



*Rewarding Learning*

**General Certificate of Secondary Education  
2016**

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## **Motor Vehicle and Road User Studies**

Unit 1: Motor Vehicle and Road User Theory

Higher Tier

**[GMV12]**

**MONDAY 16 MAY, AFTERNOON**

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**MARK  
SCHEME**

## General Marking Instructions

### Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

### The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

			AVAILABLE MARKS
1	LGV	[1]	1
2	When the vehicle is stopped at the side of the road.	[1]	1
3	(a) The left	[1]	
	(b) slow down/take extra care	[1]	2
4	(a) Any <b>three</b> from: local objections, wildlife, noise pollution, visual impact, effects on agriculture, disruption caused by construction, impact on communities and/or business, heritage	[3]	
	(b) Any <b>two</b> from: speed ramps, cushions, gateways, horizontal deflection, rumble strips, lighting, signs, road narrowing, chicane	[2]	5
5	To cover the blind spot	[1]	1
6	1. driving too close behind the vehicle in front. [1] 2. looking at an accident or activity and not paying attention to the road. [1]	[2]	2
7	(a) swap personal details and insurance details, stay at scene	[2]	
	(b) comprehensive	[1]	
	(c) expensive/not open to everyone	[1]	
	(d) from your GP	[1]	
	(e) Any <b>two</b> from: harness, booster seat, baby carrier, child seat, baby seat	[2]	7
8	Airfield or lifting bridge	[1]	1
9	(a) Any <b>two</b> from: nitrous oxide, carbon dioxide, hydrocarbons, sulphur dioxide	[2]	
	(b) roadside on busy urban roads, urban traffic queues, cities or towns	[1]	3
10	(a) 1. brow of hill 2. hidden dip 3. bad bend	[3]	
	(b) Any <b>two</b> from: speeding, overtaking, parking	[2]	5

			AVAILABLE MARKS
<b>11 (a)</b>	diesel	[1]	
<b>(b)</b>	when air is compressed, it heats and it ignites when fuel is injected	[2]	
<b>(c)</b>	1. crankshaft [1] 2. valve springs [1] 3. water pump [1]	[3]	
<b>(d)</b>	transmission/clutch	[1]	7
<b>12</b>	Any <b>four</b> from: mobile phone, fire extinguisher, fire blanket, torch, warning triangle, blanket, camera, notepad & pen/pencil, high visibility clothing, first aid kit	[4]	4
<b>13 (a)</b>	the liver	[1]	
<b>(b)</b>	one hour	[1]	
<b>(c)</b>	Any <b>two</b> from: imprisonment, fine, disqualification	[2]	4
<b>14 (a)</b>	works on its own or works independently	[1]	
<b>(b)</b>	Any <b>three</b> from: laminated safety glass, air bags, anti-burst locks, crumple zones, padded steering wheel, safety cage, collapsible steering column, side impact bars, bumpers etc.	[3]	
<b>(c)</b>	switch off the front passenger airbag	[1]	5
<b>15</b>	<b>Fig. 15.1</b> – crossroads <b>Fig. 15.2</b> – junction on bend ahead <b>Fig. 15.3</b> – ice <b>Fig. 15.4</b> – stop and give way <b>Fig. 15.5</b> – cycle and pedestrian route <b>Fig. 15.6</b> – turn left	[6]	6
<b>16 (a)</b>	Any <b>five</b> from: junctions left and right, sheep, bad corner, right filter lane, man standing thumbing lift, van parked at side of road, bus shelter.	[5]	
<b>(b)</b>	filter lane	[1]	
<b>(c)</b>	cross three lanes, filter lane may be blocked, fast moving traffic, busy road, junctions on a bend, distractions	[2]	8

			AVAILABLE MARKS	
<b>17</b>	<b>(a)</b>	1. C – master cylinder [1] 2. B – thermostat [1] 3. D – solenoid [1] 4. A – manifold [1]	[4]	13
	<b>(b)</b>	1. exhaust manifold [1] 2. catalytic converter/front box [1] 3. silencer/back box [1] 4. tail pipe [1]	[4]	
	<b>(c)</b>	reduces airflow to reduce noise from the exhaust	[1]	
	<b>(d)</b>	Any <b>two</b> from: check for rust/holes, check mountings, emissions	[2]	
	<b>(e)</b>	fuel is compressed to 1/8 of initial volume before ignition	[2]	
<b>18</b>	<b>(a)</b>	Advantage: cleaner, quiet, high mpg etc. [1] Disadvantage: expensive, doesn't suit everyone, poor image etc. [1]	[2]	4
	<b>(b)</b>	Any <b>two</b> from: vehicle of the future, environmentally friendly, less pollution	[2]	
<b>19</b>	<b>(a)</b>	$£8799 + £61.00 + £50.00 + £140.00 = £9050$	[1]	5
	<b>(b)</b>	$£9050 \div 100 \times 20 = £1810$ $£9050 - £1810 = £7240$ $£7240 \div 100 \times 15 = £1086$ [2]	[4]	
		$£1086 \times 3$ (36 months) = £3258 $£3258 + £7240 = £10498$ $£10498 \div 36 = £291.61$ [2]		
<b>20</b>	<b>(a)</b>	breathing	[1]	5
	<b>(b)</b>	Breathing [1] Bleeding [1] Conscious [1]	[3]	
	<b>(c)</b>	bruise	[1]	
<b>21</b>	can't see out of the side of the eyes when looking straight ahead	[1]	1	
<b>22</b>	for greater visibility, everyone can see, not obscured by LGVs, for vehicles further back	[1]	1	

