PRACTICE EXAM 21 — QUESTIONS 1–40

1. The converter element connected to the transmission input shaft is the:

A. Impeller

B. Turbine

C. Stator

D. Lockup piston

2. Technician A says continuous converter slip at road speed generates heat. Technician B says a non-locking converter runs cooler. Who is correct?

A. Technician A only

B. Technician B only

C. Both Technician A and Technician B

D. Neither Technician A nor Technician B

3. Each of the following can cause a transmission to overheat EXCEPT:

A. Continuous converter slip

B. A restricted cooler

C. An incorrect fluid level

D. A correctly applied lockup clutch at cruise

4. A stall test reads above specification. This MOST likely indicates:

A. A seized stator

B. Slipping clutches or low apply pressure

C. The engine over-producing power

D. A locked converter

5. The TCM detects clutch slip by comparing:

A. Coolant temperature to ambient

B. Battery voltage to alternator output

C. Input speed to output speed

D. Fuel pressure to barometric pressure

6. A flare with no lasting slip during an upshift MOST likely indicates:

A. High apply pressure

B. The off-going clutch releasing before the on-coming applies

C. A plugged breather

D. A worn wheel bearing

7. Which fluid is required in a transit automatic transmission?

A. A fluid carrying the correct TES approval

B. Any universal ATF

C. EP hypoid gear lubricant

D. Engine oil

8. Low pressure across all circuits 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 regulator

D. A plugged breather

9. A transmission shifts poorly after a mechanically correct repair. The MOST likely overlooked step is:

A. Resetting and relearning adaptives

B. Refilling the differential

C. Replacing the driveshaft

D. Clearing the breather

10. Milky transmission fluid MOST likely indicates:

A. Normal cold fluid

B. Excellent condition

C. The correct fluid type

D. Coolant intrusion from a failed cooler

11. Each of the following is a TCM sensor input EXCEPT:

A. Input speed

B. Differential backlash

C. Output speed

D. Fluid temperature

12. The valve body functions as the:

A. Source of all hydraulic pressure

B. Cooling heat exchanger

C. Hydraulic control center routing pressurized fluid

D. Mechanical link between engine and transmission

13. A stall speed below specification MOST likely indicates:

A. Clutch slippage

B. An overfilled transmission

C. A locked converter

D. The engine not producing full power or a stator problem

14. Before mating the transmission to the engine, the technician must verify:

A. The driveshaft is balanced

B. The breather is clear

C. The wheel bearings are adjusted

D. The torque converter is fully seated

15. Technician A says low apply pressure causes a slipping shift. Technician B says high apply pressure causes a harsh shift. Who is correct?

