

City & Guilds Vehicle Maintenance and Repair

Light Vehicle suite (7270/7290)

June 2022 Version 1.0

Evolve Test Specifications

This document provides test specification summaries for the evolve knowledge assessments for City & Guilds 7270/7290 Vehicle Maintenance and Repair - Light Vehicle qualification suite, which is comprised of the following qualifications:

- 7290-10 City & Guilds Level 1 Certificate in Vehicle Maintenance
- 7290-11 City & Guilds Level 1 Diploma in Vehicle Maintenance
- 7290-12 City & Guilds Level 2 Diploma in Light Vehicle Maintenance and Repair Principles
- 7290-13 City & Guilds Level 3 Diploma in Light Vehicle Maintenance and Repair Principles
- 7290-17 City & Guilds Level 2 Certificate in Light Vehicle Maintenance and Repair Principles
- 7270-12 City & Guilds Level 2 Diploma in Light Vehicle Maintenance and Repair Competence
- 7270-13 City & Guilds Level 3 Diploma in Light Vehicle Maintenance and Repair Competence

Please refer to the relevant qualification handbooks for full unit content details.

Test: 7270/7290-151

Title: Knowledge of Routine Light Vehicle Maintenance

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 25

Grading boundaries: Pass 15, Merit 18, Distinction 20

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
151	1 understand how to carry out routine light vehicle maintenance	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17	20	80
	2 understand the importance of carrying out light vehicle maintenance	2.1 2.2 2.3	5	20
	Total		25	100

Test: 7270/7290-152

Title: Knowledge of Light Vehicle Combustion Engine Mechanical, Lubrication and Cooling System Units and Components

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
152	1 understand how the main light vehicle engine mechanical systems operate	1.1 1.2 1.3 1.4 1.5 1.6	10	33
	2 understand how light vehicle engine lubrication systems operate	2.1 2.2 2.3 2.4 2.5	6	20
	3 understand how light vehicle engine cooling, heating and ventilation systems operate	3.1 3.2 3.3 3.4 3.5	6	20
	4 understand how to check, replace and test light vehicle engine mechanical, lubrication and cooling systems system units and components	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9	8	27
	Total		30	100

Test: 7270/7290-153

Title: Knowledge of Removing and Replacing Light Vehicle Electrical Units and Components

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
153	1 understand light vehicle electrical and electronic principles	1.1	12	40
		1.2		
		1.3		
		1.4		
		1.5		
		1.6		
		1.7		
		1.8		
		1.9		
		1.10		
	2 understand how light vehicle batteries, starting, charging, warning systems and components operate	2.1	8	26
		2.2		
		2.3		
		2.4		
		2.5		
	3 understand how light vehicle auxiliary electrical systems operate	3.1	5	17
		3.2		
		3.3		
		3.4		
	4 understand how to check, replace and test light vehicle electrical systems and components	4.1	5	17
		4.2		
		4.3		
		4.4		
		4.5		
	Total		30	100

Test: 7270/7290-154

Title: Knowledge of Removing and Replacing Light Vehicle Chassis Units and Components

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
154	1 understand how light vehicle steering and suspension systems operate	1.1	10	33
		1.2		
		1.3		
		1.4		
		1.5		
		1.6		
2 understand how light vehicle braking systems operate		2.1	8	27
		2.2		
		2.3		
		2.4		
		2.5		
3 understand how light vehicle wheel and tyre systems operate		3.1	6	20
		3.2		
		3.3		
		3.4		
		3.5		
4 understand how to check, replace and test light vehicle chassis units and components		4.1	6	20
		4.2		
		4.3		
		4.4		
		4.5		
	Total		30	100

Test: 7270/7290-155

Title: Knowledge of Inspecting Light Vehicles Using Prescribed Methods

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 15

Grading boundaries: Pass 9, Merit 11, Distinction 12

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
155	1 understand how to carry out inspections on light vehicles using prescribed methods	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15	15	100
	Total		15	100

Test: 7270/7290-157

Title: Knowledge of Diagnosis and Rectification of Light Vehicle Combustion Engine Faults

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
157	1 understand how light vehicle engine systems operate	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1,10 1.11	18	60
	2 understand how to diagnose and rectify faults in light vehicle engine systems	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9	12	40
	Total		30	100

Test: 7270/7290-158

Title: Knowledge in Diagnosis and Rectification of Light Vehicle Chassis Faults

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
158	1 understand how the light vehicle chassis systems operate	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11	14	46
	2 understand how to diagnose and rectify faults in light vehicle chassis systems	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9	16	54
	Total		30	100

