



General Certificate of Secondary Education
2016

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

Higher Tier

[GMV12]

GMV12

MONDAY 16 MAY, AFTERNOON

TIME

2 hours.

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 blue or black ink only. **Do not write with a gel pen.**

Answer **all** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 180.

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 **30**, **31** and **32**.



Answer **all** questions.



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Fig. 1.1

1 Study the photograph in **Fig. 1.1** above. Which three letters are used to refer to this type of vehicle? _____ [1]

2 State the only time when a mobile phone can be used legally in a vehicle.

_____ [1]



3 Examine the warning sign in **Fig. 3.1** below.



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Fig. 3.1

(a) Which bend will the motorist meet first, the left or the right?

_____ [1]

(b) State **one** action a motorist should take on seeing the sign in **Fig. 3.1**.

_____ [1]

4 (a) When planning major road improvements or a new road, planners have many factors to consider. List **three** of these factors.

1. _____ [1]

2. _____ [1]

3. _____ [1]

(b) Write down **two** examples of methods used by road engineers in traffic calming.

1. _____ [1]

2. _____ [1]

[Turn over



5 Study the photographs in **Fig. 5.1** and **Fig. 5.2** below.



Extra mirror

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Fig. 5.1



Extra mirror

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Fig. 5.2

Explain briefly why the driver in **Fig. 5.1** and the rider in **Fig. 5.2** have placed an extra mirror on their overtaking mirror.

_____ [1]

6 Explain briefly what is meant by the following:

1. tailgating _____ [1]

2. rubbernecking _____ [1]



7 (a) Following a non-injury accident name **two** actions each driver must take.

1. _____ [1]

2. _____ [1]

(b) Name the type of insurance which offers the most cover or protection.

_____ [1]

(c) Name **one** disadvantage of this type of cover.

_____ [1]

(d) How can a seat belt exemption be acquired?

_____ [1]

(e) Name **two** types of child restraint which can be legally used in a car.

1. _____ [1]

2. _____ [1]

[Turn over





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Fig. 8.1

8 Examine the Highway Code sign in Fig. 8.1 above.

Name **one** place, apart from a railway level crossing, where you would find this sign.

_____ [1]

9 (a) Name **two** exhaust gases which are monitored for air quality.

1. _____ [1]

2. _____ [1]

(b) Where would you expect to find high concentrations of these gases?

