



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2010 SESSION

SUBJECT CODE : FVD 20402
SUBJECT TITLE : TRANSMISSION 1
LEVEL : DIPLOMA
TIME / DURATION : 12.00pm – 2.00pm
(2 HOURS)
DATE : 27 APRIL 2010

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 questions paper consists of **TWO (2) sections**. Section A and B. Answer **ALL** questions in section A. For Section B, answer **TWO (2) questions** only.
 6. Answer all questions in English.
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THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)

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

Question 1

- a) List down **TWO** types of four wheel drive system and explain the main criteria of each system. (5 marks)

- b) Describe what a clutch linkage is and list down types of clutch linkages used in passenger vehicle. (5 marks)

- c) By referring to figure 1 below, name the entire parts that numbered. (5 marks)

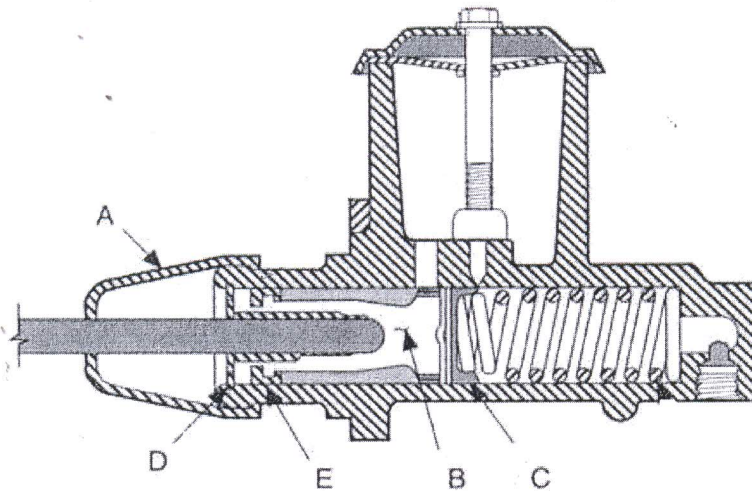


Figure 1. clutch master cylinder

- d) List down the types of clutch friction facing used in automotive and what are the materials used to produce the clutch friction face facing. (5 marks)

Question 2

- a) Explain the advantages and disadvantages of spur gear that are used in automotive power train. (5 marks)
- b) What is the type of manual transmissions used in automotive? (5 marks)
- c) Describe the disadvantage of unequal length halfshaft that are used in some front drive vehicle and describe how to overcome this problem. (5 marks)
- d) What is the main function of "locking device" and "locating device" that are equipped in the manual gear box? (5 marks)

Question 3

- a) What are the functions of rear drive axle in automotive power drive system? (5 marks)
- b) List down the types of LSD (limited slip differential) that are commonly used in automotive. (5 marks)
- c) Name the basic parts that all gear boxes must have. (5 marks)
- d) Clearly define the denotation of **SAE 70W80** stated in typical multigrade manual transmission gear oil. (5 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer TWO questions.****Question 1**

a) A customer complains that his car produces noises (clicking or snapping) when hardly curves and corners.

i) What are the possible causes of this problem? (4 marks)

ii) What are the necessary actions that should be taken in order to solve the problem? (6 marks)

b) You are asked to perform the lubricant check on manual transmission / transaxle,

i) What are the various types (grade) of lubricants that are suitable for manual gear box? (3 marks)

ii) Write the correct procedures of checking the lubricant level. (7 marks)

Question 2

a) With aids of sketches, clearly explain the operation of synchronizer unit that is used in synchro-mesh manual transmission. (10 marks)

b) Clearly explain the construction of Rzeppa CV (constant velocity) joint that is widely used as outer CV joint. (10 marks)

Question 3

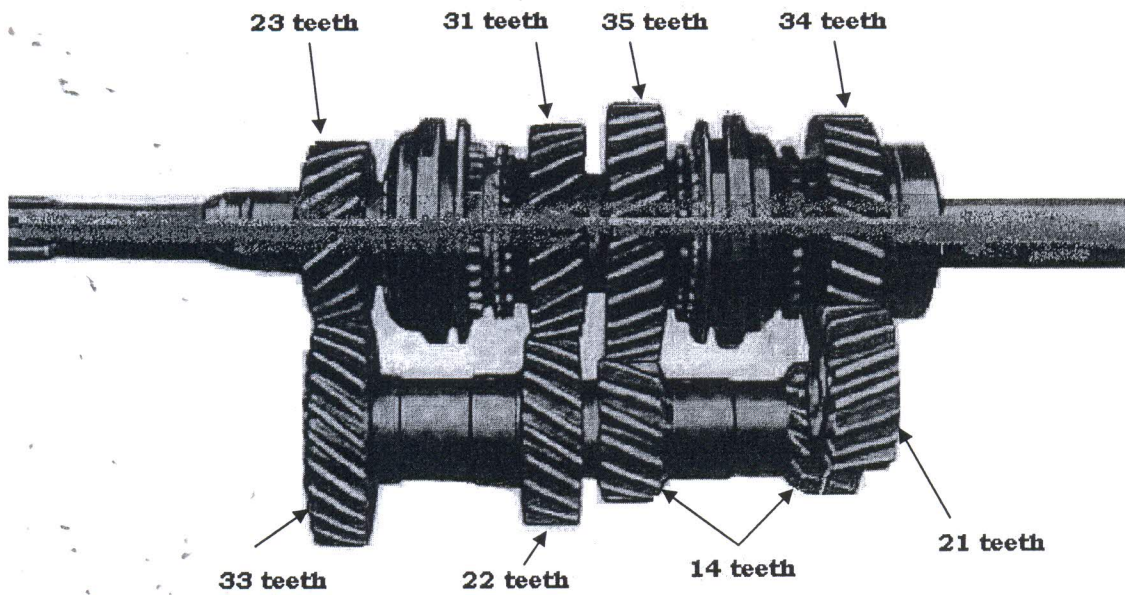


Figure 2. assembled gear train

- a) By referring to figure 2 above, answer the questions below,
- i) Redraw the assembled gear train above by showing the flow of 2nd gear. (3 marks)
 - ii) Calculate the respective gear ratio. (7 marks)
- b)
- i) What is the definition of clutch slippage and what are the factors that contribute to this problem. (4 marks)
 - ii) Write down the procedures on how to check the clutch slippage. (6 marks)

END OF QUESTION