress the tank

D. Return to the terminal to have the load level verified and corrected if necessary — insufficient outage means the tank may not have adequate space for thermal expansion, creating an overpressure risk during the trip

Practice Exam 16: Answer Key and Explanations

1. D — The FLAMMABLE placard is mandatory because Class 3 at 1,500 pounds exceeds the 1,001-pound Table 2 threshold. The OXIDIZER at 800 pounds does not independently reach 1,001 pounds, so no OXIDIZER placard is independently required. The current placarding with FLAMMABLE only is compliant, though the driver could voluntarily add OXIDIZER placards or use DANGEROUS placards as an alternative display.

2. B — The Uniform Hazardous Waste Manifest is a multi-part document where each copy serves a specific chain-of-custody function — generator copy, transporter copy, facility copy, and return copy. A photocopy may not satisfy these distinct regulatory functions. The driver should not accept a photocopy and should require the shipper to obtain a replacement original manifest.

3. C — In a loaded commercial vehicle carrying HazMat, hard braking is generally safer than a hard swerve. A swerve risks rollover, jackknife, or loss of directional control — any of which could result in a HazMat release far more dangerous than a deer collision. The consequences of losing vehicle control with hazardous cargo are catastrophically amplified compared to a standard vehicle.

4. A — The driver should stop in a safe location and follow the Protect-Notify-Contain priority sequence. The first priority is personal safety — assess the leak from a safe distance without touching the released material. Then notify the carrier and emergency services, and attempt containment only if it can be done safely from a remote position.

5. D — The poison gas has been completely removed from the vehicle, so the POISON GAS placards should be removed. The Class 8 Corrosive at 2,000 pounds exceeds the 1,001-pound Table 2 threshold, requiring CORROSIVE placards on all four sides. Only the current cargo determines the current placarding — previous loads that have been fully removed do not affect the requirement.

6. B — Signing a facility-specific acknowledgment that the driver has verified packages match the shipping papers is a common and acceptable industry practice. This documents the driver's verification step without transferring the shipper's underlying responsibility for correct classification, packaging, marking, and labeling. The shipper remains legally responsible for those functions.

7. A — Division 4.3 Dangerous When Wet is Table 1, requiring DANGEROUS WHEN WET placards at any quantity — the 600 pounds triggers this automatically. Division 2.2 Non-Flammable Gas at 1,200 pounds exceeds the 1,001-pound Table 2 threshold, requiring NON-

FLAMMABLE GAS placards. Both materials independently trigger their respective requirements, so both must be displayed.

8. C — The total transport index is calculated by adding all individual TI values: 4.2 + 3.8 = 8.0. This sum determines the required separation distances between the radioactive packages and occupied spaces, and the maximum total TI allowed on a single vehicle (50 for non-exclusive-use). TI values are additive, not averaged.

9. B — The shipper's certification must be signed to be legally valid. A printed name alone does not constitute a signature — it is simply a typed identification. The certification requires a handwritten signature, electronic signature, or other authorized form of personal attestation by the shipper or their authorized representative.

10. D — Division 2.3 Poison Gas is Table 1, requiring POISON GAS placards at any quantity — the 200 pounds triggers this automatically. Class 3 Flammable Liquid at 900 pounds does not independently reach the 1,001-pound Table 2 threshold, so no FLAMMABLE placard is required. Table 1 materials are placarded regardless of weight; Table 2 materials must independently reach their threshold.

11. A — The driver must cooperate with law enforcement and provide all requested documentation. Shipping papers, the CDL, and HazMat endorsement verification are documents that HazMat drivers must have readily available. Law enforcement officers have authority to request these documents during legitimate traffic stops, checkpoints, and emergency operations.

12. C — Idling while waiting for a dock is a common practice, but the engine must be shut off before loading or unloading of hazardous materials begins. Running engines during HazMat loading and unloading create ignition sources from heat, exhaust, and electrical sparks. The driver may idle during the wait but must shut off before any cargo doors are opened for the loading operation.

13. D — The carrier's route plan was developed to comply with HazMat routing regulations requiring avoidance of populated areas, school zones, and residential neighborhoods. Taking a shortcut through these areas to save 30 minutes undermines the safety rationale behind the route plan. The driver should follow the carrier's route plan and not sacrifice safety compliance for time savings.

14. B — After delivering 300 pounds, the remaining 800 pounds of Division 1.4 Explosives no longer meets the 1,001-pound Table 2 threshold. The EXPLOSIVES 1.4 placards should be removed because the current quantity does not require them. Placards must reflect the actual current cargo status, not the historical maximum load.

15. A — Bridges are particularly vulnerable to earthquake damage — they can collapse, shift, or develop structural failures during seismic events. The driver should continue driving off the bridge if safely possible, then stop in an open area away from overpasses, bridges, power lines, and buildings. Stopping on a bridge during an earthquake puts the vehicle on the most dangerous possible structure.

16. C — Both materials are in the same hazard class (Class 3 Flammable Liquid), so their weights are combined for the placarding threshold calculation. Acetone (1,200 lbs) plus

Toluene (800 lbs) equals 2,000 pounds of Class 3 material, which exceeds the 1,001-pound Table 2 threshold. FLAMMABLE placards are required based on the combined class weight.

