



Rewarding Learning

General Certificate of Secondary Education
2024

Centre Number

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Candidate Number

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Motor Vehicle and Road User Studies

ML

Unit 1: Motor Vehicle and Road User Theory



[GMR11]

GMR11

THURSDAY 9 MAY, AFTERNOON

TIME

1 hour 45 minutes, plus your additional time allowance.

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.**



Answer **all** questions

- 1 This is from the highway code. On what type of road would you find the sign in **Fig. 1.1** below?

_____ [1]



Fig. 1.1

- 2 At the start of the driving test, the driver is asked to read a number plate from a distance of _____ metres. [1]

- 3 Cars towing caravans or trailers are restricted to a speed of _____ mph on single carriageways. [1]

- 4 ABS, wipers and lights are all features of _____ safety. [1]

- 5 The sign in **Fig. 5.1** means _____ . [1]



Fig. 5.1



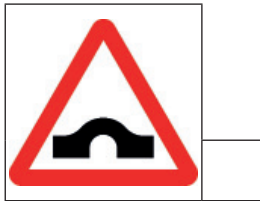
6 Look at the warning signs below, (a), (b) and (c). Which warning sign would show the hazard on the road ahead in Fig. 6.1?



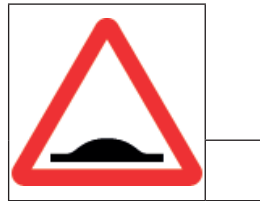
Fig. 6.1

Tick [✓] the correct box.

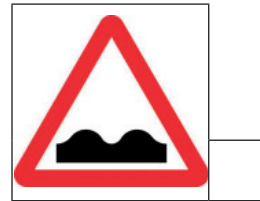
(a)



(b)



(c)



[1]

7 The national speed limit in Northern Ireland in mph is _____ . [1]

8 On some roads there are features to slow motorists down.

These are called _____ measures. [1]



9 Fig. 9.1 below shows an _____ manoeuvre. [1]

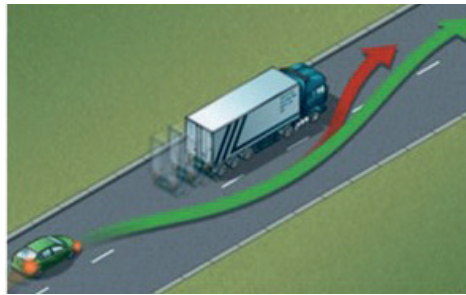


Fig. 9.1

10 When joining a motorway, you will approach it from a road on the left called a _____ road. [1]

11 In Northern Ireland all vehicles over _____ years old must complete an annual MOT test. [1]

12 A document which provides details about legal proof of insurance is an insurance _____. [1]

13 A road that is only wide enough for one vehicle is known as a _____ road. [1]

14 _____ is the most expensive standing cost for a motorist. [1]



15 _____ is a method used to rent a vehicle for an agreed period of time. [1]

16 A bruise is an example of a _____ wound. [1]

17 The inlet manifold is part of the _____ system. [1]

18 Induction, compression, power, transfer and exhaust are cycles found in a _____ engine. [1]

19 Fig. 19.1 below shows a picture of a _____ . [1]



Fig. 19.1

20 A diesel particulate filter is part of the _____ system. [1]



Vehicle Control and Road User Behaviour

21



Fig. 21.1

What is the meaning of the sign in **Fig. 21.1** above?

_____ [1]

22 When might high-sided vehicles have to drive in the middle of the road?

_____ [1]

23 Give **two** reasons why a driver should not drive when tired.

1. _____ [1]

2. _____ [1]

24 Apart from seatbelts, list **three** items of secondary safety found on a motor vehicle.

1. _____ [1]

2. _____ [1]

3. _____ [1]



25 (a) A broken white line marks the (i) _____ of the road.

When this line gets (ii) _____ and the gaps between each

line get (iii) _____, it means that there is a

(iv) _____ ahead. [4]

(b) Choose **one colour** from the list below to complete each statement correctly.

Green Red White Amber

(i) _____ studs separate traffic lanes. [1]

(ii) _____ studs mark the left-hand edge of the carriageway. [1]

(iii) _____ studs mark a side or slip road. [1]

(iv) _____ studs mark the right-hand edge of the carriageway
or central reservation. [1]

26 (a) Write down **two** hazards caused by fog.

1. _____ [1]

2. _____ [1]

(b) Write down **four** precautions which a driver is advised to take in heavy fog.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

[Turn over



27 (a) Write down **two** ways in which crosswinds can cause problems when driving.

1. _____ [1]

2. _____ [1]

(b) Where would a driver be most likely to experience crosswinds?

_____ [1]

(c) Write down **two** types of vehicle which would be most at risk to crosswinds.

1. _____ [1]

2. _____ [1]

(d) Look at the photograph in **Fig. 27.1** below.



Fig. 27.1

List **three** actions that the motorists in **Fig. 27.1** can take to help with their visibility of the road ahead.

