



*Rewarding Learning*

General Certificate of Secondary Education  
2023

Centre Number

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Candidate Number

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# Motor Vehicle and Road User Studies

Unit 1: Motor Vehicle and Road User Theory



**[GMR11]**

\*GMR11\*

**WEDNESDAY 10 MAY, MORNING**

## TIME

1 hour 45 minutes.

## INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write outside the boxed area on each page or on blank pages.**

Complete in black ink only. **Do not write with a gel pen.**

Answer **all** questions.

## INFORMATION FOR CANDIDATES

The total mark for this paper is 160.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Questions **40, 41 and 42.**



1 Good visibility is an example of \_\_\_\_\_ safety in car design. [1]

2 What instruction is given by the road marking in Fig. 2.1 below?

\_\_\_\_\_

[1]



Fig. 2.1

3 Tourist information signs have white lettering on a \_\_\_\_\_ background. [1]

4 The speed limit for a bus travelling on a dual carriageway is \_\_\_\_\_ mph. [1]

5 Which **one** of the following is permitted on a motorway?

Reversing on  
the carriageway

Exceeding  
70 mph

Stopping on the  
hard shoulder in  
an emergency

Driving with  
a provisional  
licence

Answer \_\_\_\_\_ [1]



6 The sign in **Fig. 6.1** below shows a warning for a \_\_\_\_\_ substance. [1]



**Fig. 6.1**

7 A \_\_\_\_\_ is **one** example of a PCV. [1]

8 The Highway Code clearly states that vehicle lights must be switched on \_\_\_\_\_ minutes after sunset. [1]

9 **Fig 9.1** below shows a photograph of \_\_\_\_\_ . [1]



**Fig. 9.1**

[Turn over



10 Two streams of traffic moving in opposite directions on one side of a motorway during roadworks is known as a \_\_\_\_\_ system. [1]

11 A \_\_\_\_\_ will be sent to the main driver to remind them that insurance cover is coming to an end. [1]

12 The amount of money an insured driver has agreed to pay for claims before the insurance company makes any payment is referred to as the \_\_\_\_\_ . [1]

13 Nitrogen oxides and sulphur dioxide are two examples of \_\_\_\_\_ . [1]

14 A car's fuel consumption is 36 mpg. How many gallons of fuel are used on a journey of 90 miles? [1]

\_\_\_\_\_

15 The term used to describe buying a vehicle without trading in another against it is known as a \_\_\_\_\_ . [1]



16 The third priority at the scene of an accident is to

\_\_\_\_\_ [1]

17 The water pump and thermostat are part of the \_\_\_\_\_ system in a vehicle. [1]

18 Fig 18.1 below shows a picture of a \_\_\_\_\_ engine. [1]

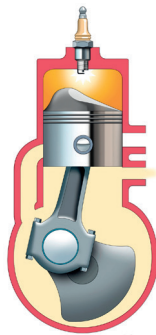


Fig. 18.1

19 The function of the \_\_\_\_\_ is to keep a battery charged. [1]

20 The component fitted to a vehicle's exhaust pipe to reduce noise is known as a \_\_\_\_\_ box. [1]

[Turn over



## Vehicle Control and Road User Behaviour

21 Name **one** item which, by law, must be kept clean on a motor vehicle.

\_\_\_\_\_ [1]

22 What is the national speed limit?

\_\_\_\_\_ [1]

23 Examine **Fig. 23.1** below carefully.



**Fig. 23.1**

How far is the motorway countdown marker in **Fig. 23.1** from the exit?

\_\_\_\_\_ [1]

24 Non-primary road signs for B roads have \_\_\_\_\_ lettering on a \_\_\_\_\_ background. [2]



25 (a) Name **two** actions a driver can take, while driving, to reduce excessive wear on the vehicle's tyres.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(b) Describe **two** ways in which a person can be a safe pedestrian.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

26 (a) Name **three** types of illumination required on a bicycle.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

3. \_\_\_\_\_ [1]

(b) What must a cyclist do if wishing to cross a road at a pelican, puffin or zebra crossing?

