PRACTICE EXAM 17 — QUESTIONS 1–40

1. A stall test reads 2,300 RPM against a specification of 1,800 RPM. This higher-than-spec result MOST likely indicates:

A. The engine is over-producing power

B. Clutch slippage or low apply pressure

C. A seized stator one-way clutch

D. A correctly locked converter

2. A stall test reads 1,200 RPM against a specification of 1,800 RPM. This lower-than-spec result MOST likely indicates:

A. Clutch slippage under load

B. An overfilled transmission

C. The engine not producing full power or a stator one-way clutch problem

D. A converter locked at idle

3. Line pressure measures 80 psi against a specification of 150 psi across all circuits. This points to:

A. A single worn clutch seal

B. An out-of-phase driveshaft

C. A system-wide cause such as a worn pump or faulty regulator

D. A plugged axle breather

4. Line pressure is normal at 150 psi, but one clutch circuit reads 60 psi against a 150 psi spec. This points to:

A. Leakage in that specific clutch circuit

B. A worn pump

C. A faulty main regulator

D. A low overall fluid level

5. A scan tool shows the commanded gear is 4th but the achieved ratio matches 3rd, with input speed too high for the output. This indicates:

A. A plugged axle breather

B. A clutch slipping in the commanded gear

C. An out-of-phase driveshaft

D. A worn wheel bearing

6. Fluid temperature reads 280°F at steady highway speed with no lockup-achieved status shown. The technician should focus on:

A. The differential lubricant

B. The wheel seals

C. The driveshaft slip yoke

D. The lockup clutch and its control circuit

7. A dial indicator shows driveshaft runout of 0.040 in against a 0.010 in maximum specification. This indicates the shaft:

A. Is within tolerance

B. Needs only balancing

C. Has excessive runout and cannot be cured by balancing alone

D. Has correct phasing confirmed

8. Ring and pinion backlash measures 0.002 in against a 0.008–0.012 in specification. This too-tight reading will MOST likely cause:

A. Noise on coast only

B. Improved quietness

C. A coolant leak

D. Binding, overheating, and wear

9. Ring and pinion backlash measures 0.020 in against a 0.008–0.012 in specification. This too-loose reading will MOST likely cause:

A. Noise on torque reversal and accelerated wear

B. Binding and overheating

C. Improved durability

D. A locked converter

10. Pinion bearing preload measures 35 in-lb against a 10–20 in-lb specification. This too-high reading will MOST likely cause:

A. Bearing overheating and early failure

B. Excessive backlash

C. Improved gear life

D. A coolant leak

11. Pinion bearing preload measures 4 in-lb against a 10–20 in-lb specification. This too-low reading will MOST likely allow:

A. Bearing overheating

B. Pinion movement under load, upsetting the mesh and causing noise

C. A locked differential

D. A driveshaft phasing error

12. A technician finds 0.5 quart of foamy fluid above the full mark. This overfilled condition will MOST likely cause:

A. Increased line pressure only

B. Aeration and overheating

C. Improved shift quality

D. A driveshaft phasing error

13. Two codes are present: P-code X is "active" and P-code Y is "stored." The technician should diagnose:

A. The active code (X) first

B. The stored code (Y) first

C. Neither code

D. Both at once without diagnosis

14. Fluid level checks low by 1 quart with no external leak and the fluid is milky. The fluid is MOST likely being lost:

A. Past the U-joints

B. Out the breather

C. Into the cooling system through a failed cooler

D. Through a loose drain plug only

15. A wheel-end produces a cyclic noise that rises and falls with road speed and is louder on the left. This points to:

A. The differential spider gears on turns

B. A wheel bearing or axle shaft at the left wheel end

C. The torque converter

D. The transmission valve body

16. A tooth contact pattern sits biased toward the tooth flank/root. This indicates the pinion is:

A. Set too shallow

B. Correctly set

C. Unaffected by depth

D. Set too deep, needing shim correction

17. A U-joint shows 0.015 in of radial play where the specification is near zero. This reading indicates:

A. A serviceable joint

B. A worn joint requiring replacement

C. Correct phasing

D. Proper lubrication

18. Fluid temperature spikes to 300°F during heavy retarder use on a downgrade. 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

19. A bus is towed in dead and shows 0 psi transmission pressure while moving. This is explained by:

A. A failed output speed sensor

B. A stuck valve body

C. A plugged breather

D. The pump being engine-driven, so no pressure with the engine off

20. A filter is found 90% clogged on a bus complaining of slip and overheating. The clogged filter explains the symptoms because it:

A. Starves the pump and lowers system pressure

B. Raises line pressure

C. Contaminates fluid with coolant

D. Causes driveshaft vibration

21. A repaired transmission still flares on the 2-3 shift, and the technician confirms the repair was mechanically correct. The most likely missed step is:

