



UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
JANUARY 2011 SESSION

SUBJECT CODE : FVD 20402
SUBJECT TITLE : TRANSMISSION 1
LEVEL : DIPLOMA
DURATION : 12.30pm – 2.30pm
(2 HOURS)
DATE / TIME : 11 MAY 2011

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 one (1) question only.
6. Answer all questions in English.

THERE ARE 5 PRINTED PAGES OF QUESTIONS EXCLUDING THIS PAGE.

SECTION A (Total: 75 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

- a. List down the types of four wheel drive system normally equipped in vehicles and explain the criteria of each system.
(4 marks)
- b. What is the difference between front-engine rear-wheel drive and front-engine front-wheel drive?
(4 marks)
- c. What is the function of pressure plate assembly in clutch system?
(2 marks)
- d. List the advantages of diaphragm spring pressure plate assemblies
(6 marks)
- e. A vehicle has a standard transmission with a clutch. The driver says that a harsh scratching sound is heard when the pedal is released.
 - i) What is the possible cause of this problem?
(4 marks)
 - ii) What are the necessary corrections that should be taken in order to solve the problem?
(5 marks)

Question 2

- a. Gears are normally mounted on a shaft and transmit rotating motion from one parallel shaft to another. List three condition to shown how gear and shaft can be interact.
(3 marks)
- b. Describe three type of gear design and also explain the characteristic for each gear.
(6 marks)

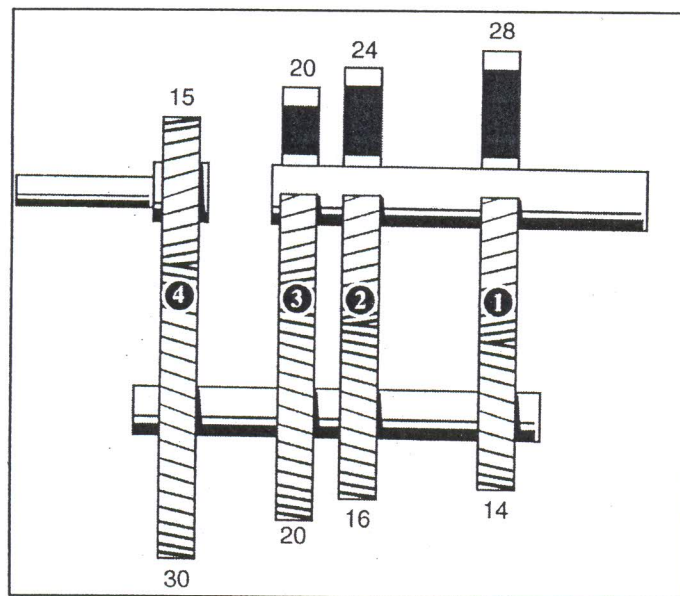


Figure 1

c. Referring to figure 1 above, answer the following questions,

- i) Draw the simple assembly gear train for **3rd gear** engagement. (3 marks)
- ii) Calculate the **3rd gear** ratio. (7 marks)

Question 3

- a. Explain the operation of synchronizer in manual transmission system. (5 marks)
- b. What is the main function of "locking device" and "locating device" that are equipped in the manual gear box? (5 marks)
- c. Discuss how five-speed overdrive gear can contribute to better mileage. (5 marks)

d. A customer indicates that five-speed manual transmission is difficult to downshift into first gear and is getting worse.

i) What are the possible causes of these problems?

(5 marks)

ii) What are the corrections to be taken to solve the problems?

(5 marks)

SECTION B (Total: 25 marks)**INSTRUCTION: Answer ONE(1) questions only.****Please use the answer booklet provided.****Question 1**

a. What is a differential unit?

(6 marks)

b. Referring to figure 2, name all the parts that are numbered.

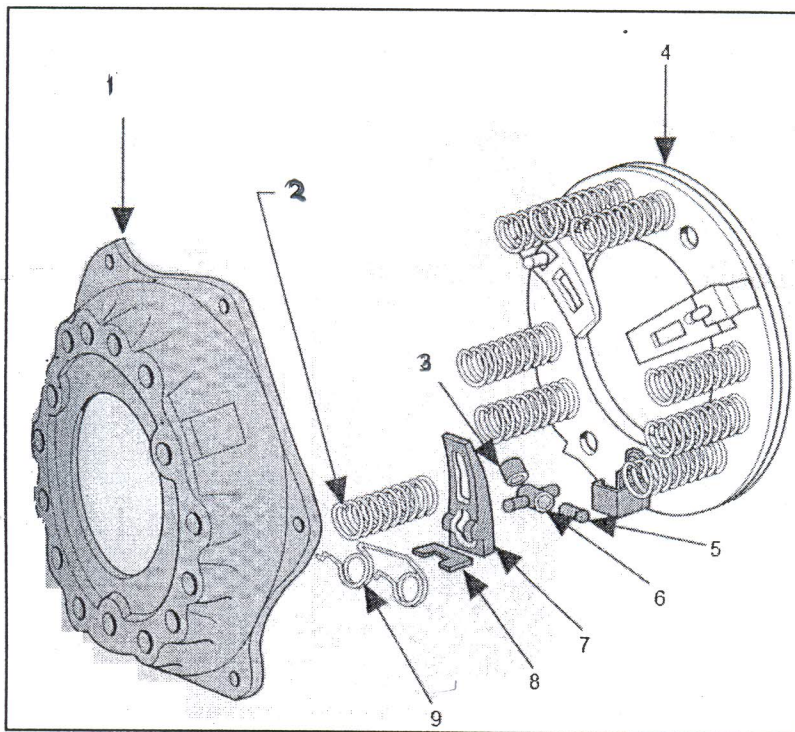


Figure 2

(9 marks)

b. A customer complains that his car produces noises (clicking or snapping) during hard turn at 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)

Question 2

- a. Describe two basic types of plunging ball joints. (5 marks)
- b. Explain how the hydraulic clutch linkage system works. (5 marks)
- c. What are the differences between constant velocity joint and Cardan universal joint? (5 marks)
- d. A car has developed a squeaky noise in the drive shaft. The noise is not heard all the time. However, when the car is shifted into reverse and then into forward again, a slight clunk is heard and sound returns.
 - i) What are the possible causes of these problems? (5 marks)
 - ii) What are the necessary corrections that should be taken in order to solve the problems? (5 marks)

Question 3

- a. Describe **five** main functions of gear oil. (5 marks)
- b. Explain the purpose of using planetary gear in 4WD (5 marks)
- c. What is limited slip differential? (3 marks)
- d. As a technician you are asked to perform the lubricant check on manual transmission / transaxle,
 - i) What are the various grades of lubricants that are suitable for manual gear box? (4 marks)
 - ii) Write the correct procedures for checking the lubricant level. (8 marks)

END OF QUESTION