1. _____ [1]

2. _____ [1]

3. _____ [1]



28 Look at the photograph in **Fig. 28.1** below.



Fig. 28.1

(a) List **two** actions a motorist should take when approaching the hazard in **Fig. 28.1** above.

1. _____ [1]

2. _____ [1]

(b) State **one** action a motorist should not take when approaching the hazard in **Fig. 28.1** above.

_____ [1]

(c) Give **one** reason for your answer to question **28(b)** above.

_____ [1]

[Turn over



29 (a) Give the meaning of each of the road signs shown in Fig. 29.1 a to Fig. 29.1 f below.



Fig. 29.1 a



Fig. 29.1 b



Fig. 29.1 c



Fig. 29.1 d



Fig. 29.1 e



Fig. 29.1 f

Fig. 29.1 a _____ [1]

Fig. 29.1 b _____ [1]

Fig. 29.1 c _____ [1]

Fig. 29.1 d _____ [1]

Fig. 29.1 e _____ [1]

Fig. 29.1 f _____ [1]



(b) Name the type of sign which would use the colours in Fig. 29.1 g to Fig. 29.1 j below.



Fig. 29.1 g



Fig. 29.1 h



Fig. 29.1 i



Fig. 29.1 j

Fig. 29.1 g _____ [1]

Fig. 29.1 h _____ [1]

Fig. 29.1 i _____ [1]

Fig. 29.1 j _____ [1]

(c) What do you call the edge line along a motorway, which causes a vehicle to vibrate if it is driven on or crossed?

_____ [1]

[Turn over



Legal Requirements

30 (a) Write down the meaning of each of the following insurance terms.

(i) Proposer

[1]

(ii) Agent

[1]

(iii) Broker

[1]

(iv) Green Card

[1]

(b) Give the meanings of the following initials:

MOT

[1]

DVA

[1]



31 (a) List **three** pieces of information given on a driver's licence.

1. _____ [1]

2. _____ [1]

3. _____ [1]

(b) After age 70, how often must a licence be renewed?

_____ [1]

(c) Give **two** reasons why motorists over 70 years must reapply for their driving licence more frequently than younger drivers.

1. _____ [1]

2. _____ [1]

(d) Give **two** restrictions for newly qualified drivers.

1. _____ [1]

2. _____ [1]

[Turn over



Road Transport and its Effect on Society

32 When planning and designing a new road, the effects on the environment are examined by the design team.

(a) For each of the factors listed below, state **two** ways in which the effects on the environment can be reduced.

Traffic noise

1. _____ [1]

2. _____ [1]

Heritage and conservation

1. _____ [1]

2. _____ [1]

(b) When designing and building a new road, give **one** feature that can be made to allow wild animals to pass safely from one side of the road to the other.

_____ [1]

(c) Give **two** examples of traffic noise pollution.

1. _____ [1]

2. _____ [1]



Motoring Mathematics

33 (a) Give **two** legal methods of having a car, apart from buying.

1. _____ [1]

2. _____ [1]

(b) Give **two** reasons why fuel consumption figures for a vehicle do not stay the same during a journey.

1. _____ [1]

2. _____ [1]

(c) Give **two** advantages of using a credit card to pay for fuel for a vehicle.

1. _____ [1]

2. _____ [1]

[Turn over



(b) Motorist **A** leaves Armagh at 10.00 hrs to travel to Galway.

Motorist **B** leaves Belfast at 9.30 hrs to travel to Galway.

If both motorists **A** and **B** travel at the same average speed of 60 mph, which motorist will get to Galway first and by how many minutes?

Show all calculations.

Motorist _____ by _____ minutes. [7]

[Turn over



Collision Procedures

35 (a) What is the primary aim of protecting the scene of an accident?

_____ [1]

(b) List **three** steps that should be taken to protect an accident scene.

1. _____ [1]

2. _____ [1]

3. _____ [1]

(c) Following an injury accident, when does a driver have to produce driving documents to the police?

_____ [1]

(d) In what circumstances would a casualty be moved from a crashed vehicle?

_____ [1]

(e) How should a grazed wound be treated?

_____ [1]



Motor Vehicle Technology

36 (a) Explain the term “viscosity” with reference to engine oil.

_____ [1]

(b) Which of the following oil types flows better in cold conditions, 10W-50 or 30W-50?

_____ [1]

(c) State **two** main reasons for using oil in a vehicle’s engine.

