



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]

**MV18**

**MONDAY 16 MAY, AFTERNOON**

## Time

2 hours, 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.**

Complete in blue or black ink only.

Answer **all** questions.

## Information for Candidates

The total mark for this paper is 180.

Figures in brackets printed at the end of each question 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.



**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 mark]

\_\_\_\_\_

- 2 State the only time when a mobile phone can be used legally in a vehicle. [1 mark]

\_\_\_\_\_  
\_\_\_\_\_

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



**Fig. 3.1**

(a) Which bend will the motorist meet first, the left or the right? [1 mark]

---

(b) State **one** action a motorist should take on seeing the sign in **Fig. 3.1**. [1 mark]

---

4 (a) When planning major road improvements or a new road, planners have many factors to consider. List **three** of these factors. [1 mark for each factor]

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

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

[1 mark for each example]

1. \_\_\_\_\_

2. \_\_\_\_\_

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



Extra  
mirror

**Fig. 5.1**



Extra  
mirror

**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 mark]

---

6 Explain briefly what is meant by the following:  
[1 mark for each]

1. tailgating \_\_\_\_\_

2. rubbernecking \_\_\_\_\_

7 (a) Following a non-injury accident name **two** actions each driver must take. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

(b) Name the type of insurance which offers the most cover or protection. [1 mark]

\_\_\_\_\_

(c) Name **one** disadvantage of this type of cover. [1 mark]

\_\_\_\_\_

(d) How can a seat belt exemption be acquired? [1 mark]

\_\_\_\_\_

(e) Name **two** types of child restraint which can be legally used in a car. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_



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 mark]

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9 (a) Name **two** exhaust gases which are monitored for air quality. [1 mark for each]