A. Both Technician A and Technician B

B. Technician A only

C. Technician B only

D. Neither Technician A nor Technician B

16. A restricted transmission filter would MOST likely cause:

A. Higher line pressure

B. Low pressure, slipping, and overheating

C. Improved shift quality

D. Coolant contamination

17. A whine present in neutral that rises with engine speed points to the:

A. Wheel bearings

B. Differential side gears

C. Driveshaft center bearing

D. Pump or converter/input components

18. A bus with an integral retarder shows weak retarding and high fluid temperature. The MOST likely cause is:

A. A shattered rotor

B. An out-of-phase driveshaft

C. TCM protective heat limiting

D. An over-adjusted wheel bearing

19. Each of the following is a correct in-vehicle inspection point EXCEPT:

A. Transmission mounts

B. Wiring connectors and grounds

C. Cooler lines

D. Internal clutch piston seals

20. A planetary gearset produces direct drive (1:1) when:

A. Any two members are locked together

B. The ring gear is held

C. The carrier is held

D. The sun gear is held

21. The transmission pump is driven by:

A. The output shaft

B. An electric motor

C. The converter and engine

D. The differential

22. Adaptive learning primarily functions to:

A. Adjust clutch apply timing and pressure as components wear

B. Control engine fuel injection

C. Increase the differential ratio

D. Lock the converter at idle

23. A bus is towed in dead with no transmission pressure while moving because:

A. The output speed sensor failed

B. The valve body is stuck

C. The breather is plugged

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

24. An active code and a stored code appear on unrelated circuits. The technician should:

A. Diagnose the stored code first

B. Clear both without diagnosis

C. Ignore both

D. Diagnose the active code first

25. The lockup clutch improves cruise efficiency by:

A. Eliminating fluid slip between impeller and turbine

B. Increasing torque multiplication

C. Allowing idle while stopped

D. Lowering the stall speed

26. Before condemning a transmission for a shift complaint, good practice is to:

A. Remove it immediately

B. Exhaust in-vehicle inspection and adjustment first

C. Replace the differential

D. Re-phase the driveshaft

27. The first step in diagnosing any transmission complaint is to:

A. Verify the complaint with a road test

B. Remove the transmission

C. Replace the valve body

D. Flush the cooler

28. A solenoid tests electrically good but its circuit misbehaves. The BEST next step is to:

A. Replace the TCM

B. Re-phase the driveshaft

C. Adjust the wheel bearings

D. Perform a hydraulic pressure test of the circuit

29. Technician A says driveshaft end yokes must be in phase to cancel velocity fluctuation. Technician B says phasing only affects shaft length. Who is correct?

A. Both Technician A and Technician B

B. Technician A only

C. Technician B only

D. Neither Technician A nor Technician B

30. A U-joint at a near-zero working angle is MOST likely to suffer:

A. Brinelling from insufficient rotation

B. Excessive lubrication

C. Improved phasing

D. Reduced shaft speed

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

A. The adaptives are reset

B. Phasing, angles, joints, bearing, slip yoke, and runout are correct

C. The differential is refilled

D. The cooler is flushed

32. Each of the following can cause driveshaft vibration EXCEPT:

A. Worn U-joints

B. An out-of-phase assembly

C. A shaft with correct phasing, sound joints, and runout in spec

D. A worn center support bearing

33. A single-reduction drive axle turns power 90 degrees and provides final reduction through the:

A. Slip yoke

B. Output speed sensor

C. Hypoid ring and pinion

D. Differential spider gears alone

34. Backlash in a ring and pinion is BEST defined as:

A. The bearing load on the pinion

B. The lubricant level

C. The internal housing pressure

D. The clearance between the meshing teeth

35. Technician A says pinion preload may be set by feel. Technician B says preload is the same as backlash. Who is correct?

A. Technician A only

B. Technician B only

C. Neither Technician A nor Technician B

D. Both Technician A and Technician B

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

A. The coast side of the ring and pinion

B. The drive side of the ring and pinion mesh

C. A wheel bearing

D. The torque converter

37. An axle seal leak recurs shortly 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

38. A wheel seal leaking onto the brakes should be addressed by:

A. Correcting the leak and inspecting the brakes for contamination before release

B. Topping off and releasing the bus

C. Resetting the adaptives

D. Re-phasing the driveshaft

39. A hypoid axle requires EP lubricant because of the:

A. Low operating temperature

B. Sliding tooth action of the offset gears

C. Sensor electrical load

D. Housing air pressure

40. During final-drive setup, backlash is 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

Answer Key & Full Answer Explanations

1. B — The turbine connects to the transmission input shaft. The impeller is engine-driven, the stator redirects fluid, and the lockup piston links the engine mechanically. The turbine transfers motion into the transmission.

2. A — Technician A is correct: continuous converter slip at road speed generates heat. Technician B is wrong; a non-locking converter runs hotter, not cooler. Slip is the heat source at cruise.

3. D — A correctly applied lockup clutch at cruise reduces heat, so it is the exception. Continuous slip, a restricted cooler, and incorrect fluid level all cause overheating. Lockup is part of the cure.

4. B — A stall reading above specification indicates slipping clutches or low apply pressure. A seized stator lowers stall, the engine does not over-produce power, and a locked converter would not raise it. High stall means slippage.

5. C — The TCM compares input speed to output speed to detect slip, since a gear holds a fixed ratio between them. Coolant, battery, and fuel comparisons are unrelated. This comparison is the basis of slip detection.

6. B — A flare with no lasting slip indicates the off-going clutch releasing before the on-coming applies. High pressure causes harshness, and the breather and bearing are unrelated. Flare is a timing handoff problem.

7. A — A transit automatic requires a fluid carrying the correct TES approval. Universal ATF, hypoid lube, and engine oil are wrong and harmful. Fluid specification is a functional requirement.

8. C — Low pressure across all circuits points to a system-wide cause such as a worn pump or regulator. A single clutch seal affects one circuit, and driveshaft and breather faults are unrelated. The pattern distinguishes system-wide faults.

9. A — Poor shifting after a mechanically correct repair most likely means resetting and relearning adaptives was overlooked. Differential, driveshaft, and breather work are unrelated. The TCM keeps applying old compensation until reset.

10. D — Milky fluid indicates coolant intrusion from a failed cooler. It is not normal cold fluid, excellent condition, or a fluid-type indicator. Milky fluid is a cooler-failure clue.

