



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
SEPTEMBER 2014 SESSION**

SUBJECT CODE : FVD23202
SUBJECT TITLE : CHASSIS BRAKING SYSTEM 2
LEVEL : DIPLOMA
TIME / DURATION : 3.30 PM – 5.30 PM
(2 HOURS)
DATE : 08 JANUARY 2015

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
2. This question paper is printed only one side of the paper.
1. Please write your answers on the answer booklet provided.
2. Answer should be written in blue or black ink.
3. This question paper consists of **TWO (2)** sections. Section A and B.
4. Answer all questions in Section A and two questions Section B.
5. Answer all questions in English.
6. All questions are closed type question. Please return it back to the invigilator

THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)**INSTRUCTION: Answer all questions.****Question 1**

1. Name THREE (3) stages of brake servo operation. (3 marks)
2. Describe the differences between linkage and integral type power steering. (6 marks)
3. State the unique features of an active suspension. (4marks)
4. Explain the importance of control valve on power steering system. (7marks)

Question 2

1. Define the meaning of Maximum Brake force on Brake performance test. (6marks)
2. List down THREE (3) current type of four wheel steering system in the market (3marks)
3. Define Wheel slip. (4marks)
4. Describe the limitations of Electronic Control Suspension. (7marks)

Question 3

1. Explain the purposes of "Check Valve" in Hydraulic Control Unit (HCU). (5 marks)
2. Explain why today modern cars are equipped with power brakes. (5marks)
3. Describe the functions of "Collapsible Steering Column" on steering system. (5marks)
4. Identify the reading of toe-in in mm if the wheel with side-slip of 6 m/km and a rim dia. 12". (5marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer two question only

Question 1

System type	Brake line	Control Logic	Evaluation Item		
			Steerability	Stability	Stopping Distance
4 Sensor 4 Channel	X line or H line	1) All wheels independent control			
		2) Frt: Independent control Rr: Select Low			
4 sensors 3-channel	H line	3) Frt : Independent control			
		Rr: Selesct Low			
3 sensors 3-channel	H line	4) Frt : Independent control			
		Rr: Selesct Low			
1 sensor 1-channel	H line	5) Rr: Selesct Low			

Table 1: *Anti-lock Braking System.(ABS)*

Table 1 shows the system type that is used in Anti-lock Braking System (ABS).

Referring to Table 1, answer the questions below.

1. Fill in the blanks writing the system of evaluation item. (10marks)
2. Based on the evaluation explain the differences between 4 sensor 3-Channel and 1 sensor 1-Channel. (5marks)
3. Describe the importance of “select low” to the rear brake in Anti-lock braking system. (5marks)

Question 2

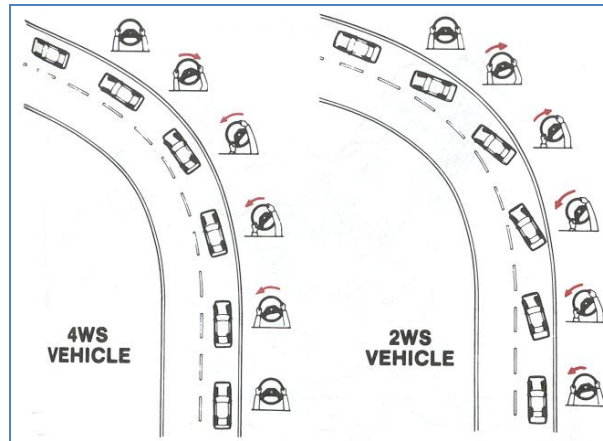


Figure 1: **Vehicle behavior during cornering**

Referring to the Figure 1, answer the questions below.

- 1) Describe the comparisons between 4 Wheel steering and 2 Wheel steering. (10marks)
- 2) List down 5 advantage on having 4 Wheel steering system. (5marks)
- 3) Explain how the slip angle is formed during movement of the vehicle. (5marks)

Question 3

Below Figure 2 is cutaway view of brake servo:

1. Label all components in the Figure 2. (8 marks)
2. Describe the state of operation. (2 marks)
3. Explain the operation by referring to your answer in 1b. (10 marks)

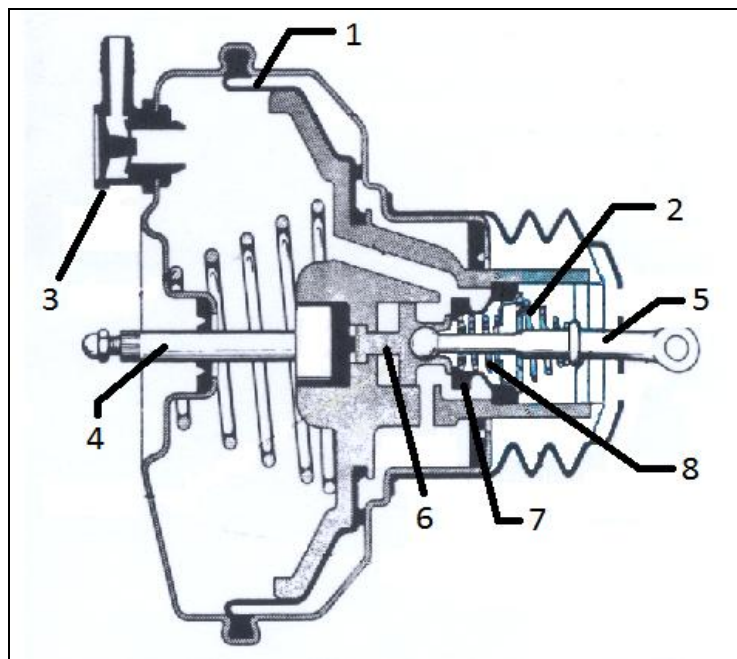


Figure 2: *Cutaway view Brake servo*

END OF QUESTION