



Province of the  
**EASTERN CAPE**  
EDUCATION

**DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)**

**HOME SCHOOLING SELF-STUDY WORKSHEET ANSWER SHEET**

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

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.