18 POWERED INDUSTRIAL TRUCKS

ANSWERS—QUIZ 1

1. b
2. a
3. a
4. b
5. a
6. b
7. b
8. d
9. a
10. c
11. d
12. Powered industrial trucks can be classified by power source, operator position, or means of engaging the load.
13. The type of coupling depends on the construction of the trailer, the loads carried, and whether the route to be traveled includes sharp curves, ramps, or inclines.
14. When a motorized hand truck needs to be driven down an incline, the operator should put the truck in reverse and walk behind it facing the direction of travel.
15. Operators must be especially careful because, when turning, the rear wheels project beyond the truck's enclosure, and thus create a hazard.
16. An operator must put the controls in neutral, turn off the power, set the brakes, remove the key or pull the connector plug, and lower or put the load mechanism in an inoperative position.
17. The pallet tends to drop at the sides and seesaw, which causes strain and instability.
18. Maintenance workers are possible instructors because they know the trucks and how they operate.
19. AGVs are automated guided vehicles that travel over predetermined routes and are controlled by frequency sensors, light beams, or induction tape laid on or under the floor. Since AGVs are not guided by an operator, they need to be equipped with some means to stop should someone step in front of them. AGVs should be equipped with a lightweight, flexible bumper that, when contacted, shuts off power and applies the brakes. Sufficient clearance between the bumper and the front of the truck is required so the truck can come to a complete stop without contacting anything in its path. The aisles where AGVs are operated need to be clearly marked and free of material. Employees should not jump on or ride these trucks and should not load or unload these trucks while they are moving. Design AGV routes so there are no pinch points between the trucks and transfer conveyors, machines, and columns.
20. "Free turning" occurs when some lift trucks are moving forward. Once a truck starts to turn, it tends to turn more and more sharply in smaller and smaller circles. To counteract this tendency and to slow the sharpness of the turn, the operator must apply force on the steering wheel in the opposite direction of the turn. When this kind of truck is traveling in reverse, the opposite holds true: the operator must apply force in the direction of the turn.

ANSWERS—QUIZ 2

1. a
2. b
3. b
4. a
5. a
6. d
7. c
8. d
9. a
10. b
11. d
12. A load backrest extension should always be used when the type of load presents a hazard to the operator.
13. These operators are quickly available to help combat small fires anywhere in a facility.
14. Safe speed is the rate of travel that will permit the truck to stop well within the clear distance ahead or to make a turn without overturning.
15. Before unloading a trailer, lift-truck drivers should check that wheel chocks are squarely placed in front of the *rearmost tires* on dual-axle trailers.
16. Idling for long periods causes exhaust vapors and combustion gases to accumulate.
17. Operating a lift truck with an overload is dangerous because it removes weight from the wheels that steer, thus affecting the truck's steering.
18. The fuel system must be leak-free and the container

must not be filled beyond the limit specified in NFPA 58, the container shutoff valve must be closed except when the engine is being operated, and the truck must not be parked near inadequately vented pits or sources of heat, open flames, or other sources of ignition.

19. The operator's safety is most important factor to consider when developing a policy for lift truck safety-belt usage. However, other factors should also be examined, including forklift truck accident data, type and design of the facility, operators' duties, ease of entering and exiting the truck, work area conditions, materials-handling requirements and exposure.
20. Straddle trucks sit high off the ground and, as a result, their angle of sight is reduced for objects immediately to the front or rear. Precautions must always be taken to avoid striking pedestrians-especially when carrying long loads. In congested areas, operators can attach red flags to the ends of long loads or station signal people to help guide the way. Operators should pay particularly close attention if the truck is used after dark. They should be equipped with warning devices, headlights, and tail lamps.

ANSWERS—CASE STUDY

1. The biggest advantage of an LP-gas truck is reduced CO emissions. If an LP-gas engine is properly adjusted, it will generally produce a substantially lower concentration of CO in the exhaust. Only air sampling, however, can prove whether CO concentration in an area is below the maximum allowable level, so CO tests will still be needed. Fittings not manufactured by a nationally recognized agency, such as Underwriters Laboratories or Factory Mutual, or connections not properly tightened before refueling may fail and release combustible gas into the air. Conversion units and fitting should be installed in strict conformity with NFPA 58 *Storage and Handling of Liquefied Petroleum Gases* and Underwriters Laboratories' Standard for Safety No. 558, *Internal Combustion Engine—Powered Industrial Trucks*.
2. Only listed fuel containers, designed in accordance with U.S. Department of Transportation or ASME standards, should be used. Permanently mounted and removable fuel containers should be filled outdoors. Refueling may be done indoors if one of the two methods specified in NFPA 58 is met. LP-gas trucks with permanently mounted fuel containers should be refueled outdoors away from any building ventilation or air-conditioning intakes. It is essential that fuel containers be filled properly. The person filling the containers must be trained to handle LP-gas safely. Filling containers from bulk storage must be done at least 10 ft (3 m) from the nearest sizeable masonry-walled building and at least 25 ft (7.5 m) from sizeable nonmasonry buildings and openings in masonry and nonmasonry buildings. The filling facility must conform to NFPA 58 and applicable state or local insurance regulations.