A. Resetting and relearning adaptive values

B. Refilling the differential

C. Replacing the driveshaft

D. Clearing the axle breather

22. A vibration appears at exactly 55 mph regardless of gear and disappears below 45 mph. This pattern points to:

A. The transmission valve body

B. The driveshaft or drive axle

C. The torque converter stator

D. The lockup clutch solenoid

23. A driveshaft vibrates right after a U-joint replacement; runout and joints check good. The cause is MOST likely:

A. A worn wheel bearing

B. Excessive backlash

C. A slipping converter

D. The shaft reassembled out of phase

24. A two-piece driveshaft shows 0.030 in of play at the mid-shaft support. This indicates a problem with the:

A. Pinion depth

B. Center support bearing or its mount

C. Transmission filter

D. Lockup clutch

25. A converter shudder is felt at a steady 45 mph during lockup. After confirming fluid, the technician should evaluate:

A. The pinion preload

B. The differential side gears

C. The lockup clutch and its control circuit

D. The slip yoke splines

26. A whine present in neutral at idle that rises with engine RPM points to the:

A. Pump or converter/input components

B. Differential side gears

C. Wheel bearings

D. Driveshaft center bearing

27. Large adaptive compensation values appear on an older bus with a worsening soft shift. This MOST likely indicates:

A. A plugged breather

B. An out-of-balance driveshaft

C. A worn wheel seal

D. Advancing clutch wear or a developing fault

28. A solenoid measures within resistance specification, yet its clutch circuit still fails to apply. The BEST confirming step is:

A. Replace the TCM

B. Re-phase the driveshaft

C. Adjust the wheel bearings

D. Perform a hydraulic pressure test of that circuit

29. An axle seal leak returns 5 days after replacement. The technician most likely overlooked:

A. Resetting the adaptives

B. Adjusting backlash

C. Inspecting and clearing the housing breather

D. Replacing the driveshaft

30. Backlash measures within spec but the contact pattern is off-center. The BEST conclusion is:

A. The correct backlash makes the pattern irrelevant

B. The adaptives need resetting

C. Pinion depth is likely incorrect and needs shim correction

D. The cooler is restricted

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

A. The differential side and spider gears

B. The drive side of the ring and pinion

C. A straight-line wheel bearing

D. The lockup clutch

32. A drive axle is noisy on acceleration but quiet on coast. The source is:

A. The coast side of the ring and pinion

B. A wheel bearing

C. The drive side of the ring and pinion mesh

D. The torque converter

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

A. Tighten the nut as hard as possible

B. Set preload by feel

C. Skip preload if backlash is correct

D. Measure rotating torque to spec without over-crushing the sleeve

34. A wheel seal is leaking lubricant onto the brake assembly. The correct action is to:

A. Correct the leak and inspect the brakes for contamination before release

B. Top off and release the bus

C. Reset the adaptives

D. Re-phase the driveshaft

35. A hypoid axle is found filled with a non-EP universal oil. The likely consequence is:

A. Improved gear quietness

B. Lower operating temperature

C. Gear and bearing damage from lubricant breakdown

D. A locked converter

36. A bus drive axle runs hot and the lubricant level reads low. The technician should recognize that low hypoid lubricant:

A. Improves cooling

B. Raises line pressure

C. Re-phases the driveshaft

D. Causes overheating and accelerated gear and bearing wear

37. A full-floating axle is being inspected. The technician confirms that vehicle weight is carried by:

A. The axle shaft

B. The wheel bearings on the housing

C. The differential

D. The slip yoke

38. During final-drive setup, backlash is correct but the pattern is biased toward the tooth top/face. The pinion is:

A. Set too deep

B. Correctly set

C. Set too shallow, needing shim correction

D. Unaffected by depth

39. A drive axle lubricant sample contains visible metal particles. This MOST likely indicates:

A. Normal operation

B. A coolant leak

C. A driveshaft phasing error

D. Internal gear or bearing wear

40. A vibration tracks engine speed rather than road speed and is present in neutral. This points the technician toward the:

A. Drive axle

B. Engine, converter, or input components

C. Differential side gears

D. Wheel bearings

Answer Key & Full Answer Explanations

1. B — A stall reading of 2,300 RPM above the 1,800 RPM spec indicates clutch slippage or low apply pressure, letting engine RPM climb past spec. The engine does not over-produce power, a seized stator lowers stall, and a locked converter would not raise it. High stall points to slippage.

2. C — A stall reading of 1,200 RPM below the 1,800 RPM spec indicates the engine not producing full power or a stator one-way clutch problem, so the converter cannot load the engine to spec. Clutch slippage raises stall, and the other options do not lower it. Low stall points to engine or converter.

3. C — Pressure low across all circuits points to a system-wide cause such as a worn pump or faulty regulator. A single clutch seal affects one circuit, and driveshaft and breather faults are unrelated. The system-wide pattern implicates pump, fluid, or regulation.

4. A — Normal line pressure with one circuit reading 60 psi indicates leakage in that specific clutch 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.

5. B — Commanded 4th but achieved 3rd ratio, with input speed too high for the output, indicates a clutch slipping in the commanded gear. Breather, driveshaft, and wheel bearing faults do not produce this ratio mismatch. The ratio discrepancy reveals slip.

6. D — 280°F at steady highway speed with no lockup achieved points to the lockup clutch and its control circuit, since continuous slip generates heat. Differential lube, wheel seals, and the slip yoke are unrelated. The missing lockup is the lead.

