

PRACTICE EXAM 10 — QUESTIONS 1-40

1. A transit bus comes in with a complaint of poor acceleration from a stop. The technician confirms fluid level and condition are good and finds the stall speed is well above specification. The MOST likely cause is:

- A. The engine producing excess power
- B. A seized stator one-way clutch
- C. Slipping clutches or low apply pressure inside the transmission
- D. A correctly locked converter

2. A driver reports the bus "won't move at all" in any gear, yet the engine runs normally and revs freely. With fluid level correct, the technician should suspect a problem in the:

- A. Driveshaft phasing
- B. Wheel bearing adjustment
- C. Differential breather
- D. Transmission internal apply devices or converter drive

3. Scan data on a complaint of cruise-speed overheating shows fluid temperature climbing while the converter never reports a lockup-achieved state. The technician should focus on:

- A. The differential lubricant level
- B. The lockup clutch and its control circuit
- C. The wheel seal condition
- D. The driveshaft slip yoke

4. A bus shifts fine when cold but slips under load once the transmission warms up, and fluid is found at the correct level but dark and burnt. The BEST interpretation is:

- A. The fluid is normal and no action is needed
- B. Degraded fluid and likely clutch wear; find why it overheated
- C. A driveshaft phasing error
- D. An over-adjusted wheel bearing

5. During pressure testing, line pressure reads normal but one clutch circuit reads low. This points the technician toward:

- A. A worn pump
- B. A faulty pressure regulator
- C. A low overall fluid level
- D. A leak in that specific clutch circuit, such as a worn piston seal

6. A bus returns with the same shift complaint two days after an internal transmission overhaul that checked out mechanically correct. The technician most likely forgot to:

- A. Refill the differential
- B. Replace the driveshaft
- C. Reset and relearn the adaptive values
- D. Clear the axle breather

7. A technician energizes a scan tool and finds an active speed-sensor circuit code. Before condemning the sensor, the FIRST check should be:

- A. Replacing the TCM
- B. Resetting the adaptives
- C. Flushing the cooler
- D. The sensor wiring, connector, and reluctor

8. A bus exhibits a harsh 1-2 upshift, with fluid confirmed good and no codes. Pressure testing shows higher-than-specified apply pressure. The MOST likely cause is:

- A. A pressure control fault commanding excessive apply pressure
- B. An off-going clutch releasing early
- C. A non-locking converter
- D. A plugged axle breather

9. A bus with an integral retarder shows weak retarding and a high transmission fluid temperature reading on the scan tool. The MOST likely explanation is:

- A. The retarder rotor has shattered
- B. The driveshaft is out of phase
- C. A wheel bearing is over-adjusted
- D. The TCM is limiting retarding to protect against overheating

10. A transmission is found low on fluid with no external leak, and the fluid is milky. The technician concludes the fluid is being lost:

- A. Past the driveshaft U-joints
- B. Into the cooling system through a failed cooler
- C. Out of the axle breather
- D. Through a loose drain plug only

11. A bus stalls the engine each time it comes to a stop while in gear. Considering converter function, the MOST likely cause is:

- A. A lockup clutch failing to release
- B. A normally freewheeling stator
- C. A slightly high fluid level

D. A disconnected impeller

12. A whine that rises and falls with engine speed is present even in neutral with the engine idling. This MOST likely indicates a problem in the:

A. Pump or converter/input components

B. Differential side gears

C. Wheel bearings

D. Driveshaft center bearing

13. A technician suspects a stuck valve in the valve body, but the related solenoid passes an electrical resistance test. The BEST confirming step is to:

A. Replace the TCM

B. Re-phase the driveshaft

C. Perform a hydraulic pressure test of that circuit

D. Adjust the wheel bearings

14. A bus is towed in dead, and the technician notes no transmission pressure while moving it. This is BEST explained by the fact that:

A. The output speed sensor failed

B. The pump is engine-driven, so it makes no pressure with the engine off

C. The valve body is stuck

D. The breather is plugged

15. A transmission overheats during long downgrades when the retarder is used heavily. The FIRST area to evaluate is:

A. Fluid level/condition and cooling system capacity

- B. The driveshaft phasing
- C. The ring and pinion backlash
- D. The wheel seals

