Automotive Electrical and Engine Performance 8th Edition
Chapter 25 – Electronic Transmission Controls
Quiz A

1. What is the primary role of the Transmission Control Module (TCM) in modern vehicles?

a. To monitor engine emissions

b. To control hydraulic pump pressure

c. To manage shift timing and quality through software

d. To regulate fuel injection timing

2. Which type of sensor measures the speed of the input shaft in automatic transmissions?

a. Output speed sensor (OSS)

b. Hall-Effect sensor

c. Turbine speed sensor (TSS)

d. Frequency generator

3. What type of memory allows transmission adaptive strategies to be stored even if the battery is disconnected?

a. Random access memory (RAM)

b. Read-only memory (ROM)

c. Electronically erasable programmable read-only memory (EEPROM)

d. Keep alive memory (KAM)

4. How does a pressure control solenoid (PCS) adjust hydraulic line pressure?

a. By altering the resistance of the valve

b. Through pulse-width modulation (PWM)

c. By varying the voltage across the solenoid

d. By changing the fluid temperature

5. Which solenoid type can precisely control fluid flow through variable power application?

a. On–off solenoid

b. Pulse-width modulated (PWM) solenoid

c. Linear solenoid

d. Torque converter clutch solenoid

6. What is the function of the brake on/off (BOO) switch in automatic transmissions?

a. To monitor brake pedal position for adaptive learning

b. To signal the TCM to release the torque converter clutch (TCC)

c. To engage overdrive mode during deceleration

d. To control hydraulic pressure during braking

7. In adaptive control systems, what is the purpose of monitoring input and output shaft speeds?

a. To calculate the gear ratio and adjust shift duration

b. To optimize engine fuel consumption

c. To increase line pressure during heavy loads

d. To detect leaks in hydraulic circuits

8. How does a thermistor-based Transmission Fluid Temperature (TFT) sensor function?

a. It generates a voltage proportional to temperature

b. It creates an AC signal based on fluid temperature

c. It changes resistance inversely with temperature

d. It produces a digital signal to the TCM

9. What adaptive control term does General Motors use to describe managing clutch fill rates?

a. Transmission adaptive pressure (TAP)

b. Clutch volume index (CVI)

c. Torque management index (TMI)

d. Fluid synchronization algorithm (FSA)

10. In electronically controlled transmissions, what happens during "fuzzy logic" operation?

a. The PCM recalibrates adaptive strategies for shifting

b. Shifts adapt to driving conditions like hills and sharp turns

c. Line pressure is adjusted to compensate for wear

d. The system defaults to limp-in mode for diagnostics

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Correct Answers:

1. c

2. c

3. d

4. b

5. c

6. b

7. a

8. c

9. a

10. b