\_\_\_\_\_ [1]

(c) On public roads cyclists must never ride more than

\_\_\_\_\_ abreast. [1]

[Turn over



27 Examine Fig. 27.1 below carefully.

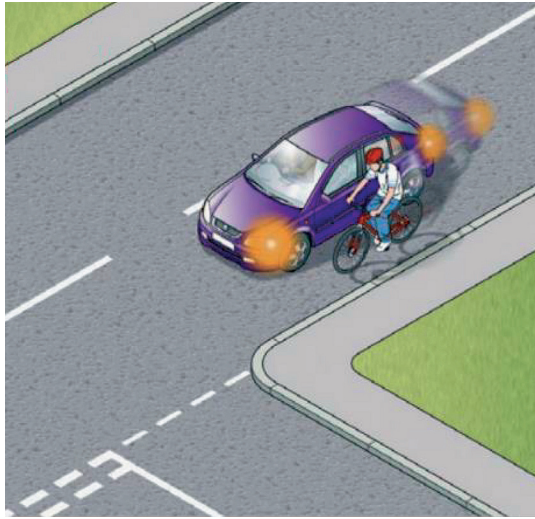


Fig. 27.1

(a) Why is the manoeuvre of the purple car dangerous?

\_\_\_\_\_ [1]

(b) What action should the driver of the purple car have taken?

\_\_\_\_\_ [1]

(c) Give **two** reasons why a cyclist should not cycle too close to a kerb.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]



(d) Examine Fig. 27.2 below and identify four hazards.

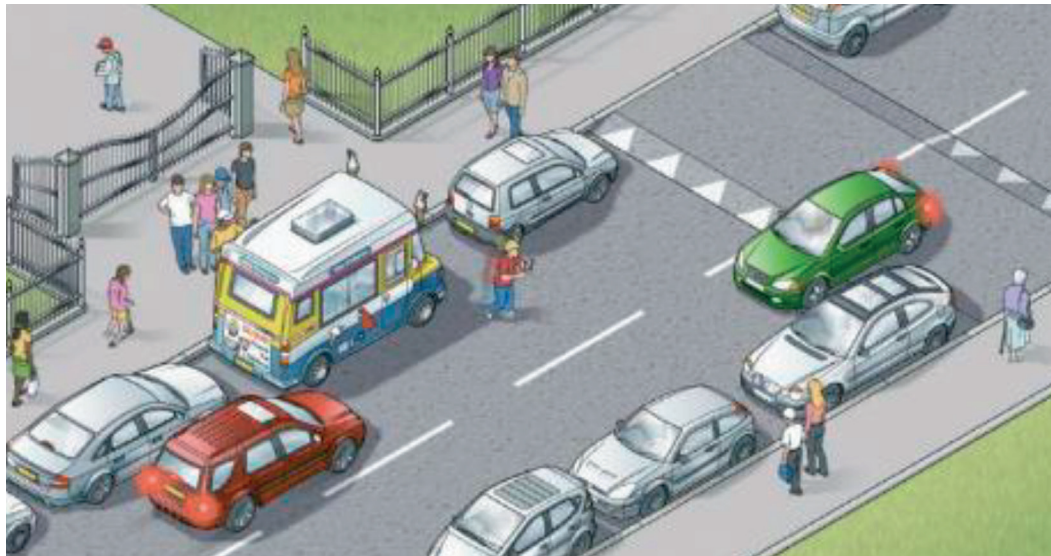


Fig. 27.2

1. \_\_\_\_\_ [1]
2. \_\_\_\_\_ [1]
3. \_\_\_\_\_ [1]
4. \_\_\_\_\_ [1]

[Turn over



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28 Examine the photograph in **Fig. 28.1** below carefully.



**Fig. 28.1**

(a) Give **three** reasons why the stretch of road in **Fig. 28.1** above is more challenging to travel along, particularly for high-sided vehicles and buses.

1. \_\_\_\_\_ [1]
2. \_\_\_\_\_ [1]
3. \_\_\_\_\_ [1]

(b) State **one** action which a high-sided vehicle travelling along the road in **Fig 28.1** above might have to take if meeting an approaching vehicle.

