

THERE ARE NO QUESTIONS PRINTED ON THIS PAGE

MIDDLESEX UNIVERSITY  
and  
THE DRIVING INSTRUCTORS ASSOCIATION  
May 2007

**DIPLOMA IN DRIVING INSTRUCTION (3007)**  
**Module III: Vehicle Maintenance and Mechanical Principles**

Wednesday 9 May 2007 9.30 am to 11.30 am

**In addition to this paper you will require:**

- a 12-page answer book
- a pen, pencil and rubber
- a ruler

Time allowed: 2 hours

**Instructions**

- Answer **all** questions in the answer book provided.
- Do all rough work in the answer book. Cross through any work you do not want marked.

**Information**

- The maximum mark for this paper is 100.
- Mark allocations are shown in brackets.

Answer **all** questions

- 1 The engine of the motor car serves different purposes.
- (a) What are the **three** functions of the engine? (3 marks)
- (b) Name the **six** engine sub-systems. (6 marks)
- (c) Describe with the use of diagrams the sequence of the four-stroke cycle (6 marks)
- 2 The condition and maintenance of the body of a car is the driver's responsibility.
- List **five** areas of the body which should be checked regularly and describe what the maintenance points are. (10 marks)
- 3 There are procedures and safety principles in changing a wheel.
- (a) Describe the procedures and safety principles in changing a wheel. (13 marks)
- (b) Explain the safety principles in using a warning triangle. (2 marks)
- 4 The braking system in most modern vehicles is hydraulic.
- (a) Describe in simple terms how the hydraulic braking system works. (7 marks)
- (b) Describe what is meant by the term 'brake fade'. (2 marks)
- (c) Give **two** reasons why the vehicle may pull to one side during heavy braking. (2 marks)
- (d) How does the Anti-Lock Braking System (ABS) work? (9 marks)

- 5 Many modern vehicles have front-wheel-drive transmission.
- (a) Explain the advantages of a front-wheel-drive vehicle. (5 marks)
- (b) Describe the purpose of the constant velocity universal joint. (4 marks)
- (c) Suggest a reason for noisy operation in the constant velocity joint. (1 mark)
- 6 Motor Vehicle Test Regulations require motor vehicles to be examined at an Approved Ministry of Transport Test Centre.
- (a) Why was the MOT vehicle test first introduced? (2 marks)
- (b) Discuss briefly the significance and use of an MOT test certificate. (3 marks)
- (c) Under what conditions is it possible to drive a vehicle which does not have a current MOT test certificate? (5 marks)
- (d) Name **five** items referring to the motor vehicle which are recorded on an MOT test certificate. (5 marks)
- 7 A newly qualified driver, who possesses little mechanical knowledge, is taking his family on a motoring holiday abroad. There is limited space for tools and spares.
- What advice and recommendations would you give regarding extra tools, spares and other essential equipment the driver should take, in order to cope with any potential breakdown while abroad? (15 marks)

END OF QUESTIONS