



UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
SEPTEMBER 2014 SEMESTER

SUBJECT CODE : FVD12403
SUBJECT TITLE : CHASSIS AND BRAKING SYSTEM 1
LEVEL : DIPLOMA
TIME/DURATION : 3.30 PM – 5.30 PM
(2 HOURS)
DATE : 31 DECEMBER 2014

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
 2. This question paper is printed on **ONE** side of the paper.
 3. Please write your answers in the answers booklet provided.
 4. Answers should be written in blue or black ink except for sketching, graphic and illustration.
 5. This question paper consists of **TWO (2)** sections. Section A and B. Answer all questions in Section A. For Section B, answer **TWO (2)** question only.
 6. Answer all questions in English.
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THERE ARE 5 PRINTED PAGES OF QUESTIONS.

SECTION A (Total: 60 marks)

INSTRUCTION: Answer ALL questions.
Please answer inside question booklet.

Question 1

- (a) List **THREE (3)** important requirements for of STEERING BEHAVIOR (6 marks)
- (b) Describe the main purpose of the components for steering system. (6 marks)
- (c) Explain the operation of Rack and Pinion Steering System (5 marks)
- (d) Describe variable-ratio steering for steering system. (3 marks)

Question 2

- (a) List down the **FOUR (4)** major purposes of suspension system. (4 marks)
- (b) Describe the difference between linear rate coil spring and variable rate coil spring. (6 marks)
- (c) List and describe **TWO (2)** types of shock absorber. (4 marks)
- (b) Identify the purpose of anti-roll bar and describe the effect of handling when the vehicle is not equipped with a stabilizer bar. (6 marks)

Question 3

- (a) Define friction and explain **TWO (2)** important frictions in braking system. (6 marks)

- (b) List **FOUR (4)** factors which affect the braking power and braking efficiency. (4 marks)
- (c) List **TWO (2)** types of brake caliper which are commonly used. (2 marks)
- (d) List **THREE (3)** types of brake pad/lining material used in a braking system. Explain the friction material content, advantages and disadvantages of the material for each brake friction material. (8 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer TWO (2) questions.****Please use the answer booklet provided.****Question 4**

- (a) The driver complained that while he was braking, the vehicle has less braking efficiency. This problem called braking grab.
- i. Identify the possible cause for this problem. (2 marks)
 - ii. Describe the necessary solutions that should be taken in order to solve the problem. (4 marks)
- (b) A customer has complained of an excessive play or looseness in steering system. The customer noticed a delay occurring during cornering or while doing maneuvers.
- i. Identify the possible cause for this problem. (2 marks)
 - ii. Describe the necessary solutions that should be taken in order to solve the problem. (4 marks)
- (c) Explain in detail the procedure to perform wheel alignment adjustment for Wira 1.6xls sedan by using John Bean Alignment Machine. (8 marks)

Question 5

- (a) A service technician has removed and replaced the Macpherson struts. After this procedure, the wheel alignment did not adhere to the specification.
- i. Define the possible cause for this problem.
(2 marks)
 - ii. Describe the necessary solutions that should be taken in order to solve the problem.
(4 marks)
- (c) As the brakes are applied, there is scraping sound metal to metal. Also, for a considerable amount of time before this, there was a high-pitched squeaking sound when the brakes applied.
- i. Identify the possible cause for this problem.
(2 marks)
 - ii. State the necessary solutions that should be taken in order to solve the problem.
(4 marks)
- (d) Explain the procedure to assemble and disassemble a coil spring from McPherson Strut.
(8 marks)

Question 6

- (a) A vehicle has been pulling to the left recently when the brakes are applied. The brake fluid seems to be reducing. The vehicle has drum brake on both front and rear and has 56000 kilometers on it.
- i. Identify the **TWO (2)** possible causes for this problem.
(4 marks)

- ii. Explain the necessary solutions that should be taken in order to solve the problem.
(4 marks)
- (b) A driver complained that vehicle produce noise as the vehicle goes over the bump.
- i. Identify the possible cause for this problem.
(2 marks)
- ii. Explain the necessary solutions that should be taken in order to solve the problem.
(4 marks)
- (c) Identifies the differences between DOT 3, DOT 4 and DOT 5 for brake fluid.
(6 marks)

END OF QUESTIONS