\_\_\_\_\_ [1]

(c) Give **two** reasons why the road in **Fig. 28.1** above would be dangerous for pedestrians.

1. \_\_\_\_\_ [1]
2. \_\_\_\_\_ [1]

[Turn over



29 Examine the photograph in **Fig. 29.1** below carefully.



**Fig. 29.1**

(a) What type of road is shown in **Fig. 29.1** above?

\_\_\_\_\_ [1]

(b) List **two** dangers for motorists travelling on the wet road in **Fig. 29.1** above.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(c) Apart from lights and brake lights, list **four** checks a driver should carry out on a vehicle before driving in wet conditions.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

3. \_\_\_\_\_ [1]

4. \_\_\_\_\_ [1]



(d) List **three** actions the motorists in **Fig 29.1** opposite should take while driving.

1. \_\_\_\_\_ [1]
2. \_\_\_\_\_ [1]
3. \_\_\_\_\_ [1]

**30** Give the meaning of each of the road signs shown in **Fig. 30.1** to **Fig. 30.6** below.



**Fig. 30.1**



**Fig. 30.2**



**Fig. 30.3**



**Fig. 30.4**



**Fig. 30.5**



**Fig. 30.6**

- Fig. 30.1** \_\_\_\_\_ [1]
- Fig. 30.2** \_\_\_\_\_ [1]
- Fig. 30.3** \_\_\_\_\_ [1]
- Fig. 30.4** \_\_\_\_\_ [1]
- Fig. 30.5** \_\_\_\_\_ [1]
- Fig. 30.6** \_\_\_\_\_ [1]

[Turn over



## Legal Requirements

31 (a) Write down **two** occasions when you are legally required to inform the DVLA of a change to your circumstances regarding:

(i) you as a driver

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(ii) your car

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(b) If a car requires and does not have a valid MOT certificate, write down **two** occasions when it may be driven on the road.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(c) How might you ensure you are not in the position of being without an MOT certificate?

\_\_\_\_\_ [1]

(d) After how many years, since new, does a car require an MOT in:

(i) Northern Ireland? \_\_\_\_\_ [1]

(ii) England? \_\_\_\_\_ [1]



32 (a) Explain the meaning of the following insurance terms.

Protected bonus \_\_\_\_\_  
\_\_\_\_\_ [1]

Cover note \_\_\_\_\_  
\_\_\_\_\_ [1]

(b) Give **two** reasons why insurance is less expensive for females under the age of 21 than for males of the same age.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(c) For how long can a vehicle be taxed?

\_\_\_\_\_ [1]

[Turn over



## Road Transport and its Effect on Society

33 (a) List **four** ways in which road engineers can improve the safety of roads.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

3. \_\_\_\_\_ [1]

4. \_\_\_\_\_ [1]

(b) Explain briefly why traffic is calmed.

\_\_\_\_\_ [1]

(c) Name **two** traffic management methods used to ease pedestrian movement in cities.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]



## Motoring Mathematics

- 34 (a) The fuel tank of a car holds 60 litres of fuel. If the car averages 45 miles per gallon and 4.55 litres is equal to 1 gallon, what is the distance, in miles, that the car can travel on a full tank of fuel (correct to the nearest mile)?

(Show all working out.)

Answer \_\_\_\_\_ miles [3]

- (b) Explain **two** ways in which your driving style can reduce running costs.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

- (c) Name **one** standing cost associated with motoring.