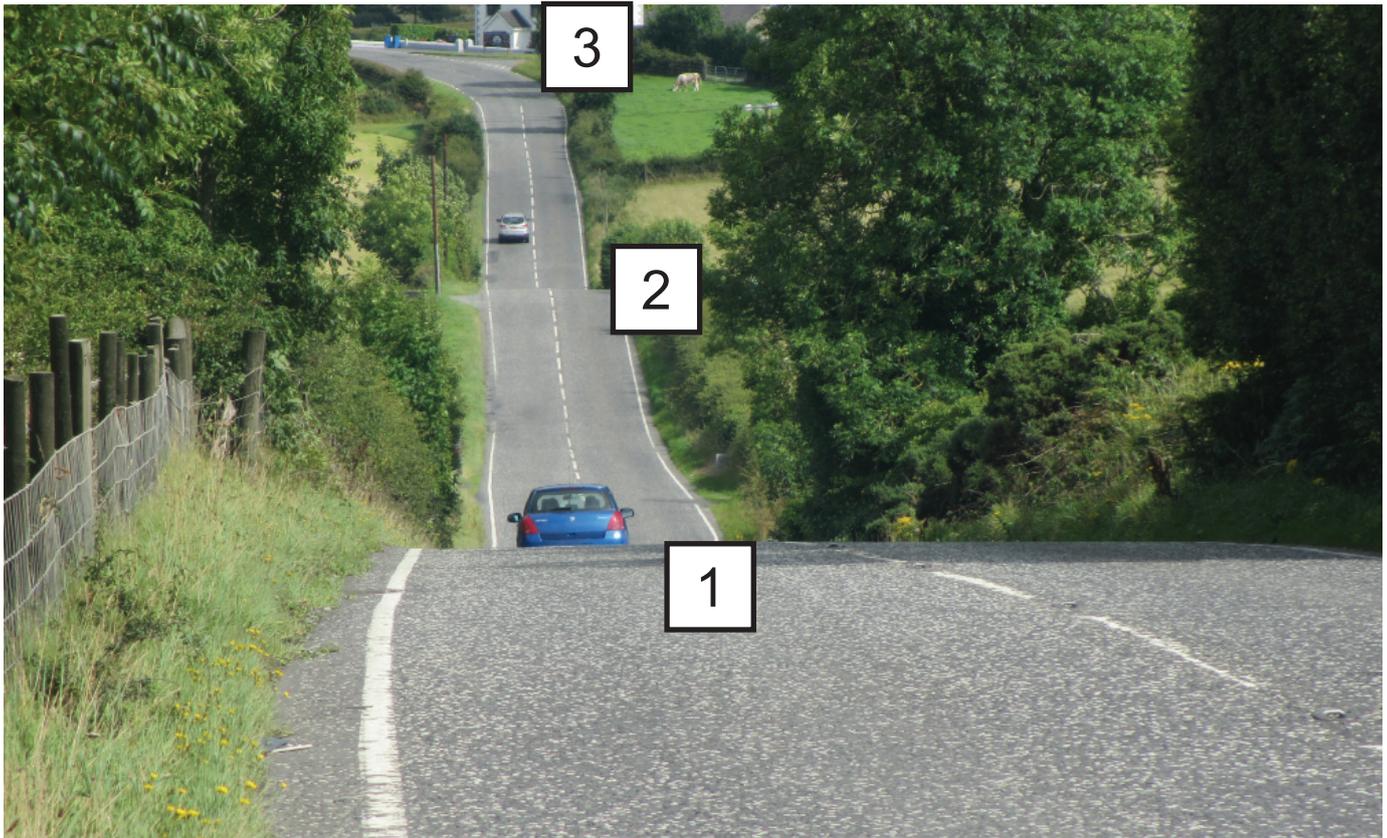
1. \_\_\_\_\_

2. \_\_\_\_\_

(b) Where would you expect to find high concentrations of these gases? [1 mark]

---

10 Study the photograph in **Fig. 10.1** below.



**Fig. 10.1**

(a) Name the **three** main features highlighted in **Fig. 10.1** which are dangerous for motorists. [1 mark for each]

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

(b) Name **two** actions which motorists should **not** take on this stretch of road. [1 mark for each]

1. \_\_\_\_\_
2. \_\_\_\_\_

**11 (a)** State the common name for a compression ignition engine. [1 mark]

---

**(b)** Explain briefly how fuel can be ignited by compression only. [2 marks]

---

---

**(c)** Name the component which

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

---

2. closes the valves in a four-stroke engine [1 mark]

---

3. forces the coolant to circulate around the engine [1 mark]

---

**(d)** In which vehicle system would you find a pressure plate? [1 mark]

---

**12** List **four** items of equipment which can be carried in a vehicle and may be useful at the scene of an accident.  
[1 mark for each]

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**13 (a)** The organ which removes alcohol from the body is the \_\_\_\_\_ . [1 mark]

**(b)** How long does it take for one unit of alcohol to be removed from the body? [1 mark]  
\_\_\_\_\_

**(c)** Name **two** minimum sentences which a court can impose on a driver convicted of having excess alcohol.  
[1 mark for each]

1. \_\_\_\_\_
2. \_\_\_\_\_

**14 (a)** Explain the meaning of the word “passive” in relation to seat belts. [1 mark]

---

**(b)** Apart from seat belts, name **three** secondary safety devices found on a motor vehicle. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**(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 mark]

---

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. [1 mark for each]



Fig. 15.1



Fig. 15.2



Fig. 15.3

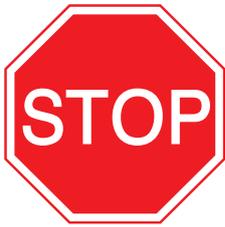


Fig. 15.4



Fig. 15.5



Fig. 15.6

Fig. 15.1 \_\_\_\_\_

Fig. 15.2 \_\_\_\_\_

Fig. 15.3 \_\_\_\_\_

Fig. 15.4 \_\_\_\_\_

Fig. 15.5 \_\_\_\_\_

Fig. 15.6 \_\_\_\_\_

**16** Study the photograph in **Fig. 16.1** below.



**Fig. 16.1**

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

[1 mark for each]