1. _____ [1]

2. _____ [1]



37 (a) Fig. 37.1 below shows the main parts of the _____ system. [1]

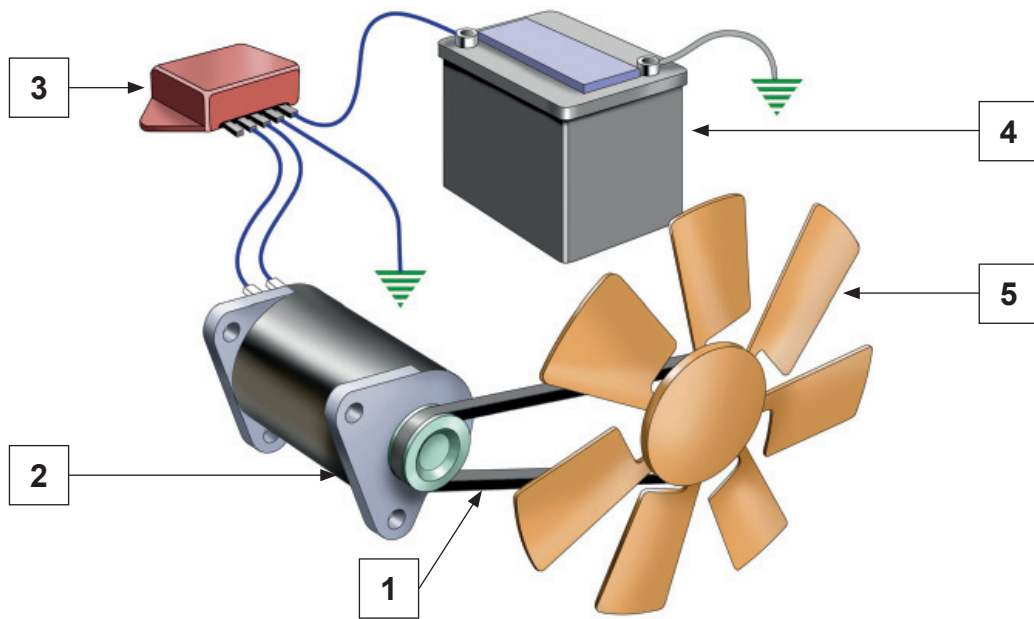


Fig. 37.1

(b) Name the parts marked 1 – 5 in Fig. 37.1 above.

1. _____ [1]
2. _____ [1]
3. _____ [1]
4. _____ [1]
5. _____ [1]



(c) Explain briefly the purpose of a vehicle's suspension system.

_____ [1]

(d) Apart from the fact that the engine will not run, why is it important that a car's fuel tank is never completely emptied?

_____ [1]

[Turn over



38 (a) Fig. 38.1 below shows the main parts of a _____ brake. [1]

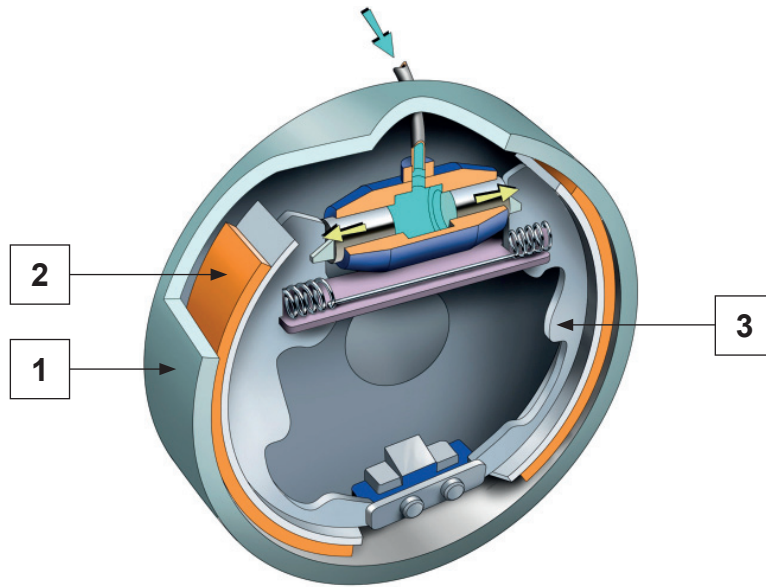


Fig. 38.1

(b) Name the parts numbered 1 – 3 in Fig. 38.1 above.

1. _____ [1]

2. _____ [1]

3. _____ [1]



(c) Name the component which

1. attaches the piston to the connecting rod

_____ [1]

2. forces the coolant to circulate around the engine

_____ [1]

3. distributes fuel to the individual cylinders

_____ [1]

(d) State the reason why an engine's flywheel is toothed.

_____ [1]



39 (a) What **two** maintenance checks could be carried out on a vehicle's exhaust system?

1. _____ [1]

2. _____ [1]

(b)

Gear wheel **B**
= 13 teeth



Gear wheel **A**
= 39 teeth

Fig. 39.1

In **Fig. 39.1** above, if gear wheel **A** makes 12 revolutions,

gear wheel **B** will turn _____ times. [1]



(c) Fig. 39.2 below shows common dashboard clocks.



Fig. 39.2

What information is provided on each of the dashboard clocks labelled 1 – 3 in Fig. 39.2 above?

1. _____ [1]

2. _____ [1]

3. _____ [1]

(d) What speed in mph is the vehicle currently travelling in Fig. 39.2 above?

_____ [1]

(e) What information does the number 412631 in Fig. 39.2 above give?

_____ [1]

[Turn over





41 Discuss how a combination of vehicle engineering and driver behaviour can reduce accidents.

Vehicle engineering

Driver behaviour

[10]

[Turn over





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