\_\_\_\_\_ [1]

[Turn over



35 Look at the graph in Fig. 35.1 below. It shows a return journey by car from Coleraine to Newry.

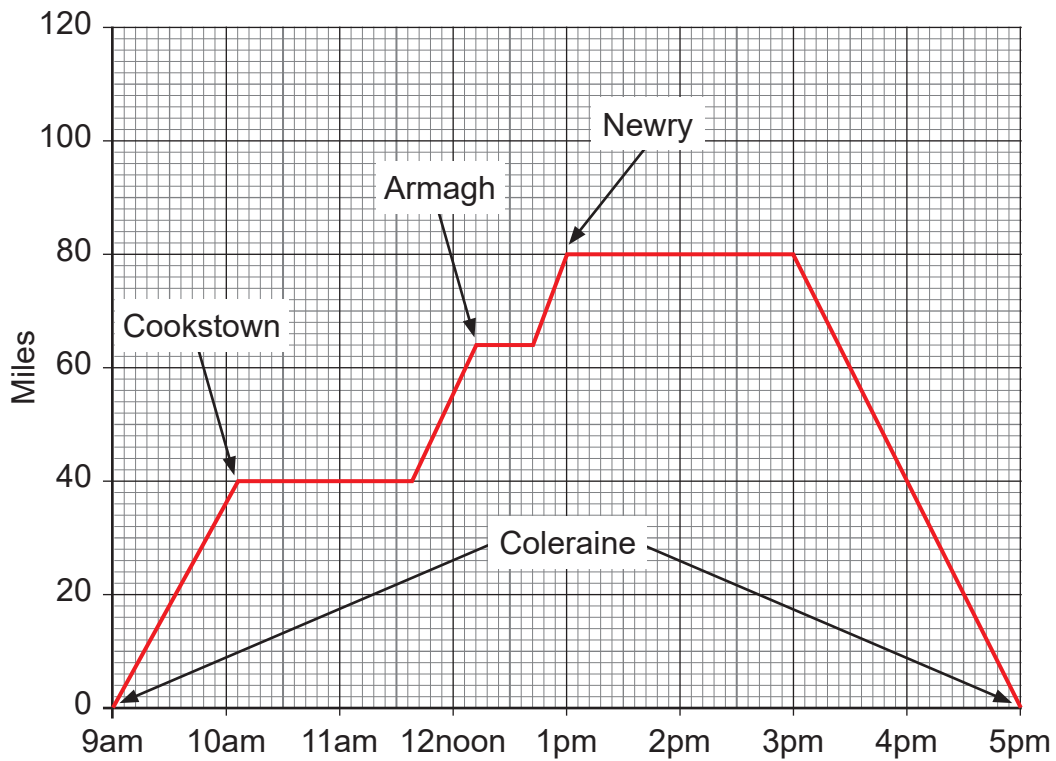


Fig. 35.1

(a) How long was the car stopped in Cookstown?

\_\_\_\_\_

[1]

(b) How many miles is it from Cookstown to Armagh?

\_\_\_\_\_

[1]

(c) What was the total time for which the vehicle was stopped?

\_\_\_\_\_

[1]



(d) Petrol costs £4.30/gallon and the car's consumption was 50 miles/gallon.  
What was the cost of fuel for the total return journey?

(Show all working out.)

Answer £ \_\_\_\_\_ [2]

(e) The advertisement in **Fig. 35.2** below appeared in a local newspaper.

**2016 Hyundai Tucson 1.7 CRDi Blue Drive SE 5dr 2WD.**  
62,985 miles; Used; 61.7 MPG\*; Estate; Road tax £30;  
Diesel; Black: FSH, VGC  
£10,698 o.n.o.

**Fig. 35.2**

What is meant by the following terms in the advertisement in **Fig. 35.2** above?

FSH \_\_\_\_\_ [1]

2WD \_\_\_\_\_ [1]

VGC \_\_\_\_\_ [1]

[Turn over



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## Collision Procedures

- 36 (a) Name the medical condition and treatment for a road traffic accident victim wandering at or near the scene in a dazed or confused manner.

Medical condition \_\_\_\_\_ [1]

Treatment \_\_\_\_\_ [1]

- (b) Explain why it is important not to give this patient anything to drink.