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

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

\_\_\_\_\_

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

[1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

**17 (a)** Match the components **A** to **D** below to their component systems. [1 mark for each]

Components

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

Component systems

- 1. braking system \_\_\_\_\_
- 2. cooling system \_\_\_\_\_
- 3. electrical system \_\_\_\_\_
- 4. exhaust system \_\_\_\_\_

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

[1 mark for each]

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_

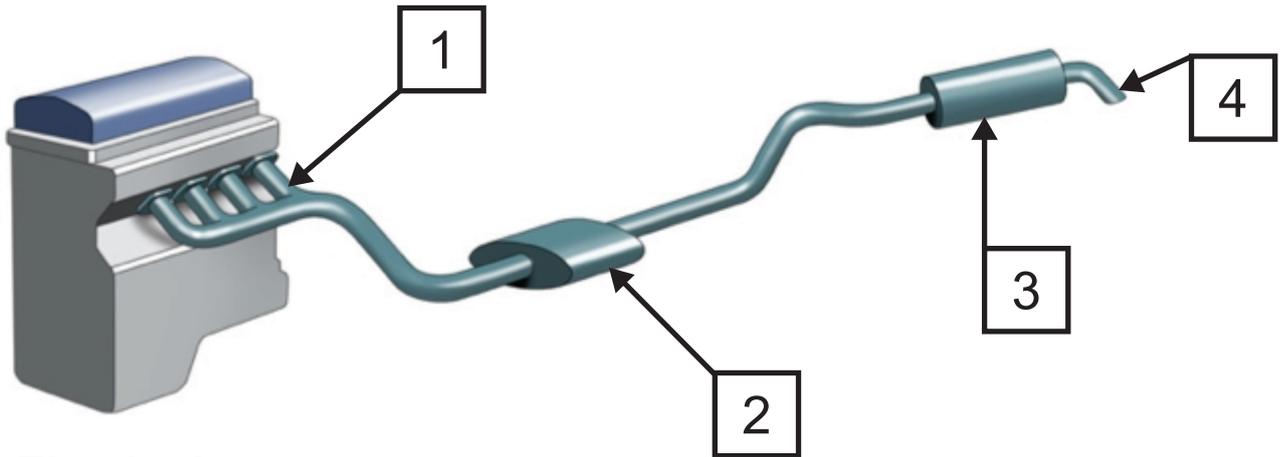


Fig. 17.1

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

[1 mark]

\_\_\_\_\_

(d) Name **two** checks which can be carried out on a vehicle's exhaust system. [1 mark for each]

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_

(e) Explain what is meant by a compression ratio of 8:1 in an engine. [2 marks]

\_\_\_\_\_  
\_\_\_\_\_

**18 (a)** Name **one** advantage and **one** disadvantage of a hybrid car. [1 mark for each]

Advantage \_\_\_\_\_

Disadvantage \_\_\_\_\_

**(b)** State **two** reasons why hybrid cars are being developed and produced. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

**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 mark]

£ \_\_\_\_\_

**(b)** Calculate the cost per month over 36 months, if there is a 20% deposit and interest is charged at 15% per annum. [4 marks]

£ \_\_\_\_\_

**20 (a)** The recovery position should only be used when the patient is unconscious and \_\_\_\_\_ . [1 mark]

**(b)** List below the order of priorities when treating casualties at an accident scene. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**(c)** The common name for a contused wound is \_\_\_\_\_ . [1 mark]

**21** Explain briefly why having poor peripheral vision would be a disadvantage to a driver. [1 mark]

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**22** Study the photograph in **Fig. 22.1** below.