Test: 7270/7290-161

Title: Knowledge of Overhauling Light Vehicle Combustion Engine Mechanical Units

Type: Multiple choice - Evolve

Duration: 30 mins

Number of questions: 20

Grading boundaries: Pass 12, Merit 14, Distinction 16

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
161	1 understand how to carry out inspections on light vehicles using prescribed methods	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11	20	100
	Total		20	100

Test: 7270/7290-162

Title: Knowledge of Light Vehicle Transmission and Driveline Units and Components

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
162	1 understand how light vehicle clutch systems operate	1.1 1.2 1.3 1.4 1.5 1.6	6	20
	2 understand how light vehicle manual gearbox systems operate	2.1 2.2 2.3 2.4 2.5	5	16
	3 understand how light vehicle driveline systems operate	3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9	9	30
	4 understand how to check, replace and test transmission and driveline units and components	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9	10	34
	Total		30	100

Test: 7270/7290-163

Title: Knowledge of Diagnosis and Rectification of Light Vehicle Transmission and Driveline Faults

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
163	1 understand how the light vehicle transmission and driveline systems operate	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11	14	46
	2 understand how light vehicle manual gearbox systems operate	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10	16	54
	Total		30	100

Test: 7270/7290-171

Title: Knowledge of Overhauling Light Vehicle Transmission Units

Type: Multiple choice - Evolve

Duration: 30 mins

Number of questions: 20

Grading boundaries: Pass 12, Merit 14, Distinction 16

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
171	1 understand how to overhaul light vehicle gearbox and final drive units	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11	20	100
	Total		20	100

Test: 7270/7290-172

Title: Knowledge of Light Vehicle Fuel, Ignition, Air and Exhaust System Units and Components

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
172	1 understand how light vehicle engine fuel systems operate	1.1 1.2 1.3 1.4 1.5 1.6 1.7	7	24
	2 understand how light vehicle engine ignition systems operate	2.1 2.2 2.3 2.4 2.5	6	20
	3 understand how light vehicle engine air supply and exhaust systems operate	3.1 3.2 3.3 3.4 3.5	7	24
	4 understand how to check, replace and test light vehicle engine fuel system units and components	4.1 4.2 4.3 4.4 4.5 4.6 4.7	10	32
	Total		30	100

Test: 7270/7290-181

Title: Knowledge of Overhauling Light Vehicle Steering and Suspension Units

Type: Multiple choice - Evolve

Duration: 30 mins

Number of questions: 20

Grading boundaries: Pass 12, Merit 14, Distinction 16

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
181	1 understand how to overhaul light vehicle steering and suspension units	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11	20	100
	Total		20	100

Test: 7270/7290-268

Title: Knowledge of Removing and Fitting Basic Light Vehicle Mechanical, Electrical and Trim (MET) Components and Non-permanently Fixed Vehicle Body Panels

Type: Multiple choice - Evolve

Duration: 55 mins

Number of questions: 35

Grading boundaries: Pass 21, Merit 25, Distinction 28

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
268	1 understand how to carry out removal and fitting of basic light vehicle mechanical electrical and trim (MET) components	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10	20	57
	2 understand how to carry out removal and fitting of basic light vehicle non permanently fixed vehicle body panels	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9	15	43
	Total		35	100

Test: 7290-352

Title: Knowledge of Motorcycle Internal Engine Systems

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18 Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
352	1 understand how the main motorcycle engine mechanical systems operate	1.1 1.2 1.3 1.4 1.5	6	20
	2 understand how motorcycle engine lubrication systems operate	2.1 2.2 2.3 2.4 2.5	6	20
	3 understand how motorcycle engine cooling systems operate	3.1 3.2 3.3 3.4 3.5	8	26
	4 understand how motorcycle clutch and transmission systems operate	4.1 4.2 4.3	4	14
	5 understand how to check, replace and test power train systems, units and components	5.1 5.2 5.3 5.4	6	20
	Total			30

Test: 7290-355

Title: Knowledge of Overhauling Light Vehicle Transmission Units

Type: Multiple choice - Evolve

Duration: 25 mins

Number of questions: 15

Grading boundaries: Pass 9, Merit 11, Distinction 12

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
355	1 understand how to carry out preparation activities and inspections of motorcycles	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10	15	100
	Total		15	100

