



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
JANUARY 2014 SESSION**

SUBJECT CODE : FVB 40202
SUBJECT TITLE : TYRE TECHNOLOGY
LEVEL : BACHELOR
TIME / DURATION : 2.5 HOURS
DATE :

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
 2. This question paper is printed on both sides of the paper.
 3. Please write your answers on the answer booklet provided.
 4. Answer 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 three (3) question only.
 6. Answer all questions in English.
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THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

INSTRUCTION: Answer ALL Questions.
Please use the answer booklet provided.

Question 1

- a) When changing tyre sizes, state **FIVE (5)** things needed to be considered in the substitute tyre?
(5 marks)
- b) Explain the effect that aspect ratio has on ride and handling.
(5 marks)
- c) Explain the tire ratings and designations in use today.
(10 marks)

Question 2

- a) Explain the effect if tyre does not have a speed rating.
(4 marks)
- b) **Figure 1** show a typical The **Department of Transportation (DOT)** identification number on a tyre sidewall. Explain the meaning of its numbers and letters.
(8 marks)



Figure 1

- c) Explain the effected if the diameter of a tyre is changed more than 3% from original diameter of a tyre.

(8 marks)

SECTION B (Total: 60 marks)

INSTRUCTION: Answer only THREE (3) Questions.

Please use the answer booklet provided.

Question 3

- a) Explain **TWO (2)** methods to center the wheels on the hub. (4 marks)
- b) Wheel offset is designed into a wheel to allow it to clear the fender well and to proper brake cooling. With the aid of illustration, explain the **TWO (2)** commons of wheel offset used. (8 marks)
- c) Explain why the wheel must be designed accurately shaped, dimensioned and strong. (8 marks)

Question 4

- a) Give **ONE (1)** reason why a taper of 5 degrees is provided on the seats of the well-base rim. (4 marks)

- b) Explain **FOUR (4)** advantages of the cast and forged alloy wheels. (8 marks)

- c) With the aid of illustration, explain **TWO (2)** methods of passenger car wheel mounting arrangement. (8 marks)

Question 5

- a) **Figure 2** shows **TWO (2)** types of the irregular tyre wear. State the type of tyre wear, appearance, possible cause and give a solution. (8 marks)

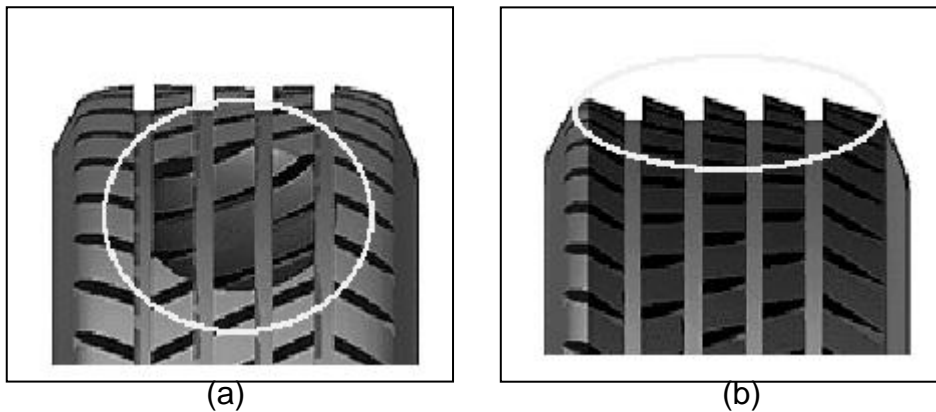


Figure 2: One of the irregular tyre wear

- b) Describe how we know when the car needs to be realignment. (4 marks)

- c) Explain **TWO (2)** causes of shimmy and flutter. (8 marks)

Question 6

- a) One man complains he drives around 15km/h, than he feels his car is pulling to right side. To confirm this complaint, you perform test road and found the car is pulling to right side. As specialist in tire shop, you are required to diagnose and rectify this problem.

(8 marks)

- b) One customer complains that front tyres of his vehicle are wearing unevenly and now need to be replaced. As supervisor of tyre shop, you are required to diagnose uneven tyres wear before replaced it with new tire. If the tyres must be replaced, explain the service items you should be remembered.

(8 marks)

- c) Express the possible cause when the tyres run-out either lateral or radial exceeds the specified limit but wheel run-out is within the specified limit **and** state how to overcome this cause?

(4 marks)

QUESTION 7

- a) Your friend complained to you that his tyres on a car are wearing on the outside edges. He told the alignment has been checked and all adjustments are within specifications. The alignment shop says this is normal. As expertise in tyre services, you are need explain the possible causes to your friend?

(8 marks)

- b) Explain the probable causes and corrective action can be done if the both of shoulder's tyres are wearing?

(8 marks)

- c) Explain **TWO (2)** causes and symptoms of tyre wear problems.

(4 marks)

END OF QUESTION