16. A bus shows an engine RPM flare during the 3-4 upshift with no lasting slip afterward. Pressure on the on-coming clutch reads low. The cause is BEST described as:

- A. Excessively high apply pressure
- B. A worn wheel bearing
- C. Low on-coming apply pressure or early off-going release
- D. A plugged breather

17. A fleet asks how to schedule fluid service on a prognostic-equipped bus in heavy stop-and-go duty. The BEST advice is to:

- A. Service only after a failure
- B. Never service the fluid
- C. Service strictly by odometer mileage
- D. Use condition-based scheduling from actual operating data

18. A bus exhibits delayed neutral-to-drive engagement. After confirming fluid level and condition are correct, the technician should next:

- A. Remove the transmission for teardown
- B. Retrieve codes and review live data and pressures
- C. Replace the differential
- D. Re-phase the driveshaft

19. A technician finds the transmission filter heavily clogged on a bus complaining of slipping and overheating. This finding BEST explains the symptoms because a restricted filter:

- A. Starves the pump and lowers system pressure
- B. Raises line pressure excessively
- C. Contaminates the fluid with coolant
- D. Causes driveshaft vibration

20. A bus with a coolant-integrated transmission cooler shows milky fluid and a dropping engine coolant level. The technician concludes:

- A. The driveshaft is out of phase
- B. The ring and pinion is worn
- C. The fluid-to-coolant cooler has failed internally
- D. A wheel bearing is over-adjusted

21. A technician is deciding whether to pull a transmission for a shift complaint. Following good practice, the technician should FIRST:

- A. Remove the transmission immediately
- B. Inspect mounts, connectors, grounds, and cooler lines in-vehicle
- C. Replace the differential
- D. Re-phase the driveshaft

22. A bus shudders during converter lockup at a steady 45 mph. After confirming fluid condition, the technician should evaluate:

- A. The drive axle pinion preload
- B. The lockup clutch and its apply/control circuit
- C. The differential side gears
- D. The driveshaft slip yoke splines

23. Live data on an older bus shows large adaptive compensation values along with a developing soft-shift complaint. This MOST likely indicates:

- A. A plugged axle breather
- B. An out-of-balance driveshaft
- C. Advancing clutch wear or a developing internal fault
- D. A worn wheel seal

24. A technician is about to mate a transmission to the engine during installation. The MOST critical check at this step is that:

- A. The torque converter is fully seated on the input components
- B. The driveshaft is balanced
- C. The wheel bearings are adjusted
- D. The axle breather is clear

25. A bus shows two codes on the scan tool: one active, one stored, on unrelated circuits. The technician should:

- A. Diagnose the active code first
- B. Diagnose the stored code first
- C. Clear both without diagnosis
- D. Ignore both since the bus drives

26. A driver reports a vibration that appears at a specific road speed regardless of which gear produces it. This pattern points the technician toward the:

- A. Transmission valve body
- B. Torque converter stator
- C. Lockup clutch solenoid

D. Driveshaft or drive axle

27. A driveshaft vibrates immediately after a U-joint replacement, and runout and the new joints check good. The MOST likely cause is:

- A. A worn wheel bearing
- B. Excessive ring and pinion backlash
- C. A slipping lockup clutch
- D. The shaft reassembled out of phase

28. A two-piece driveshaft produces noise and vibration at certain speeds, and the technician finds play and roughness at the mid-shaft support. The cause is BEST identified as:

- A. Low transmission fluid
- B. A worn center support bearing or its rubber mount
- C. Incorrect pinion depth
- D. A slipping converter

29. A U-joint is found with brinelled bearings on a driveshaft that operates at a very small working angle. The BEST explanation is:

- A. The angle was excessive
- B. Over-lubrication caused it
- C. The bearings did not rotate enough and dented under load
- D. The phasing was reversed

30. Before balancing a driveshaft to cure a vibration, the technician must FIRST confirm:

- A. The transmission adaptives are reset

- B. Phasing, working angles, U-joints, center bearing, slip yoke, and runout are correct
- C. The differential is refilled
- D. The cooler is flushed