Test: 7270/7290-457

Title: Knowledge of Diagnosis and Rectification of Vehicle Auxiliary Electrical Faults

Type: Multiple choice - Evolve

Duration: 40 mins

Number of questions: 25

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
457	1 understand vehicle electrical and electronic principles	1.1	4	16
		1.2		
		1.3		
		1.4		
2 understand how light vehicle auxiliary electrical systems operate	2.1	12	48	
	2.2			
	2.4			
	2.3			
	2.5			
	2.6			
	2.7			
	2.8			
	2.9			
	2.10			
	2.11			
3 understand how to diagnose and rectify faults in auxiliary electrical systems	3.1	9	36	
	3.2			
	3.3			
	3.4			
	3.5			
	3.6			
	3.7			
	3.8			
Total		25	100	

Test: 7290-551

Title: Knowledge in Inspection, Repair and Replacement of Standard Light Vehicle Tyres

Duration: 30 mins

Number of questions: 20

Grading boundaries: Pass 12, Merit 14, Distinction 16

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
551	1 know light vehicle tyre construction, legislation and special workplace procedures	1.1 1.2 1.3 1.4 1.5 1.6	5	25
	2 know about the tools and equipment used when working with light vehicle tyres	2.1 2.2	3	15
	3 know about materials used in the repair of light vehicle tyres	3.1	2	10
	4 know about the inspection, removal, repair and replacement of light vehicle tyres	4.1 4.2 4.3 4.4 4.5 4.6	10	50
	Total		20	100

Test: 7290-553

Title: Knowledge of Inspection, Repair and Replacement of Commercial Vehicle Tyres

Duration: 30 mins

Number of questions: 20

Grading boundaries: Pass 12, Merit 14, Distinction 16

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
553	1 understand commercial vehicle wheel and tyre construction, legislation and special workplace procedures	1.1 1.2 1.3 1.4 1.5	4	20
	2 understand the tools and equipment used when working with commercial vehicle tyres	2.1 2.2	3	15
	3 understand the construction of, and the materials used in the manufacture and repair of commercial vehicle tyres	3.1 3.2	4	20
	4 understand how to inspect, remove, repair and replace of commercial vehicle tyres	4.1 4.2 4.3 4.4 4.5 4.6 4.7	9	45
	Total		20	100

Test: 7290-594

Title: Knowledge of Receiving and Storing Stock

Duration: 25 mins

Number of questions: 15

Grading boundaries: Pass 9, Merit 11, Distinction 12

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
594	1 know their organisation's systems and procedures	1.1 1.2 1.3 1.4 1.4 1.5	4	26
	2 know about parts handling and storage	2.1 2.2 2.4 2.3 2.5 2.6 2.7 2.8	9	60
	3 know about stock records and stock control	3.1 3.2 3.3 3.4 3.5	2	14
	Total		15	100

Test: 7270/7290-601

Title: Knowledge of Carrying out Non-High Voltage Operations On, Near or With an Electric Vehicle

Duration: 45 mins

Number of questions: 15

Grading boundaries: Pass only, 9

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
601	1 understand the operational differences between electric and non-electric vehicles, and know how to identify the different types of electric vehicles	1.1 1.2 1.3 1.4 1.4 1.5 1.6 1.7	7	46
	2 understand the importance of adhering to health and safety legislation, regulations, guidelines and workplace procedures and know how to work safely around electric vehicles	2.1 2.2 2.4 2.3 2.5 2.6 2.7 2.8	5	34
	3 understand the hazards associated with working on or around electric vehicles	3.1 3.2 3.3	3	20
	Total		15	100

Test: 7270/7290-602

Title: Knowledge of Isolating and Re-energising High Voltage Systems in an Electric Vehicle

Duration: 45 mins

Number of questions: 20

Grading boundaries: Pass only, 12

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
602	1 understand the differences between the different types of electric vehicles and their electrical systems	1.1 1.2 1.3 1.4 1.5	4	20
	2 understand the legislative and workplace procedures that should be adhered to when isolating and re-energising high voltage systems in an electric vehicle	2.1 2.2 2.3 2.4 2.5 2.6 2.7	6	30
	3 understand the hazards associated with working on or around electric vehicles	3.1 3.2 3.3	2	10
	4 understand how to isolate and re-energise electric vehicle high voltage systems	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9	8	40
	Total		20	100

Test: 7270/7290-603

Title: Knowledge of Removing and Replacing Components in an Electric Vehicle High Voltage Powertrain and Ancillary Systems