17. D — A loaded cargo tank on narrow gravel roads with steep grades and sharp curves faces significantly elevated rollover risk. The reduced traction on gravel, combined with steep grades that accelerate liquid surge, and sharp curves that trigger lateral surge, could exceed the vehicle's stability limits. The driver should carefully evaluate whether the detour is safe for a loaded tank vehicle.

18. B — When an n.o.s. proper shipping name is used, the technical names of the hazardous components contributing to the material's classification must be shown in parentheses for precise identification. The two names — methanol and toluene — identify the specific chemicals in this mixture, enabling emergency responders to provide accurate material-specific guidance.

19. A — All commercial vehicles — including placarded HazMat vehicles — must enter open weigh stations as directed by posted signs. HazMat vehicles are not exempt from weigh station requirements. The driver must enter, comply with all inspection procedures, and provide documentation as requested by the inspectors.

20. C — When Column 6 of the Hazardous Materials Table specifies both a primary label (TOXIC) and a subsidiary label (FLAMMABLE LIQUID), both corresponding placards must be displayed on all four sides of the vehicle. The POISON placard communicates the primary Division 6.1 hazard, and the FLAMMABLE placard communicates the subsidiary Class 3 hazard.

21. C — Driving at night without functioning headlights is extremely dangerous regardless of cargo type. The driver cannot see the road, other vehicles, pedestrians, or obstacles ahead. With a HazMat load, a collision caused by inability to see would carry amplified consequences. The driver must pull over to a safe location immediately.

22. A — Having two identical primary hazard labels on the same surface is not a regulatory violation. The requirement is that the correct label must be present — having a duplicate does not create confusion or compliance issues. While unnecessary, the extra label does not need to be removed and does not indicate any problem with the package.

23. D — Corrosive material on skin causes progressive chemical burns that deepen with continued contact time. Immediate flushing with large amounts of clean water for at least 15-20 minutes dilutes and removes the corrosive from the skin surface. Delay allows the chemical to penetrate deeper into tissue, causing more severe and potentially permanent damage.

24. B — The "RQ" designation means the quantity shipped meets or exceeds the material's reportable quantity. If any of this material is released during transport, mandatory notification to the National Response Center at 1-800-424-8802 is required. The driver must know this obligation so that any spill triggers immediate reporting action.

25. C — No amount of time pressure justifies skipping the shipping paper review. The review verifies that all required elements are present, that the material descriptions match the actual cargo, and that the emergency response information is available. Accepting a HazMat shipment

with unreviewed papers could mean transporting improperly documented, incorrectly classified, or incompatible materials.

26. A — A visible sidewall bulge indicates internal structural damage to the tire — broken or separated cord plies within the sidewall. This damage makes the tire susceptible to sudden catastrophic failure, which is especially dangerous with a HazMat load where a blowout could cause loss of vehicle control or a tire fire near hazardous cargo. The tire must be replaced before departure.

27. B — HazMat vehicles should avoid places where crowds assemble when a practicable alternative route exists. A large outdoor concert with thousands of people represents exactly the type of gathering the routing regulations are designed to avoid. If an alternate route around the venue is available, the driver should consider using it to reduce public exposure risk.

28. D — A dent in a specification-required defect-free zone compromises the cylinder's structural integrity under the high internal pressure of the compressed gas. Even though the cylinder is not currently leaking, the dented area may have weakened metal that could fail under pressure during continued transport. The cylinder should be isolated for professional evaluation by a qualified inspector.

29. C — Hours-of-service regulations apply to all commercial drivers, including HazMat drivers, without exception. Feeling alert does not override the legal driving-time limit. If the driver's available time will be exhausted before reaching the delivery, the driver must stop and rest. Driving while fatigued — even undetected fatigue — increases the risk of errors with potentially catastrophic HazMat consequences.

30. A — No single Table 2 class reaches the 1,001-pound threshold independently (400 pounds each). However, the combined aggregate of all Table 2 materials is 1,200 pounds, which exceeds 1,001 pounds. DANGEROUS placards may be used when two or more Table 2 classes are present and the combined total meets the threshold. This applies whether two, three, or more different classes are present.

31. B — In a smooth bore tank, the entire liquid mass surges forward as a single unrestricted wave during braking. It slams against the front head, rebounds backward, and oscillates back and forth. Each forward surge pushes the vehicle toward the vehicle ahead, extending the effective stopping distance beyond what the brakes alone can achieve. The driver must maintain extra following distance.

32. D — Drivers of placarded HazMat vehicles must stop at all railroad grade crossings regardless of signal status. The driver must stop within 50 feet but not closer than 15 feet from the nearest rail, look and listen in both directions for approaching trains, and proceed only when certain it is safe to cross. Inactive signals do not exempt the driver from this mandatory stop.

33. A — Even a shallow gouge reduces the tank shell's wall thickness at the damaged point. Road vibration, internal pressure from the liquid cargo, and thermal cycling stress the weakened area continuously during transport. A gouge that appears minor on the surface could propagate into a crack or perforation under sustained stress. The damage requires professional evaluation before continued service.