\_\_\_\_\_ [1]

- (c) List below the order of priorities when treating casualties at an accident scene.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

3. \_\_\_\_\_ [1]

- (d) The type of injury illustrated in **Fig. 36.1** below is known as a

\_\_\_\_\_ wound. [1]

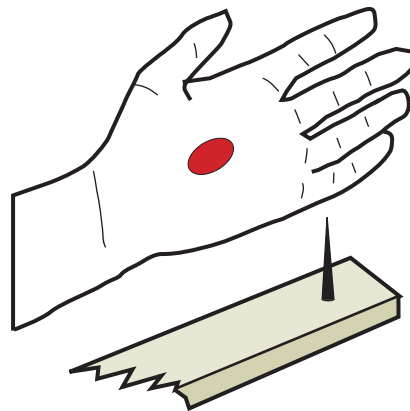


Fig. 36.1

[Turn over



## Motor Vehicle Technology

37 (a) Fig. 37.1 below shows the main parts of the

\_\_\_\_\_ system.

[1]

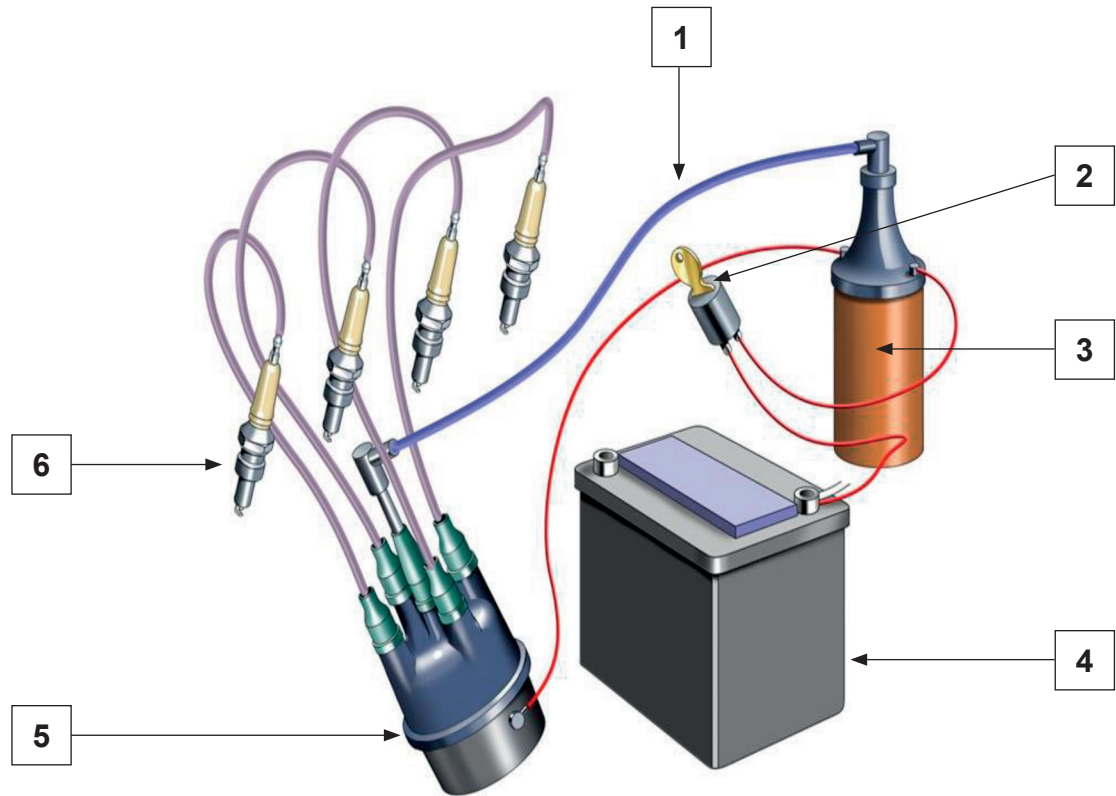


Fig. 37.1

(b) Name the parts numbered 1–6 in Fig. 37.1 above.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

3. \_\_\_\_\_ [1]

4. \_\_\_\_\_ [1]

5. \_\_\_\_\_ [1]

6. \_\_\_\_\_ [1]



