PRACTICE EXAM 23 — QUESTIONS 1–40

1. The converter element mounted on a one-way clutch that redirects fluid is the:

A. Impeller

B. Stator

C. Turbine

D. Lockup clutch

2. A bus accelerates poorly from a stop, fluid is good, and stall speed is above spec. The MOST likely cause is:

A. A seized stator

B. Slipping clutches or low apply pressure

C. The engine over-producing power

D. A locked converter

3. Technician A says planetary gears stay in constant mesh during a shift. Technician B says the gearset slides gears to change ratio. 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

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

A. Continuous converter slip

B. A restricted cooler

C. A correctly applied lockup clutch at cruise

D. An incorrect fluid level

5. The TCM detects clutch slip by comparing:

A. Coolant temperature to ambient

B. Input speed to output speed

C. Battery voltage to alternator output

D. Fuel pressure to barometric pressure

6. A harsh upshift, with fluid confirmed good and high apply pressure measured, indicates:

A. An early off-going release

B. A non-locking converter

C. A plugged breather

D. A pressure control fault commanding excessive pressure

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. 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

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

A. High apply pressure

B. A plugged breather

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

D. A worn wheel bearing

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

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

B. The output speed sensor failed

C. The valve body is stuck

D. The breather is plugged

14. A stall test reads below specification. This MOST likely indicates:

A. Clutch slippage

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

C. An overfilled transmission

D. A locked converter

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

A. Input speed

B. Output speed

C. Differential backlash

D. Fluid temperature

16. 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

17. 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

18. A restricted transmission filter would MOST likely cause:

A. Higher line pressure

B. Improved shift quality

C. Coolant contamination

D. Low pressure, slipping, and overheating

19. Technician A says the retarder supplements the service brakes. Technician B says the retarder replaces them. 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

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

A. Wheel bearings

B. Pump or converter/input components

C. Differential side gears

D. Driveshaft center bearing

21. 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. An over-adjusted wheel bearing

D. TCM protective heat limiting

22. Adaptive learning primarily functions to:

A. Control engine fuel injection

B. Increase the differential ratio

C. Adjust clutch apply timing and pressure as components wear

D. Lock the converter at idle

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

A. Diagnose the stored code first

B. Diagnose the active code first

C. Clear both without diagnosis

D. Ignore both

24. Before condemning the transmission internals for a road-speed slip sensation, the technician should FIRST:

A. Remove the transmission

B. Confirm lockup clutch operation

C. Replace the pump

D. Adjust the wheel bearings

25. The lockup clutch improves cruise efficiency by:

A. Increasing torque multiplication

B. Allowing idle while stopped

C. Lowering the stall speed

D. Eliminating fluid slip between impeller and turbine

26. 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

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

A. Remove it immediately

B. Replace the differential

C. Exhaust in-vehicle inspection and adjustment first

D. Re-phase the driveshaft

28. 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

29. A driveshaft slip yoke serves to:

A. Accommodate length change as the suspension moves

B. Multiply torque

C. Hold the ring gear

D. Regulate line pressure

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

A. Excessive lubrication

B. Improved phasing

C. Brinelling from insufficient rotation

D. Reduced shaft speed

31. A two-piece driveshaft has noise at certain speeds with play at the mid-shaft support. The cause is:

A. Low transmission fluid

B. Incorrect pinion depth

C. A slipping converter

D. A worn center support bearing or its mount

32. 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

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

A. Slip yoke

B. Hypoid ring and pinion

C. Output speed sensor

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. 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

36. An axle seal leak recurs shortly after replacement. The technician most likely overlooked:

A. Inspecting and clearing the housing breather

B. Resetting the adaptives

C. Adjusting backlash

D. Replacing the driveshaft

37. Pinion bearing preload on a crush-sleeve axle is correctly set by:

A. Over-tightening the pinion nut

B. Feel alone

C. Measuring rotating torque to spec without over-crushing the sleeve

D. Skipping it if backlash is correct

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

A. Topping off and releasing the bus

B. Resetting the adaptives

C. Re-phasing the driveshaft

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

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

A. Sliding tooth action of the offset gears

B. Low operating temperature

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 stator is mounted on a one-way clutch and redirects fluid to produce torque multiplication. The impeller is engine-driven, the turbine drives the input, and the lockup clutch links the engine. The stator is the redirecting element.

2. B — Poor acceleration with good fluid and an above-spec stall reading points to 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.

3. A — Technician A is correct: planetary gears stay in constant mesh during a shift. Technician B describes a manual transmission's sliding gears. Constant mesh enables shifting under load.

4. C — 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.

5. B — 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. D — A harsh upshift with good fluid and high apply pressure measured indicates a pressure control fault commanding excessive pressure. An early off-going release causes flare, and the converter and breather are unrelated. High pressure produces abrupt engagement.

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. 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.

12. C — 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.

13. A — 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.

14. B — A stall test 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.

15. C — 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.

16. 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.

17. 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.

18. D — 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.

19. A — Technician A is correct: the retarder supplements the service brakes. Technician B is wrong; it does not replace them. The service brakes remain primary.

20. B — 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.

21. D — 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.

22. C — 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. B — 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.

24. B — Before condemning the internals for a road-speed slip sensation, the technician should first confirm lockup clutch operation, since lockup slip mimics internal wear. Removal, pump replacement, and wheel bearing work are premature. Lockup is checked first.

25. D — 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. 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.

27. C — 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.

28. 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.

29. A — The slip yoke accommodates length change as the suspension moves. It does not multiply torque, hold the ring gear, or regulate pressure. The splined slip joint handles the changing distance.

30. C — 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. D — Noise at certain speeds with play at the mid-shaft support indicates a worn center support bearing or its mount. Low fluid, pinion depth, and a slipping converter are unrelated to a mid-shaft fault. The location of the play identifies the component.

32. 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.

33. B — 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. 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.

36. A — 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.

37. C — On a crush-sleeve axle, pinion preload is set by measuring rotating torque to spec without over-crushing the sleeve. Over-tightening ruins the sleeve, feel is inaccurate, and skipping it is wrong. Measured preload prevents looseness and overload.

38. D — 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. A — 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.