11. B — Differential backlash is an axle measurement, not a TCM input, so it is the exception. Input speed, output speed, and fluid temperature are genuine inputs. The TCM does not read axle gear clearance.

12. C — The valve body is the hydraulic control center routing pressurized fluid. The pump is the source, the cooler removes heat, and the converter is the fluid/mechanical link. The valve body directs flow.

13. D — A stall speed below specification indicates the engine not producing full power or a stator problem. Clutch slippage raises stall, and the other options do not lower it. Low stall points to engine or converter.

14. D — Before mating to the engine, the torque converter must be verified fully seated, or the pump is destroyed on start-up. Driveshaft balance, breather, and wheel bearings are unrelated. Full seating is a critical pre-mating step.

15. A — Both technicians are correct: low apply pressure causes a slipping shift and high apply pressure causes a harsh shift. Pressure direction maps to shift feel. Both statements are accurate.

16. B — A restricted filter starves the pump, causing low pressure, slipping, and overheating. It does not raise pressure, improve shifts, or contaminate with coolant. A clogged filter mimics internal faults.

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

18. C — Weak retarding with high fluid temperature most likely means TCM protective heat limiting. A shattered rotor, out-of-phase shaft, or over-adjusted bearing are not indicated. Protective limiting is commonly mistaken for failure.

19. D — Internal clutch piston seals require disassembly and are not an in-vehicle inspection point, so this is the exception. Mounts, connectors and grounds, and cooler lines are in-vehicle points. Internal seals are found by pressure testing.

20. A — Direct drive (1:1) occurs when any two members are locked together so the set rotates as a unit. Holding the ring, carrier, or sun gear produces reduction or reverse. Locked members eliminate relative gear motion.

21. C — The transmission pump is driven by the converter and engine, so it makes no pressure with the engine off. It is not output-driven, electric, or differential-driven. Engine-driven pump flow is the pressure source.

22. A — Adaptive learning adjusts clutch apply timing and pressure as components wear. It does not control fuel injection, increase the differential ratio, or lock the converter at idle. Adaptives maintain shift quality over time.

23. D — No pressure while moving a dead bus is because the pump is 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.

24. D — 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 ignoring or clearing both abandons diagnosis. Active faults take priority.

25. A — The lockup clutch improves cruise efficiency by eliminating fluid slip between impeller and turbine. It does not increase multiplication, allow idle-while-stopped, or lower stall. Removing slip improves efficiency.

26. B — Good practice is to exhaust in-vehicle inspection and adjustment before condemning the transmission, since inexpensive faults can mimic internal problems. Removing it, replacing the differential, or re-phasing are premature. Diagnosis earns the teardown.

27. A — The first step in diagnosing any transmission complaint is to verify the complaint with a road test. Removal, valve body replacement, and cooler flushing skip ahead. Verification anchors the process.

28. D — When a solenoid tests good but the circuit misbehaves, a hydraulic pressure test of the 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. B — Technician A is correct: end yokes must be in phase to cancel velocity fluctuation. Technician B is wrong; phasing affects rotational smoothness, not shaft length. The slip yoke handles length.

30. A — A near-zero working angle causes brinelling from insufficient rotation. It does not cause excessive lubrication, improved phasing, or reduced shaft speed. Too little angle dents the bearings.

31. B — Before balancing, the technician must first confirm phasing, angles, joints, 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.

32. C — A shaft with correct phasing, sound joints, and runout in spec will not, by itself, vibrate, so it is the exception. Worn joints, out-of-phase assembly, and a worn center bearing all cause vibration. The exception describes a good shaft.

33. C — The hypoid ring and pinion turns power 90 degrees and provides final reduction. The slip yoke, speed sensor, and spider gears alone do not. The ring and pinion is the final drive gearset.

34. D — Backlash is the clearance between the meshing ring and pinion teeth. It is not bearing load (preload), lubricant level, or housing pressure. Backlash is set with a dial indicator to specification.

35. C — Neither is correct: preload must be measured, not set by feel, and it is not the same as backlash. Preload is bearing load measured as rotating torque; backlash is tooth clearance. Both statements are wrong.

36. B — 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.

37. C — A recurring seal leak shortly after replacement points to the housing breather not being 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.

38. A — A seal leaking onto the brakes 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.

39. B — A hypoid axle requires EP lubricant because of the sliding tooth action of the offset gears under high load. Low temperature, sensor load, and housing pressure are not the reason. The EP requirement follows from hypoid geometry.

40. 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.