**Fig. 22.1**

Explain why a traffic light is suspended over the centre of the carriageway. [1 mark]

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**23 (a)** Name **one** advantage of borrowing money to buy a car.  
[1 mark]

\_\_\_\_\_

**(b)** Apart from a bank loan, name **two** sources of credit to finance the purchase of a car. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

**(c)** Name **two** standing costs associated with motoring.  
[1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

**(d)** Calculate the total cost of borrowing £5,000 repaid over three years at an APR of 12%. [2 marks]

£ \_\_\_\_\_

24 Fig. 24.1 below shows the transmission system.

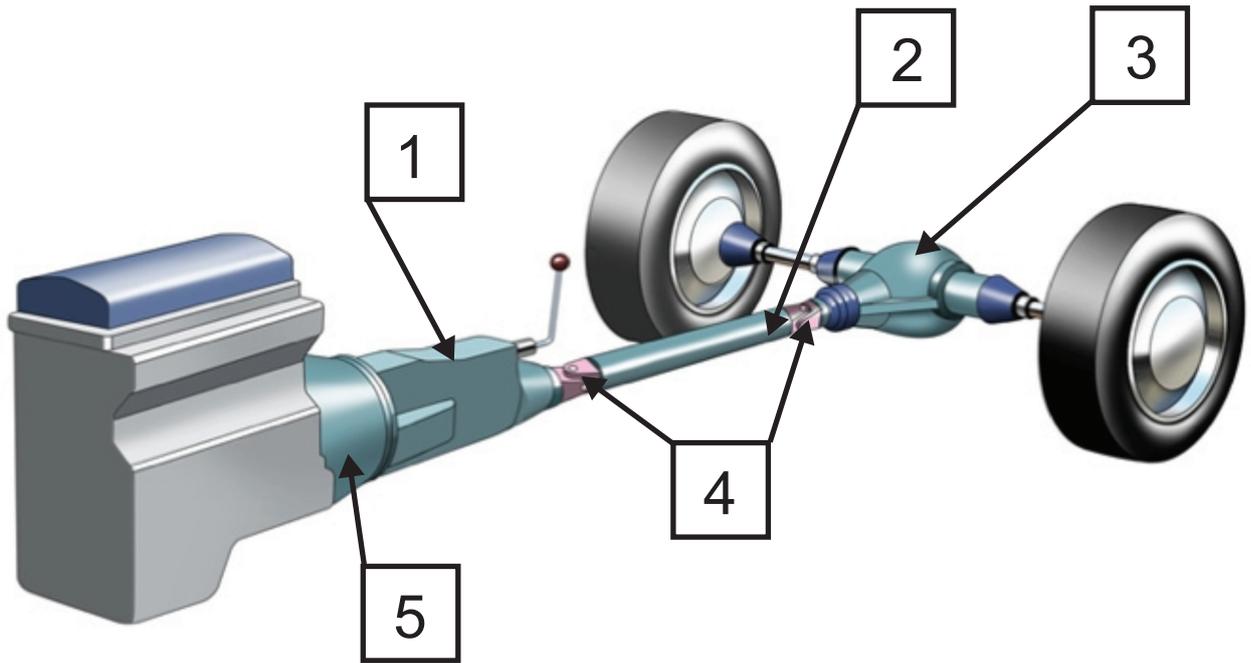


Fig. 24.1

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

[1 mark for each]

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_
- 4. \_\_\_\_\_
- 5. \_\_\_\_\_

(b) Name the **two** types of movement which are allowed by universal joints. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

