Automatic Transmissions and Transaxles 8th Edition
Chapter 7
Multiple Choice Quiz A

Name: _____ Date: _____

1. What is the primary function of the sun gear in a simple planetary gear set?
A. To hold the pinion gears
B. To drive the ring gear
C. To act as the central gear around which the planet gears revolve
D. To connect to the output shaft

2. In a Simpson gear train, how are the planet gears arranged?
A. Around two sun gears
B. Around a single sun gear
C. Between two ring gears
D. Between a sun gear and a ring gear

3. What is unique about the Ravigneaux gear set compared to a simple planetary gear set?
A. It uses multiple sun gears.
B. It has two sets of planet gears.
C. It does not use a ring gear.
D. It operates without a planet carrier.

4. How does a LePelletier gear train contribute to modern automatic transmissions?
A. By allowing more gear ratios
B. By reducing the number of gears needed
C. By simplifying the clutch mechanism
D. By eliminating the need for a torque converter

5. What happens in a planetary gear set to achieve a 1:1 direct drive ratio?
A. The sun gear is locked with the ring gear.
B. The planet carrier is held stationary.
C. All components rotate at the same speed.
D. The ring gear is held stationary.

6. How is reverse achieved in a transmission using a planetary gear set?
A. By locking the sun gear and rotating the ring gear.
B. By holding the planet carrier stationary.
C. By reversing the rotation of the sun gear.
D. By locking the ring gear and rotating the sun gear.

7. What distinguishes a nonsynchronous design in automatic transmissions?
A. It uses a one-way clutch.
B. It requires shifting without interrupting power flow.
C. It uses bands for all gear changes.
D. It operates without a planetary gear set.

8. In a planetary gear set, what role does the ring gear play during power transmission?
A. It acts as the driving member.
B. It is always held stationary.
C. It transfers power to the planet gears.
D. It controls the direction of rotation.

9. How does the number of teeth on the sun and ring gears affect gear ratios in a planetary gear set?
A. It has no effect on gear ratios.
B. It determines the direction of rotation.
C. It changes the speed of the planet carrier.
D. It influences the reduction and overdrive ratios.

10. What is a key feature of the clutch-to-clutch design in transmissions like the Chrysler 41TE?
A. It uses bands for all gear changes.
B. It eliminates the need for a torque converter.
C. It allows direct shifts between gears without releasing a clutch.
D. It requires a separate clutch for each gear ratio.

Automatic Transmissions and Transaxles 8th Edition
Chapter 7
Multiple Choice Quiz A
Answer Key

1. C
2. A
3. B
4. A
5. C
6. D
7. A
8. C
9. D
10. C