			AVAILABLE MARKS
<b>23</b>	<b>(a)</b> affordable repayments, can budget for payments, get the vehicle now rather than later, does not use up savings	[1]	
	<b>(b)</b> Any <b>two</b> from: building society, finance company/dealer, credit union, hire purchase, family	[2]	
	<b>(c)</b> Any <b>two</b> from: tax, MOT, insurance, driving licence	[2]	
	<b>(d)</b> £5000 @ 12% = £600 600 × 3 = 1800	[2]	7
<b>24</b>	<b>(a)</b> 1. Gearbox [1] 2. Propeller shaft [1] 3. Final drive/differential [1] 4. Universal joints [1] 5. Clutch [1]	[5]	
	<b>(b)</b> 1. Circular movement [1] 2. Up & down movement [1]	[2]	
	<b>(c)</b> To engage & disengage the drive	[3]	
	<b>(d)</b> 1. Crankshaft [1] 2. Clutch/friction plate [1] 3. Pressure plate [1] 4. Flywheel [1]	[4]	
	<b>(e)</b> Any <b>two</b> from: engages with the starter motor, engages clutch mechanism, provides smooth even turning motion to reduce jolts/jerks	[2]	16
<b>25</b>	<b>(a)</b> Tourist Information	[1]	
	<b>(b)</b> Road works/diversion(s)	[1]	
	<b>(c)</b> Motorway signs	[1]	
	<b>(d)</b> Hospital/Emergency Services	[1]	
	<b>(e)</b> Primary Routes	[1]	5
<b>26</b>	Any <b>three</b> from: keep car well ventilated, listen to radio/cd player, check instruments regularly, avoid heavy meals, take regular breaks, get well rested before journey	[3]	3

		AVAILABLE MARKS
27	<p>(a) Any <b>three</b> from: has service history, teething problems sorted, easier to insure, cheaper to buy, no waiting for orders [3]</p> <p>(b) Monthly payments to drive car but not owned outright. Servicing and maintenance included in contract. Car can be returned at end of lease or bought 1 mark each for 2 valid points. [2]</p>	5
28	<p>(a) 1. <b>Fig. 28.1</b> – outside lane or right lane is closed [1] 2. <b>Fig. 28.2</b> – leave motorway at the next exit [1] [2]</p> <p>(b) using slip road, match your speed with that on the motorway, indicate, MSM, move onto the inside lane [2]</p> <p>(c) Any <b>two</b> from: bicycle, moped, motorcycle under 50cc, agricultural vehicle etc. [2]</p> <p>(d) Any <b>two</b> from: LGVs, buses, vehicles towing a trailer [2]</p> <p>(e) mirror, ensure it's safe to change lanes, accelerate past vehicle, use mirror to safely move into first lane, do not cut in, MSM [3]</p>	11
29	all traffic going in same direction, carriageways separated with safety crash barriers, slip roads on and off, no junctions, straighter, no traffic lights [6]	6
30	<p><b><u>Vehicles:</u></b> primary safety features for everyday driving, good visibility, ABS braking system, good tyres, suspension etc.; secondary safety features to reduce serious injury and fatalities</p> <p><b><u>Driver Training:</u></b> preparation for theory test – increased knowledge of highway code signs and laws driving lessons in preparation for test – taught correct road procedures and manoeuvres. On probation for 1 year – 45mph – R plates. Confidence building etc.</p> <p><b><u>Experience:</u></b> better judgement, awareness, knowledge, skill, confidence etc. [12]</p>	12

**31 Advantages**

**Pedestrians**

- reduces risks of accidents
- pedestrians not worried about traffic while shopping
- ease of movement for pedestrians
- area not as crowded
- safe for those with disability and elderly/children
- no step on/off pavement
- separation of pedestrians and vehicles
- services (e.g. telephones) and benches can be placed on road etc.

**Vehicles**

- reduces contact between motorist and pedestrian
- reduces accidents
- vehicles routed away from area
- relieves congestion in surrounding streets by accompanied one-way system
- city centre car parking available etc.

**Disadvantages**

- all vehicles not excluded at all times
- care still required with service vehicles
- have to walk from parking to shops
- disabled or handicapped having difficulty walking from parking
- service vehicles have access at various times
- shop displays may be a problem on pavement or road etc.

[12]

12

**32 Consideration**

allowing others, pedestrians time to cross the road  
 allowing other vehicles to pull out at junctions  
 applying the 2 second rule  
 wide berth when overtaking  
 using vehicle signals and obeying signals/signs  
 driving carefully, following highway code guidelines etc.

**Observation**

mirror, signal manoeuvre,  
 lifesaver signals  
 watching the road ahead  
 observing all other road users, pedestrians, cyclists, horse riders, agricultural vehicles  
 road conditions, weather conditions etc.

**Anticipation**

high risk areas  
 expect the unexpected  
 children, animals etc.

[12]

12

**Total**

**180**

**AVAILABLE MARKS**