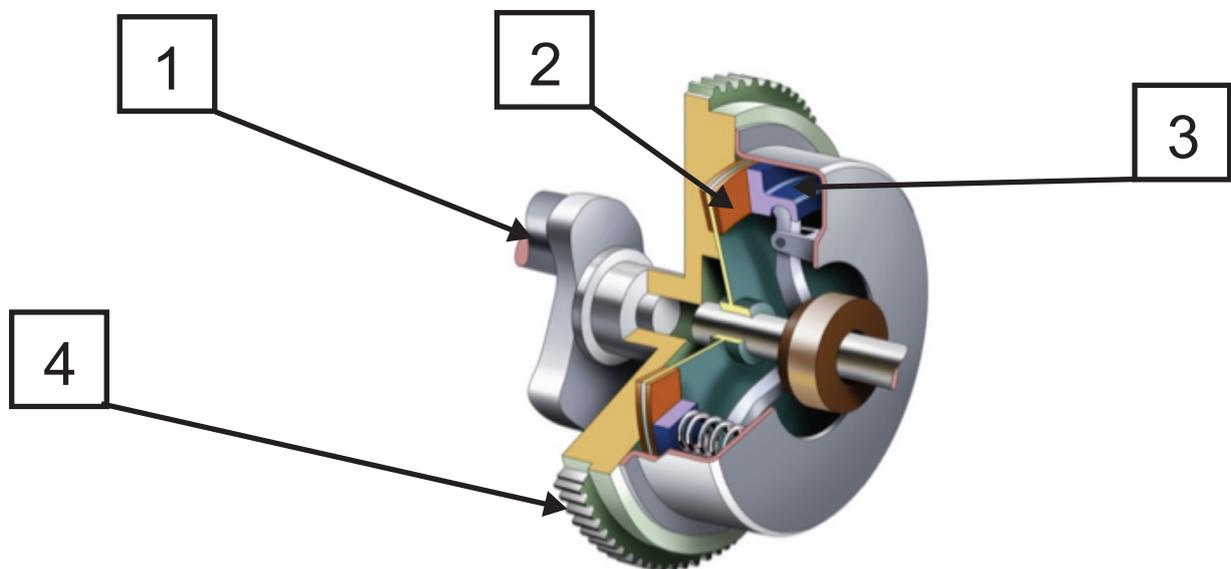
(c) Explain briefly the function of the clutch. [3 marks]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(d) Name the parts labelled 1–4 in **Fig. 24.2** below. [1 mark for each]



**Fig. 24.2**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

(e) State **two** functions of a flywheel. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

**25** Road signs giving information come in various colours.

State what type of information is indicated by each of the following colours. [1 mark for each]

(a) Brown \_\_\_\_\_

(b) Yellow \_\_\_\_\_

(c) Blue \_\_\_\_\_

(d) Red \_\_\_\_\_

(e) Green \_\_\_\_\_

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

Give **three** answers. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**27 (a)** Write down **three** reasons why you would choose to buy a pre-owned (second-hand) car. [1 mark for each]

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

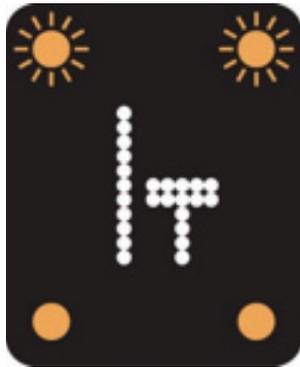
**(b)** Explain briefly the principle of leasing a vehicle.  
[2 marks]

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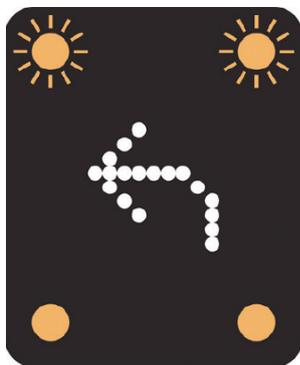
28 Study the Highway Code signs in **Fig. 28.1** and **Fig. 28.2** below.



**Fig. 28.1**

(a) (i) What is the message displayed on the motorway sign in **Fig. 28.1** above? [1 mark]

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**Fig. 28.2**

(ii) What should a driver do on seeing the motorway sign in **Fig. 28.2** above? [1 mark]

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(b) Describe briefly how you would join a motorway.  
[2 marks]

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(c) Name **two** vehicles not permitted on a motorway.  
[1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

(d) Name **two** vehicles not permitted to use the third lane of a three lane motorway. [1 mark for each]

1. \_\_\_\_\_

2. \_\_\_\_\_

(e) Explain briefly how to overtake on a motorway.  
[3 marks]

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**29** Explain why motorways are safer than other roads.  
[6 marks]

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**30** Describe how vehicles, driver training and experience can make a contribution to road safety. [12 marks]

Vehicles

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Driver Training

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Experience

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Sources

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Question Number	Marks
1–4	
5–7	
8–10	
11–14	
15–16	
17–18	
19–21	
22–23	
24	
25–27	
28–29	
30–31	
32	

<b>Total Marks</b>	
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Examiner Number

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