



Province of the
EASTERN CAPE
EDUCATION

DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)

HOME SCHOOLING SELF-STUDY WORKSHEET ANSWER SHEET

SUBJECT	AUTOMOTIVE	GRADE		DATE	MAY 2020
TOPIC	SYSTEMS & CONTROL – AUTOMATIC GEARBOX	TERM 1 REVISION	(Please tick)	TERM 2 CONTENT	(✓)

QUESTION 1

1.1 Transmission:

The transmission is a device that is connected to the back of the engine and it transmits the power from the engine to the drive wheels.

1.2 Types of transmission layout:

1.2.1 Rear-wheel drive.

1.2.2 Front-wheel drive

1.3 Function of the torque converter:

To multiply the engine torque automatically according to road and engine speeds.

1.4 Components of the torque converter:

- Impeller (pump)
- Reactor (stator)
- Turbine

1.5 Advantages of fluid coupling:

- Acceleration and the transfer of torque is smoother as vehicle pulls away.
- It does not require a foot-operated clutch pedal.
- It serves as a flywheel.
- It helps to reduce power unbalance.

(Any 3)

1.6 Rotate in the same direction as the pump:

One-way clutch

1.7 Gear ratio in relation to the road speed:

- Higher gear ratio decreases the engine speed.
- Low gear ratio increases the engine torque.

1.8 Locking sequence of the epicyclic gear trains:

- By hydraulic pressure operating brake bands and/or multiplate clutches.

1.9 Kickdown in automatic gearbox:

Activates the change down for rapid acceleration.

1.10 Mechanical systems in automatic transmission:

Planetary gear system.

QUESTION 2

2.1 Methods of cooling the automatic transmission:

- By using a special oil cooler alongside the engine cooling radiator and circulating transmission fluid through it. □
- Circulating transmission fluid through the bottom radiator tank.

2.2 Advantages of automatic transmission:

- It reduces driving fatigue. □
- Greater reduction of wheel spin under bad road conditions. □
- The vehicle can be stopped suddenly without the engine stalling. □
- The system dampers all engine torsional vibrations. □ (Any 2)

2.3 Purpose of automatic gearbox:

To relieve the driver of clutch □ and gear shift operation. □

2.4 Gear ratio on torque:

The higher the gear ratio the lower the torque transferred □ and the lower the gear ratio the higher the torque transferred.

2.5 Advantages of torque converter:

- Torque increases automatically.
- Smooth transfer of torque.
- Minimum servicing is required.
- To absorb shocks. (Any 2)

2.6 Automatic gearbox:

2.6.1 Brake band

2.6.2 Brake band labels:

- A Lever shaft
- B. Lever
- C. Strut
- D. Brake band
- E. Anchor
- F. Band adjuster

2.6.3 Brake bands function:

To enable the annulus to come into a stationary position to change to another ratio.