31. A drive axle is noisy under acceleration but quiet on coast. The technician identifies the source as:

- A. The drive side of the ring and pinion mesh
- B. The coast side of the ring and pinion mesh
- C. A wheel bearing on one side
- D. The torque converter

32. A bus produces axle noise only when rounding corners. The MOST likely source is:

- A. The drive side of the ring and pinion
- B. A straight-line wheel bearing
- C. The differential side and spider gears
- D. The lockup clutch

33. A ring and pinion tooth contact pattern is biased toward the tooth flank/root. The technician determines the pinion is:

- A. Set too shallow
- B. Correctly set
- C. Unaffected by depth
- D. Set too deep, requiring shim correction

34. An axle seal leak recurs within a week of replacing the seal. The technician most likely overlooked:

- A. Resetting the transmission adaptives

- B. Inspecting and clearing the housing breather
- C. Adjusting the ring and pinion backlash
- D. Replacing the driveshaft

35. A technician setting pinion bearing preload on a crush-sleeve axle should:

- A. Tighten the pinion nut as hard as possible
- B. Set preload by feel
- C. Skip preload if backlash is correct
- D. Measure rotating torque to specification without over-crushing the sleeve

36. A wheel seal is leaking lubricant onto the brake assembly. The technician's correct course of action is to:

- A. Top off the lubricant and release the bus
- B. Reset the transmission adaptives
- C. Re-phase the driveshaft
- D. Correct the leak and inspect the brakes for contamination before release

37. A bus produces a cyclic noise that rises and falls with wheel speed and is louder on the right side. The MOST likely source is:

- A. The differential spider gears on turns
- B. The torque converter
- C. A wheel bearing or axle shaft on the right wheel end
- D. The transmission valve body

38. During final-drive setup, the technician measures backlash within specification but finds the contact pattern off-center. The BEST conclusion is:

- A. Pinion depth is likely incorrect and needs shim correction
- B. The correct backlash makes the pattern irrelevant
- C. The adaptives need resetting
- D. The cooler is restricted

39. A bus drive axle runs hot and the lubricant is found low. The technician should recognize that low hypoid lubricant:

- A. Causes overheating and accelerated gear and bearing wear
- B. Improves cooling
- C. Raises transmission line pressure
- D. Re-phases the driveshaft

40. A technician selecting lubricant for a transit bus hypoid drive axle must use:

- A. General automatic transmission fluid
- B. Engine oil
- C. An extreme-pressure (EP) hypoid gear lubricant
- D. A non-EP universal oil

Answer Key & Full Answer Explanations

1. C — Poor acceleration with good fluid and a stall speed well above specification points to slipping clutches or low apply pressure inside the transmission. Excess engine power and a locked converter do not raise stall speed, and a seized stator lowers it. High stall indicates slippage under load.

2. D — A bus that will not move while the engine revs freely, with correct fluid, indicates a problem in the transmission internal apply devices or converter drive—power is not reaching the output. Driveshaft phasing, wheel bearings, and the breather would not prevent all drive. The free-revving engine with no drive isolates the fault inside the transmission.

3. B — Cruise-speed overheating with the converter never achieving lockup points to the lockup clutch and its control circuit, since continuous slip generates heat. Differential lube, wheel seals, and the slip yoke do not raise transmission fluid temperature. The missing lockup is the lead to follow.

4. B — Slipping under load when warm, with correct-level but dark, burnt fluid, indicates degraded fluid and likely clutch wear, and the technician must find why it overheated. The fluid is not normal, and driveshaft or wheel bearing faults are unrelated. Address the heat source, not just the fluid.

5. D — Normal line pressure with one low clutch circuit indicates a leak in that specific circuit, such as a worn piston seal. A worn pump, faulty regulator, or low fluid would lower pressure system-wide. The single-circuit pattern isolates the fault.

6. C — A returning shift complaint after a mechanically correct overhaul most likely means the technician forgot to reset and relearn the adaptive values. Differential, driveshaft, and breather work are unrelated to shift quality. The TCM keeps applying old compensation until adaptives are reset.

7. D — Before condemning a sensor named by a circuit code, the first check is the sensor wiring, connector, and reluctor, because the fault may lie there. Replacing the TCM, resetting adaptives, or flushing the cooler are premature. A code points to a circuit, which is diagnosed first.