7. C — Runout of 0.040 in against a 0.010 in maximum is excessive and cannot be cured by balancing alone, because the shaft does not rotate true. It is not within tolerance, fixed by balancing, or a phasing confirmation. A bent shaft must be corrected.

8. D — Backlash of 0.002 in below the 0.008–0.012 in spec is too tight, causing binding, overheating, and wear. It does not produce coast-only noise, improve quietness, or cause a coolant leak. Insufficient clearance binds the gears.

9. A — Backlash of 0.020 in above the 0.008–0.012 in spec is too loose, causing noise on torque reversal and accelerated wear. It does not bind, improve durability, or lock the converter. Excessive clearance produces clatter and wear.

10. A — Preload of 35 in-lb above the 10–20 in-lb spec is too high, overloading the bearings and causing overheating and early failure. It does not increase backlash, improve gear life, or cause a coolant leak. Excessive preload overloads the bearings.

11. B — Preload of 4 in-lb below the 10–20 in-lb spec is too low, allowing pinion movement under load that upsets the mesh and causes noise. It does not overheat the bearings, lock the differential, or affect phasing. Insufficient preload permits harmful movement.

12. B — Foamy fluid 0.5 quart above full indicates an overfilled condition causing aeration and overheating as the components churn the fluid. It does not merely raise pressure, improve shifts, or affect phasing. Both overfill and underfill cause aeration.

13. A — With code X active and code Y stored, the active code (X) is diagnosed first because the fault is present now. The stored code may be intermittent, and ignoring or handling both without diagnosis is wrong. Active faults take priority.

14. C — 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.

15. B — A cyclic noise that rises and falls with road speed and is louder on one side points to a wheel bearing or axle shaft at that wheel end. Spider gears act on turns, and the converter and valve body are transmission components. One-sided wheel-speed-cyclic noise localizes to that wheel end.

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

17. B — 0.015 in of radial play where the spec is near zero indicates a worn joint requiring replacement. It is not serviceable, a phasing confirmation, or a lubrication indicator. Measurable play means a worn U-joint.

18. A — A 300°F spike during heavy retarder use 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 heat. Fluid and cooling come first.

19. D — 0 psi while moving a dead bus is explained by the pump being engine-driven, so 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.

20. A — A 90% clogged filter explains slip and overheating because it starves the pump and lowers system pressure. It does not raise pressure, contaminate with coolant, or cause driveshaft vibration. A clogged filter mimics internal faults.

21. A — A repaired transmission that still flares, with the repair confirmed mechanically correct, most likely means resetting and relearning adaptive values was missed. Differential, driveshaft, and breather work are unrelated. The TCM keeps applying old compensation until reset.

22. B — Vibration at exactly 55 mph regardless of gear, gone below 45 mph, points to the driveshaft or drive axle. The valve body, stator, and lockup solenoid are transmission components. Speed-related, gear-independent vibration is a downstream signature.

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

24. B — 0.030 in of play at the mid-shaft support indicates a problem with the center support bearing or its mount. Pinion depth, the filter, and the lockup clutch are unrelated to a mid-shaft fault. The location of the play identifies the component.

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

26. A — A whine in neutral at idle that rises with engine RPM 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.

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

28. D — When a solenoid measures within resistance spec but the circuit still fails, a hydraulic pressure test of that circuit confirms a stuck valve or leak. Replacing the TCM, re-phasing, or adjusting bearings do not address it. Electrical and hydraulic testing complement each other.

29. C — A seal leak returning 5 days after replacement most likely means the housing breather was not inspected and cleared; a plug forces lubricant past the new seal. Resetting adaptives, adjusting backlash, or replacing the driveshaft are unrelated. Always check the breather.

30. C — 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 confirms depth.

31. A — Axle noise only when cornering points to the differential side and spider gears, which rotate relative to each other only in turns. The drive side, a straight-line wheel bearing, and the lockup clutch are not turn-specific. Turn-only noise isolates the differential internals.

32. C — Noise on acceleration but quiet on coast points to the drive side of the ring and pinion mesh, loaded 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 side.

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

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

35. C — A hypoid axle filled with non-EP universal oil suffers gear and bearing damage from lubricant breakdown, since the oil cannot withstand the sliding tooth action. It does not improve quietness, lower temperature, or lock the converter. EP lubricant is mandatory.

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

37. B — On a full-floating axle, vehicle weight is carried by the wheel bearings on the housing while the shaft transmits torque. The axle shaft, differential, and slip yoke do not carry the weight. Load and torque follow separate paths.

38. C — Backlash correct but the pattern biased toward the top/face indicates the pinion is set too shallow, needing shim correction. It is not too deep, correctly set, or unaffected by depth. The pattern location reveals the depth error.

39. D — Visible metal particles in axle lubricant most likely indicate internal gear or bearing wear. It is not normal, a coolant leak, or a phasing error. Metal contamination is a warning of internal damage.

40. B — Vibration that tracks engine speed rather than road speed and is present in neutral points to the engine, converter, or input components, which turn with the engine. The drive axle, differential gears, and wheel bearings track road or shaft speed. The engine-speed relationship localizes it upstream.