PRACTICE EXAM 22 — QUESTIONS 1–40

1. The converter element driven by the engine that throws fluid toward the turbine is the:

A. Stator

B. Turbine

C. Impeller

D. Lockup clutch

2. A planetary gearset changes ratio by:

A. Sliding gears in and out of mesh

B. Holding and driving different members while the gears stay in mesh

C. Disconnecting the engine

D. Using a manual clutch

3. A bus overheats at steady highway speed with no other obvious fault. The MOST likely contributor is:

A. A plugged axle breather

B. An out-of-phase driveshaft

C. An overfilled differential

D. A converter not achieving lockup

4. Technician A says a code identifies a circuit to diagnose. Technician B says a code names the exact failed part. 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

5. A harsh upshift on every shift, with fluid confirmed good, is MOST consistent with:

A. An early off-going release

B. A non-locking converter

C. Apply pressure that is too high

D. A low differential lubricant level

6. Which is the FIRST and most cost-effective step when diagnosing a shift-quality complaint?

A. Removing the transmission

B. Replacing the valve body

C. Confirming fluid level and condition

D. Replacing the torque converter

7. Each of the following can produce low transmission line pressure EXCEPT:

A. A worn pump

B. A restricted filter

C. A faulty pressure regulator

D. An overfilled cooler reservoir

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

A. Clutch slippage or low pressure

B. A seized stator

C. The engine over-producing power

D. A locked converter

9. Which fluid must be used in a heavy-duty transit automatic transmission?

A. A fluid carrying the correct TES approval

B. Any universal ATF

C. EP hypoid gear lubricant

D. Engine oil

10. 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

11. Technician A says the retarder replaces the service brakes. Technician B says the retarder supplements them and the service brakes remain primary. 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

12. A solenoid converts the TCM's electrical command into:

A. A speed reading

B. A temperature reading

C. A backlash measurement

D. Hydraulic action

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

A. The output speed sensor failed

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

C. The valve body is stuck

D. The breather is plugged

14. 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

15. 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

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

A. Pump or converter/input components

B. Differential side gears

C. Wheel bearings

D. Driveshaft center bearing

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

A. Input speed

B. Output speed

C. Fluid temperature

D. Differential backlash

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

A. The ring gear is held

B. The carrier is held

C. Any two members are locked together

D. The sun gear is held

19. 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

20. Milky transmission fluid MOST likely indicates:

A. Normal cold fluid

B. Coolant intrusion from a failed cooler

C. Excellent condition

D. The correct fluid type

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

A. A shattered rotor

B. TCM protective heat limiting

C. An out-of-phase driveshaft

D. An over-adjusted wheel bearing

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

A. Remove the transmission

B. Replace the pump

C. Confirm lockup clutch operation

D. Adjust the wheel bearings

23. 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

24. 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

25. 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

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

A. Perform a hydraulic pressure test of the circuit

B. Replace the TCM

C. Re-phase the driveshaft

D. Adjust the wheel bearings

27. A stall test reads below specification. This 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

28. 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

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. Brinelling from insufficient rotation

B. Excessive lubrication

C. Improved phasing

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 worn center support bearing or its mount

D. A slipping converter

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

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

B. The adaptives are reset

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. Hypoid ring and pinion

B. Slip yoke

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 only when cornering. The source is:

A. The drive side of the ring and pinion

B. A straight-line wheel bearing

C. The lockup clutch

D. The differential side and spider gears

36. 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

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

A. Over-tightening the pinion nut

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

C. Feel alone

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. Low operating temperature

B. Sliding tooth action of the offset gears

C. Sensor electrical load

D. Housing air pressure

40. 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

+ Answer Key & Full Answer Explanations

1. C — The impeller is driven by the engine and throws fluid toward the turbine. The stator redirects fluid, the turbine drives the input, and the lockup clutch links the engine. The impeller is the engine-driven pump element.

2. B — A planetary gearset changes ratio by holding and driving different members while the gears stay in mesh. It does not slide gears, disconnect the engine, or use a manual clutch. Constant mesh enables shifting under load.

3. D — Steady-highway overheating with no other obvious fault points to a converter not achieving lockup, since continuous slip generates heat. A breather, driveshaft, or differential issue would not raise transmission fluid temperature. The missing lockup is the lead.

4. A — Technician A is correct: a code identifies a circuit to diagnose. Technician B is wrong; a code does not name the exact failed part. Diagnosing the circuit prevents wrong-part replacement.

5. C — A harsh upshift on every shift, with fluid confirmed good, is most consistent with apply pressure that is too high. An early off-going release causes flare, and the converter and differential lube are unrelated. High pressure produces abrupt engagement.

6. C — Confirming fluid level and condition is the first and cheapest step for a shift-quality complaint. Removal, valve body replacement, and converter replacement come later. Fluid resolves or redirects many complaints at minimal cost.

7. D — An overfilled cooler reservoir is not a recognized cause of low line pressure, so it is the exception. A worn pump, restricted filter, and faulty regulator all lower pressure. System-wide low pressure traces to pump, filter, or regulation.

8. A — A stall test above specification indicates clutch slippage or low 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.

9. A — A heavy-duty 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.

10. 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.

11. B — Technician B is correct: the retarder supplements the service brakes, which remain primary. Technician A is wrong; it does not replace them. The retarder is auxiliary braking.

12. D — A solenoid converts the TCM's electrical command into hydraulic action. It does not produce speed, temperature, or backlash readings. Solenoids are the TCM's output devices.

13. B — 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. 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.

15. 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.

16. A — 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. Differential gears, wheel bearings, and the center bearing track road or shaft speed. The engine-speed relationship localizes it upstream.

17. D — 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.

18. C — 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.

19. 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.

20. B — 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.

21. B — 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 — 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.

23. 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.

24. 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.

25. 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.

26. A — 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. D — 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.

28. 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.

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. 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. C — 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. A — 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. A — 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. D — 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.

36. 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.

37. B — 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. 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. 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.