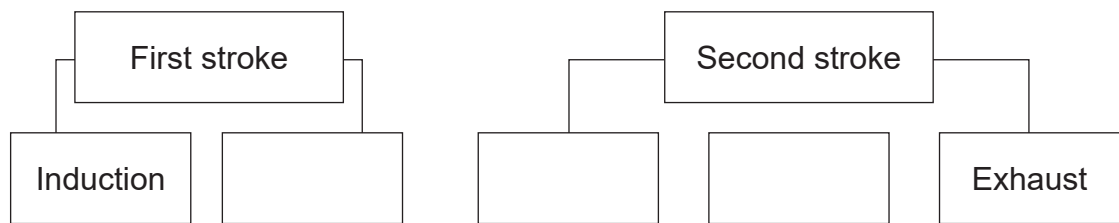
(c) Explain the function of part number 3 in **Fig. 37.1**.

\_\_\_\_\_ [1]

(d) What is the name of the liquid found inside part number 4 in **Fig. 37.1** which keeps it in a live state?

\_\_\_\_\_ [1]

38 (a) Complete the block diagram below for the two-stroke cycle.



[3]

(b) Name the **two** strokes of the four-stroke cycle when one valve is open.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(c) What is the main purpose of the following systems?

Transmission system \_\_\_\_\_  
\_\_\_\_\_ [1]

Suspension system \_\_\_\_\_  
\_\_\_\_\_ [1]

[Turn over



- 39 (a) From the list of components given below, complete the table matching each component to the appropriate system.

Component: wheel cylinder; alternator; sump; pressure cap.

System	Component
lubrication	
cooling	
braking	
charging	

[4]

- (b) Name the components, at both ends of the connecting rod, which secure the piston to the crankshaft.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

- (c) Write down **two** advantages of fuel injection.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]



(d)

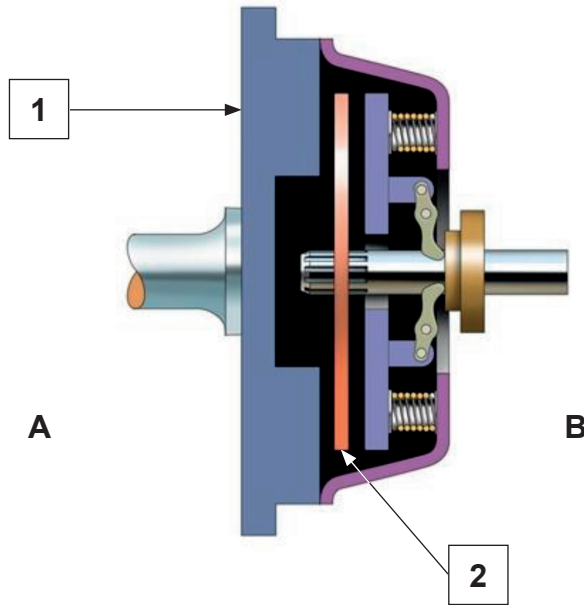


Fig. 39.1

Name the parts marked 1 and 2 in Fig. 39.1 above.

1. \_\_\_\_\_ [1]

2. \_\_\_\_\_ [1]

(e) Explain briefly the function of a clutch.

\_\_\_\_\_  
\_\_\_\_\_ [1]

(f) On which side of the clutch in Fig. 39.1 would you expect to find the engine?

Answer **A** or **B**.

\_\_\_\_\_ [1]



40 Describe the actions a motorist should take to safely negotiate a major roundabout at the end of a dual carriageway.

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[6]





42 Discuss the differences in dual carriageways and motorways, highlighting the challenges that motorists have to face.

### Dual carriageways

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### Motorways

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[10]





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Sources

Fig.2.1, Fig.6.1, Fig.23.1, Fig.27.1, Fig.27.2, Fig.30.1-Fig.30.6.....The Official Highway Code for Northern Ireland. Prepared by the Department for Infrastructure.  
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Fig.28.1, Fig.29.1.....© Getty Images

Fig.37.1, Fig.39.1.....© Motor Vehicle and Road User Studies by Eamonn McPolin (ISBN: 978-1906578312) Published by Colourpoint Educational, 2009

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Question Number	Marks
1-5	
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