34. C — The alternating loaded-empty pattern concentrates weight at compartments 2 and 4 (non-adjacent positions) with empty gaps between them. This creates an unusual weight distribution with concentrated loads at two separated points, potentially causing uneven axle loading, unpredictable handling characteristics, and inconsistent braking response across the axle groups.

35. B — A sudden headwind decelerates the vehicle through aerodynamic drag. The liquid inside the sealed tank continues at its original velocity due to inertia, creating a mild forward surge — the same physics that occur during brake application, but at a lower intensity. The driver may feel a slight forward push and should be aware that the liquid has shifted slightly forward.

36. D — An exposed fill pipe with a missing cap may have accumulated rainwater, dirt, leaves, insects, or other debris that could contaminate the product during delivery or obstruct flow. The driver should inspect the fill pipe opening and remove any foreign material before connecting the delivery hose and beginning the transfer.

37. C — Steady, consistent brake pressure is the most effective technique for managing surge during extended deceleration. Steady pressure allows the liquid to decelerate progressively along with the vehicle, minimizing the peak surge force. Pumping the brakes creates acceleration-deceleration cycles that amplify the surge rather than dampening it.

38. A — A broken grounding cable cannot reliably conduct static electricity to ground, even if the broken ends appear to be touching. During the physical movement of connecting and disconnecting hoses, the cable may shift and the break can separate, interrupting the grounding path at exactly the moment a static discharge occurs. The cable must be replaced or repaired before use.

39. B — Gravel surfaces provide significantly less traction than pavement. In a tank vehicle, reduced traction means the vehicle is more likely to lose directional control during braking (when forward surge pushes against weakened traction), acceleration (when drive wheels may spin), or steering (when reduced lateral traction allows the vehicle to slide). The driver should reduce speed significantly.

40. B — An internal pressure of 20 psi is within the normal operating range — below the MAWP of 25 psi and well below the pressure relief valve setting of 35 psi. The pressure hierarchy is: operating pressure (20) < MAWP (25) < relief valve setting (35). As long as the operating pressure remains below the MAWP, the tank is functioning within its design limits.

41. A — All speed reduction must be completed on the straight highway section before entering the exit ramp's curved section. Braking in the curve creates simultaneous forward and lateral surge that maximizes rollover risk. The driver should be at or below 25 mph — and preferably lower for a loaded tank vehicle — before the ramp's curve begins.

42. A — Lightning anywhere in the area during flammable liquid unloading creates a genuine ignition risk. The driver should stop the operation, close all discharge valves, and wait for the lightning to pass. Grounding and bonding cables provide protection against static discharge during normal operations, but they do not protect against a direct lightning strike.

43. C — The lean the driver felt indicates that lateral forces were significant at the selected speed — even though the vehicle remained stable through the curve. The driver should consider whether further speed reduction is warranted for similarly tight curves ahead, because conditions can vary (wet surfaces, changing banking, different load distribution) and the margin between a stable lean and a rollover may be smaller than it appears.

44. B — In a smooth bore tank, each steering adjustment during backing causes the liquid to shift laterally. Without baffles, this lateral movement is unrestricted and can cause the vehicle to sway or rock. The driver should steer gently, make corrections gradually, and pause briefly between adjustments to allow the liquid to settle before the next steering input.

45. A — The tank's 5-year testing interval will expire during the 3-day trip. The driver should verify with the carrier whether the vehicle can legally complete the trip before the testing expires, or whether the tank must be retested before departing. Operating a tank with expired testing certifications is a federal violation.

46. D — Even though the tank is "empty," residual product in the piping system can drip from loose joints. The driver should clean up the pooled liquid with absorbent material, tighten the leaking joint if possible, and verify the drip has stopped. If the joint cannot be tightened or continues leaking, the issue must be reported to the carrier for maintenance.

47. B — Lateral rocking that begins spontaneously and increases in amplitude in a partially loaded smooth bore tank is sloshing resonance — the liquid is oscillating at or near the vehicle's natural roll frequency. Each oscillation adds energy to the next, and the amplitude can increase rapidly toward the rollover threshold. The driver should gradually reduce speed to break the resonance cycle.

48. C — A faint whistling from the gasket area indicates air or vapor is being forced through a small gap in the seal by a pressure differential between the tank interior and the atmosphere. This suggests the gasket is not seating perfectly. While currently minor, the gap could worsen during transport from vibration and temperature changes, potentially leading to a more significant leak.

49. A — On a downgrade, the liquid settles forward against the front baffles, shifting weight to the front axle. This increases front-axle braking effectiveness but reduces weight — and therefore braking force — on the rear axles. The driver may experience reduced overall deceleration from the service brakes and should adjust technique, potentially supplementing with controlled service brake applications.

50. D — Insufficient outage means the tank does not have adequate space to accommodate thermal expansion of the liquid during the trip. As the liquid warms from sun exposure and ambient temperature, it will expand into the limited outage space. If expansion exceeds the available space, dangerous overpressure will develop. The driver should return to the terminal for load level verification and correction.