Duration: 60 mins

Number of questions: 30

Grading boundaries: Pass only, 18

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
603	1 understand the operation of electric vehicle systems	1.1 1.2 1.3	1	3
	2 understand the features, function and construction of electric vehicle components and alternative fuel systems	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8	3	10
	3 understand the electrical and electronic principles relating to low and high voltage systems and components	3.1 3.2 3.3 3.4 3.5 3.6	6	20
	4 understand the importance of adhering to health and safety legislation, regulations, guidelines and workplace procedures and know how to work safely around electric vehicles	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8 4.9 4.10 4.11	6	20

	5 understand the hazards associated with working on electric vehicles and how to minimise risk to yourself and others when removing and replacing components in an electric vehicle	5.1 5.2 5.3 5.4 5.5 5.6 5.7	4	14
	6 understand how to test, remove and replace components in an electric vehicle	6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10	10	33
	Total		30	100

Test: 7290-776

Title: Introduction to Automotive Technology and Workshop Skills

Type: Multiple choice - Evolve

Duration: 25 mins

Number of questions: 15

Grading boundaries: Pass 9, Merit 11, Distinction 12

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
776	1 understand the operation and use of workshop equipment	1.1 1.2	2	13
	2 understand the use of tools and measuring equipment; identify joining methods and materials	2.1 2.2 2.3 2.4 2.5 2.6 2.7	6	40
	3 be able to understand basic electrical principles and basic use of test equipment	3.1 3.2	2	13
	4 understand vehicle construction materials, components, methods and safety features	4.1 4.2 4.3 4.4 4.5	5	34
	Total			30

Test: 7290-777

Title: Carry out Basic Routine Vehicle Maintenance

Type: Multiple choice - Evolve

Duration: 45 mins

Number of questions: 30

Grading boundaries: Pass 18, Merit 21, Distinction 24

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
777	1 understand the purpose of routine maintenance; identify sources of information and regulations; describe the purpose of inspections of workshop equipment	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8	3	10
	2 understand the basic operating principles, components and features of petrol and diesel engines	2.1 2.2 2.3 2.4 2.5 2.6	2	6
	3 understand the basic operating principles, components, features and maintenance requirements of lubrication and cooling systems	3.1 3.2 3.3 3.4 3.5	2	6
	4 understand vehicle construction materials, components, methods and safety features	4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8	3	10

	5 understand the basic operating principles, components and features of diesel fuel systems	5.1 5.2 5.3 5.4 5.5 5.6	3	10
	6 understand the basic operating principles, components and features of clutches and gearboxes	6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11	5	16
	7 understand the basic operating principles, components and features of driveline and final drive systems	7.1 7.2 7.3 7.4 7.5 7.6	2	10
	8 understand the basic operating principles, components and features of steering	8.1 8.2 8.3	1	3
	9 understand the basic operating principles, components and features of suspension, wheels and tyres	9.1 9.2 9.3 9.4 9.5 9.6	3	10

	10 understand the basic operating principles, components, service requirements and features of brakes	10.1 10.2 10.3 10.4	2	6
	11 understand the basic operating principles, components, service requirements and features of electrical and electronic systems	11.1 11.2 11.3 11.4 11.5 11.6 11.7 11.8	4	13
	Total		30	100

Test: 7270/7290-830

Title: Knowledge of Diagnosing, Removing, Replacing and Recalibrating Motor Vehicle Advanced Driver Assistance System Components

Type: Multiple choice - Evolve

Duration:60 mins

Number of questions: 30

Grading boundaries: Pass only, 18

The table below details how the knowledge content within the unit is covered by the multiple choice questions.

Unit	Learning Outcomes	Assessment Criteria	Number of questions	Overall %
830	1 understand the health and safety and legislative procedures required to be followed, when working on advanced driver assistance systems	1.1 1.2 1.3 1.4 1.5 1.6	5	16.5
	2 understand the importance of customer interaction, workplace procedures and time scales	2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8	5	16.5
	3 understand advanced driver assistance system components, operation, failures and calibration	3.1 3.2 3.3 3.4 3.5 3.6	5	16.5
	4 understand the electrical and electronic principles relating to advanced driver assistance systems	4.1 4.2 4.3 4.4 4.5 4.6 4.7	5	16.5

	5 understand how to test, remove, replace and recalibrate components related to advanced driver assistance systems	5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9 5.10 5.11 5.12	10	34
	Total			100