8. A — A harsh upshift with good fluid, no codes, and higher-than-specified apply pressure points to a pressure control fault commanding excessive apply pressure. An early off-going release causes flare, and the converter and breather are unrelated. High apply pressure produces abrupt engagement.

9. D — Weak retarding with high fluid temperature most likely means the TCM is limiting retarding to protect against overheating. A shattered rotor, out-of-phase shaft, or over-adjusted bearing are not indicated. Protective heat limiting is commonly mistaken for retarder failure.

10. B — Low fluid with no external leak and milky color indicates the fluid is being lost into the cooling system through a failed cooler. The U-joints, breather, and a drain plug would not produce milky fluid. Hidden loss plus milky color points to the cooler.

11. A — An engine that stalls when stopping in gear indicates a lockup clutch failing to release, mechanically holding the engine to the transmission at low speed. A freewheeling stator is normal,

slightly high fluid would not stall the engine, and a disconnected impeller would prevent drive. A stuck-applied lockup clutch stalls the engine at low speed.

12. A — A whine that rises with engine speed and is present in neutral with the engine idling points to the pump or converter/input components, which turn with the engine regardless of gear. Differential gears, wheel bearings, and the center bearing track road or shaft speed. The engine-speed relationship localizes it upstream.

13. C — When a solenoid passes an electrical test but the circuit still misbehaves, a hydraulic pressure test of that circuit confirms a stuck valve or hydraulic leak. Replacing the TCM, re-phasing the driveshaft, or adjusting bearings do not address it. Electrical and hydraulic testing complement each other.

14. B — No transmission pressure while moving a dead bus is explained by the pump being engine-driven, so it makes no pressure with the engine off. A speed sensor, valve body, or breather fault would not eliminate all pressure. Engine-off means no pump flow.

15. A — Overheating during heavy retarder use on downgrades should first prompt evaluation of fluid level/condition and cooling system capacity, since the retarder shares that system. Driveshaft phasing, backlash, and wheel seals are unrelated to retarder-induced heat. The retarder and transmission share the cooling system.

16. C — A flare with no lasting slip and low on-coming clutch pressure is best described as low on-coming apply pressure or an early off-going release. High pressure causes harshness, and the bearing and breather are unrelated. Flare is a clutch-to-clutch timing or low-pressure handoff problem.

17. D — For a prognostic-equipped bus in heavy stop-and-go duty, condition-based scheduling from actual operating data is the best advice. Servicing only after failure, never, or strictly by mileage ignore real duty and wear. Condition-based service matches maintenance to actual stress.

18. B — After confirming fluid level and condition for a delayed engagement, the next step is to retrieve codes and review live data and pressures. Removing the transmission or replacing the differential skips diagnosis, and re-phasing the driveshaft is unrelated. Codes and data guide the next targeted test.

19. A — A heavily clogged filter explains slipping and overheating because a restricted filter starves the pump and lowers system pressure. It does not raise pressure, contaminate fluid with coolant, or cause driveshaft vibration. A clogged filter mimics internal faults through low pressure.

20. C — Milky fluid plus a dropping engine coolant level indicates the fluid-to-coolant cooler has failed internally, allowing the fluids to mix. A phasing error, worn ring and pinion, or over-adjusted bearing would not mix coolant and fluid. The shared cooler is the cross-contamination path.

21. B — Before pulling a transmission for a shift complaint, the technician should first inspect mounts, connectors, grounds, and cooler lines in-vehicle, since inexpensive faults can mimic internal problems. Removing the transmission, replacing the differential, or re-phasing the driveshaft are premature. Diagnosis earns the teardown.

22. B — Shudder during converter lockup at steady speed, after confirming fluid, points to the lockup clutch and its apply/control circuit. Pinion preload, side gears, and slip yoke splines are unrelated to lockup. Shudder localized to lockup directs diagnosis there.

23. C — Large adaptive compensation on an older bus with a developing soft-shift complaint most likely indicates advancing clutch wear or a developing internal fault, since the TCM has compensated heavily. The breather, driveshaft balance, and wheel seal are unrelated. Extreme adaptives are a clue to internal condition.