_____ [1]



10 Study the photograph in Fig. 10.1 below.

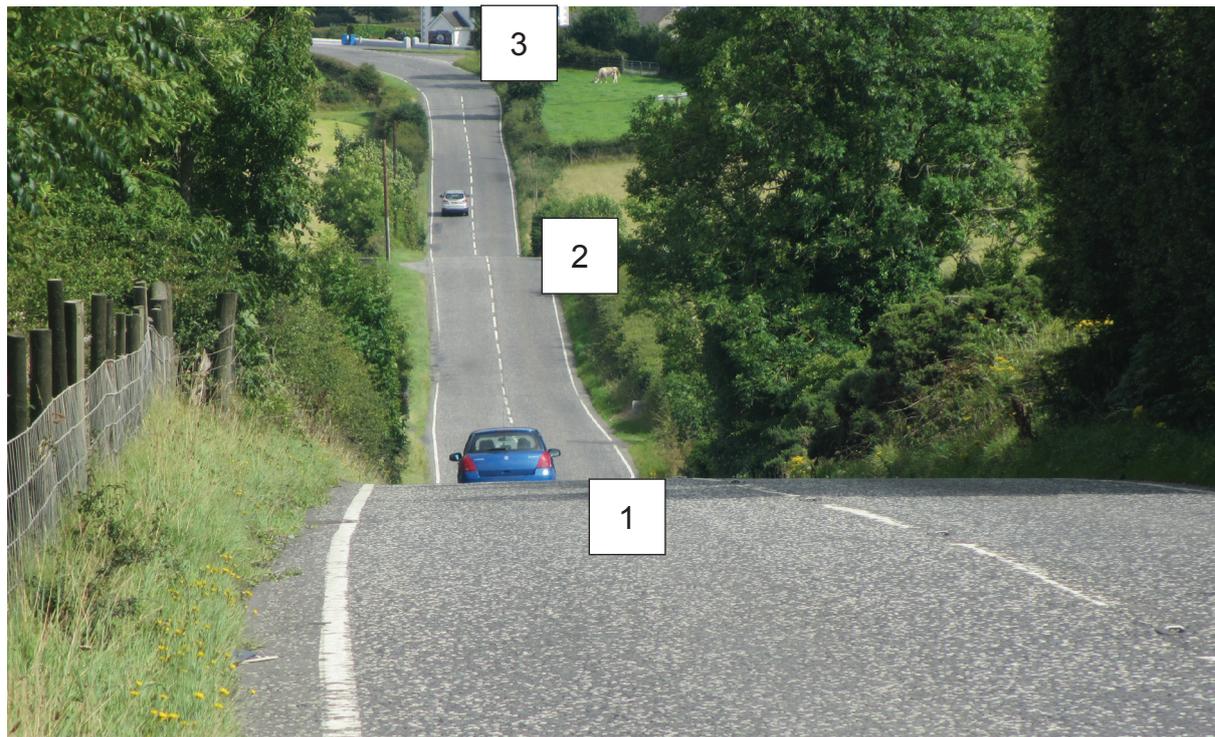


Fig. 10.1

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(a) Name the **three** main features highlighted in Fig. 10.1 which are dangerous for motorists.

- 1. _____ [1]
- 2. _____ [1]
- 3. _____ [1]

(b) Name **two** actions which motorists should **not** take on this stretch of road.

- 1. _____ [1]
- 2. _____ [1]

[Turn over



11 (a) State the common name for a compression ignition engine.

_____ [1]

(b) Explain briefly how fuel can be ignited by compression only.

_____ [2]

(c) Name the component which

1. changes the up/down movement of the piston into circular motion

_____ [1]

2. closes the valves in a four-stroke engine

_____ [1]

3. forces the coolant to circulate around the engine

_____ [1]

(d) In which vehicle system would you find a pressure plate?

_____ [1]

12 List **four** items of equipment which can be carried in a vehicle and may be useful at the scene of an accident.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]



13 (a) The organ which removes alcohol from the body is the _____ . [1]

(b) How long does it take for one unit of alcohol to be removed from the body?

_____ [1]

(c) Name **two** minimum sentences which a court can impose on a driver convicted of having excess alcohol.

1. _____ [1]

2. _____ [1]

14 (a) Explain the meaning of the word “passive” in relation to seat belts.

_____ [1]

(b) Apart from seat belts, name **three** secondary safety devices found on a motor vehicle.

1. _____ [1]

2. _____ [1]

3. _____ [1]

(c) What action must a driver take if there is a rear facing baby seat positioned in the front passenger seat of the car?

_____ [1]

[Turn over



15 Study the traffic signs in Fig. 15.1 to Fig. 15.6 below.

Explain their meaning, as stated in the Highway Code, in the spaces provided.



Fig. 15.1



Fig. 15.2



Fig. 15.3

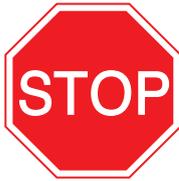


Fig. 15.4



Fig. 15.5



Fig. 15.6

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Fig. 15.1 _____ [1]

Fig. 15.2 _____ [1]

Fig. 15.3 _____ [1]

Fig. 15.4 _____ [1]

Fig. 15.5 _____ [1]

Fig. 15.6 _____ [1]



16 Study the photograph in Fig. 16.1 below.



Fig. 16.1

© Chief Examiner

(a) List **five** potential hazards for motorists travelling along the stretch of road in Fig. 16.1 above.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

5. _____ [1]

(b) What is the correct name for the middle lane, with the white arrow, designed to allow traffic to turn right safely?

_____ [1]

(c) Give **two** reasons why crossing this main road would be difficult for motorists from either side.

1. _____ [1]

2. _____ [1]

[Turn over



17 (a) Match the components **A** to **D** below to their component systems.

Components

- A** manifold
- B** thermostat
- C** master cylinder
- D** solenoid

Component systems

1. braking system _____ [1]
2. cooling system _____ [1]
3. electrical system _____ [1]
4. exhaust system _____ [1]

(b) Name the parts labelled 1–4 in **Fig. 17.1** below.

