



UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
JANUARY 2014 SEMESTER

SUBJECT CODE : FVB 11303
SUBJECT TITLE : CHASSIS TECHNOLOGY 1
LEVEL : BACHELOR
DURATION : 2 HOURS
DATE / TIME :

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 **ONE (1)** section. Answer only four questions.
 6. Answer all questions in English.
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THERE ARE 12 PRINTED PAGES OF QUESTIONS.

SECTION A (Total: 100 marks)**INSTRUCTION : Answer 4 question only****Please answer on question paper.****Question 1**

- (a) Explain the operation of a rack and pinion box steering system. (10 marks)
- (b) (i) Explain the term of steering ratio.
(ii) Differentiate between constant steering ratio and variable steering ratio. (10 marks)
- (c) A Case: The driver complained while was driving, the vehicle tendency to drift from one side of road to the other. This is called wander.
i. List **FIVE (5)** common problems in terms of wander (5 marks)

Question 2

- (a) List down and describe **THREE (3)** types of shock absorber for suspension system. (10 marks)
- (b) Explain the operation of mono tube hydraulic shock-absorber (damper) and also Explain **TWO (2)** advantages of gas-filled shock absorber compared to hydraulic shock- absorber. (5 marks)
- (c) Stabilizer bar is a device used with the basic suspension components to provide additional stability.
i. Explain how does the device operate.
ii. Justify the possible effect if the diameter of stabilizer bar is too small. (10 marks)

Question 3

- (a) Justify the cause of pedal pulsations for a disc brake system. (5 marks)
- (b) Explain the operation of floating caliper in brake disc system. (5 marks)
- (c) A vehicle with 130,000 km on it is producing a scraping noise on the rear right brake when it is raining or very damp outside.
- i. List two possible causes of this problem. (5 marks)
- ii. Explain the necessary corrections that should be taken in order to solve the problems (i) above. (5 marks)
- (d) (i) Explain the DOT for brake fluid.
(ii) Differentiate the differences between DOT 3, DOT 4 and DOT 5. (5 marks)

Question 4

- (a) Explain these terms:- (12 marks)
- i. Ride height
- ii. Camber
- iii. Caster
- iv. Toe
- (b) Explain in details the procedure to perform four wheel alignment adjustments for Proton Wira 1.6 XLi by using John Bean Aligner Machine.

(10 marks)

- (c) Explain the chassis frame and list **TWO (2)** types of frames in common use today

(3 marks)

Question 5

- (a) Explain the **TWO (2)** basic designs of coil springs that are used in automotive

(10 marks)

- (b) Explain in details the three basic types of rear suspensions

(10 marks)

- (c) While driving down on the road, the customer hears a noise from the rear suspension system.

- i. Justify **TWO (2)** the possible cause of this problem?

(5 marks)

END OF QUESTION