24. A — The most critical pre-mating check is that the torque converter is fully seated on the input components, or the pump is destroyed on start-up. Driveshaft balance, wheel bearings, and the breather are unrelated to this step. Full converter seating must be confirmed before mating.

25. A — With one active and one stored code on unrelated circuits, the active code is diagnosed first because the fault is present now. The stored code may be intermittent, and clearing or ignoring both abandons diagnosis. Active faults take priority over history codes.

26. D — Vibration at a specific road speed regardless of gear points to the driveshaft or drive axle, not the transmission. The valve body, stator, and lockup solenoid are transmission components. Speed-related, gear-independent vibration is a downstream signature.

27. D — Vibration immediately after a U-joint replacement, with runout and joints good, points to the shaft being reassembled out of phase. A wheel bearing, backlash, or slipping converter would not appear specifically after that service. Restoring correct phase is the fix.

28. B — Noise and vibration at certain speeds with play and roughness at the mid-shaft support indicate a worn center support bearing or its rubber mount. Low fluid, pinion depth, and a slipping converter are unrelated to a mid-shaft fault. The location of the play identifies the component.

29. C — Brinelled bearings on a U-joint at a very small working angle are best explained by the bearings not rotating enough and denting under load. An excessive angle, over-lubrication, and reversed phasing are not the cause. Too little angle causes brinelling.

30. B — Before balancing, the technician must confirm phasing, working angles, U-joints, center bearing, slip yoke, and runout are correct, because balancing cannot fix those faults. Resetting adaptives, refilling the differential, or flushing the cooler are unrelated. Balance is the last step.

31. A — Axle noise under acceleration but quiet on coast points to the drive side of the ring and pinion mesh, which loads only under power. The coast side loads on deceleration, a wheel bearing gives cyclic noise, and the converter is a transmission component. Drive-versus-coast isolates the loaded tooth side.

32. C — Axle noise only when cornering points to the differential side and spider gears, which rotate relative to each other only when the wheels turn at different speeds. The drive side, a straight-line wheel bearing, and the lockup clutch are not turn-specific. Turn-only noise isolates the differential internals.

33. D — A contact pattern biased toward the flank/root means the pinion is set too deep, requiring shim correction. It is not too shallow, correctly set, or unaffected by depth. The pattern location reveals the depth error.

34. B — A recurring seal leak within a week of replacement most likely means the technician overlooked inspecting and clearing the housing breather; a plugged breather forces lubricant past the new seal. Resetting adaptives, adjusting backlash, or replacing the driveshaft are unrelated. Always check the breather when servicing axle seals.

35. D — On a crush-sleeve axle, pinion preload is set by measuring rotating torque to specification without over-crushing the sleeve. Tightening as hard as possible ruins the sleeve, setting by feel is inaccurate, and skipping preload is wrong. Measured rotating-torque preload prevents looseness and overload.

36. D — A wheel seal leaking onto the brake assembly requires correcting the leak and inspecting the brakes for contamination before release, because contaminated linings reduce braking. Topping off, resetting adaptives, or re-phasing the driveshaft ignore the safety hazard. Brake contamination is urgent.

37. C — A cyclic noise that rises and falls with wheel speed and is louder on one side points to a wheel bearing or axle shaft on that wheel end. The spider gears act on turns, the converter is a transmission component, and the valve body is unrelated. One-sided, wheel-speed-cyclic noise localizes to that wheel end.

38. A — Backlash within spec but an off-center contact pattern indicates pinion depth is likely incorrect and needs shim correction. Correct backlash does not make the pattern irrelevant, and adaptives and the cooler are unrelated. The pattern, not backlash alone, confirms correct depth.

39. A — Low hypoid lubricant causes overheating and accelerated gear and bearing wear. It does not improve cooling, raise transmission line pressure, or re-phase the driveshaft. Correct lubricant level is essential to axle durability.

40. C — A transit bus hypoid drive axle requires an extreme-pressure (EP) hypoid gear lubricant to withstand the sliding tooth action of the offset gears. ATF, engine oil, and non-EP universal oil cannot handle that load. The EP requirement follows directly from hypoid geometry.