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

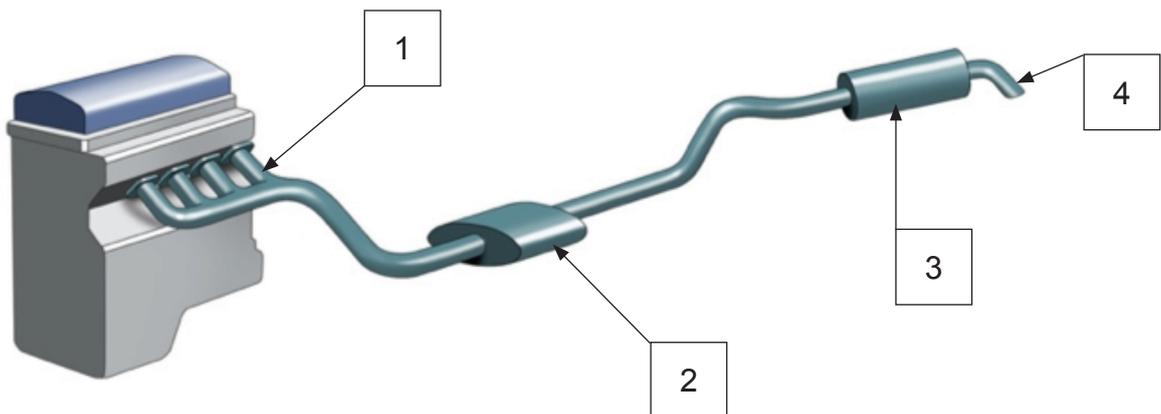


Fig. 17.1

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(ISBN: 9781906578312) Published by Colourpoint Educational, 2009.



(c) What is the main function of baffles in a silencer box?

_____ [1]

(d) Name **two** checks which can be carried out on a vehicle's exhaust system.

1. _____ [1]

2. _____ [1]

(e) Explain what is meant by a compression ratio of 8:1 in an engine.

_____ [2]

18 (a) Name **one** advantage and **one** disadvantage of a hybrid car.

Advantage _____ [1]

Disadvantage _____ [1]

(b) State **two** reasons why hybrid cars are being developed and produced.

1. _____ [1]

2. _____ [1]

[Turn over



19 A Vauxhall Astra 1.7 D is priced on the Internet at £8,799.

Purchasers must also pay an indemnity fee of £61.00, a number plate surcharge of £50.00 and 12 months vehicle excise licence of £140.00.

(a) What is the total purchase cost of the vehicle?

£ _____ [1]

(b) Calculate the cost per month over 36 months, if there is a 20% deposit and interest is charged at 15% per annum.

£ _____ [4]



20 (a) The recovery position should only be used when the patient is unconscious

and _____ . [1]

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

1. _____ [1]

2. _____ [1]

3. _____ [1]

(c) The common name for a contused wound is _____ . [1]

21 Explain briefly why having poor peripheral vision would be a disadvantage to a driver.

_____ [1]

[Turn over



22 Study the photograph in Fig. 22.1 below.



Fig. 22.1 © Principal Examiner

Explain why a traffic light is suspended over the centre of the carriageway.

[1]



23 (a) Name **one** advantage of borrowing money to buy a car.

_____ [1]

(b) Apart from a bank loan, name **two** sources of credit to finance the purchase of a car.

1. _____ [1]

2. _____ [1]

(c) Name **two** standing costs associated with motoring.

1. _____ [1]

2. _____ [1]

(d) Calculate the total cost of borrowing £5,000 repaid over three years at an APR of 12%.

£ _____ [2]

[Turn over

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24 Fig. 24.1 below shows the transmission system.

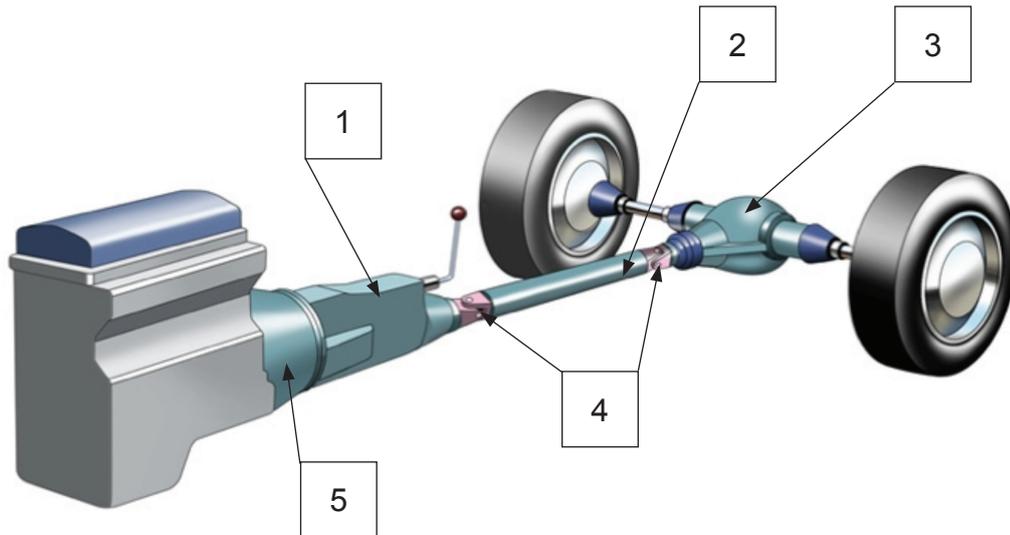


Fig. 24.1

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(ISBN: 9781906578312) Published by Colourpoint Educational, 2009.

(a) Name the parts labelled 1–5 in Fig. 24.1 above.

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

(b) Name the **two** types of movement which are allowed by universal joints.

1. _____ [1]
2. _____ [1]



(c) Explain briefly the function of the clutch.

_____ [3]

(d) Name the parts labelled 1–4 in Fig. 24.2 below.

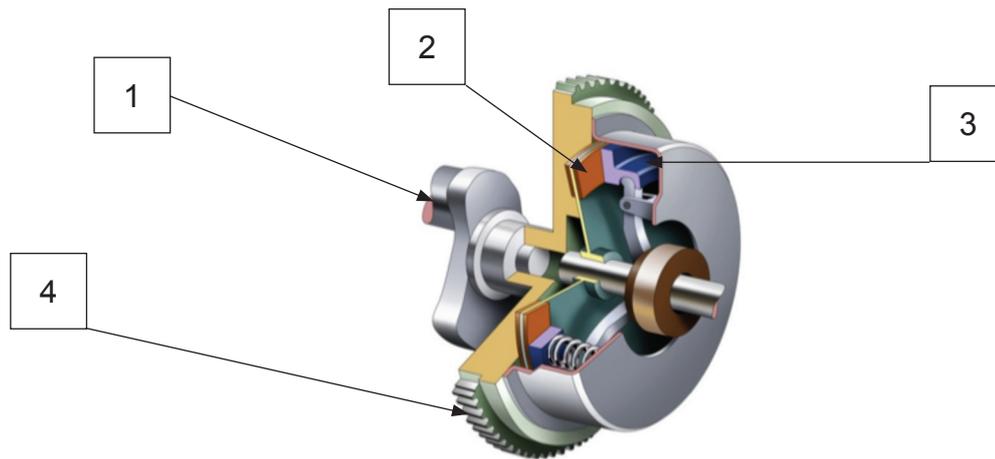


Fig. 24.2

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

(e) State **two** functions of a flywheel.

- 1. _____ [1]
- 2. _____ [1]

[Turn over



25 Road signs giving information come in various colours.

State what type of information is indicated by each of the following colours.

- (a) Brown _____ [1]
- (b) Yellow _____ [1]
- (c) Blue _____ [1]
- (d) Red _____ [1]
- (e) Green _____ [1]

26 How could you avoid the effects of drowsiness in night-time driving?

Give **three** answers.

- 1. _____ [1]
- 2. _____ [1]
- 3. _____ [1]



27 (a) Write down **three** reasons why you would choose to buy a pre-owned (second-hand) car.

- 1. _____ [1]
- 2. _____ [1]
- 3. _____ [1]

(b) Explain briefly the principle of leasing a vehicle.

_____ [2]



28 Study the Highway Code signs in **Fig. 28.1** and **Fig. 28.2** below.

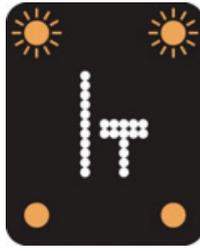


Fig. 28.1

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(a) (i) What is the message displayed on the motorway sign in **Fig. 28.1** above?

_____ [1]

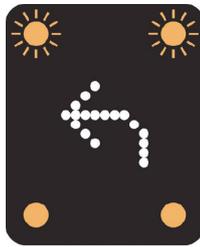


Fig. 28.2

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(ii) What should a driver do on seeing the motorway sign in **Fig. 28.2** above?

_____ [1]

(b) Describe briefly how you would join a motorway.

 _____ [2]

(c) Name **two** vehicles not permitted on a motorway.

1. _____ [1]

2. _____ [1]



(d) Name **two** vehicles not permitted to use the third lane of a three lane motorway.

1. _____ [1]

2. _____ [1]

(e) Explain briefly how to overtake on a motorway.

_____ [3]

29 Explain why motorways are safer than other roads.

_____ [6]

[Turn over



30 Describe how vehicles, driver training and experience can make a contribution to road safety.

Vehicles

Driver Training

Experience

[12]





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Question Number	Marks
1-4	
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30-31	
32	

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Examiner Number

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