



**UNIVERSITI KUALA LUMPUR**  
**Malaysia France Institute**

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**FINAL EXAMINATION**  
**JANUARY 2011 SESSION**

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**SUBJECT CODE** : FVD30202  
**SUBJECT TITLE** : TRANSMISSION 2  
**LEVEL** : DIPLOMA  
**TIME / DURATION** : 9.00am – 11.00am  
( 2 HOURS )  
**DATE** : 11 MAY 2011

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on one 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 two (2) questions only.
7. Answer all questions in English
8. All question paper should be returned back to the invigilator

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THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

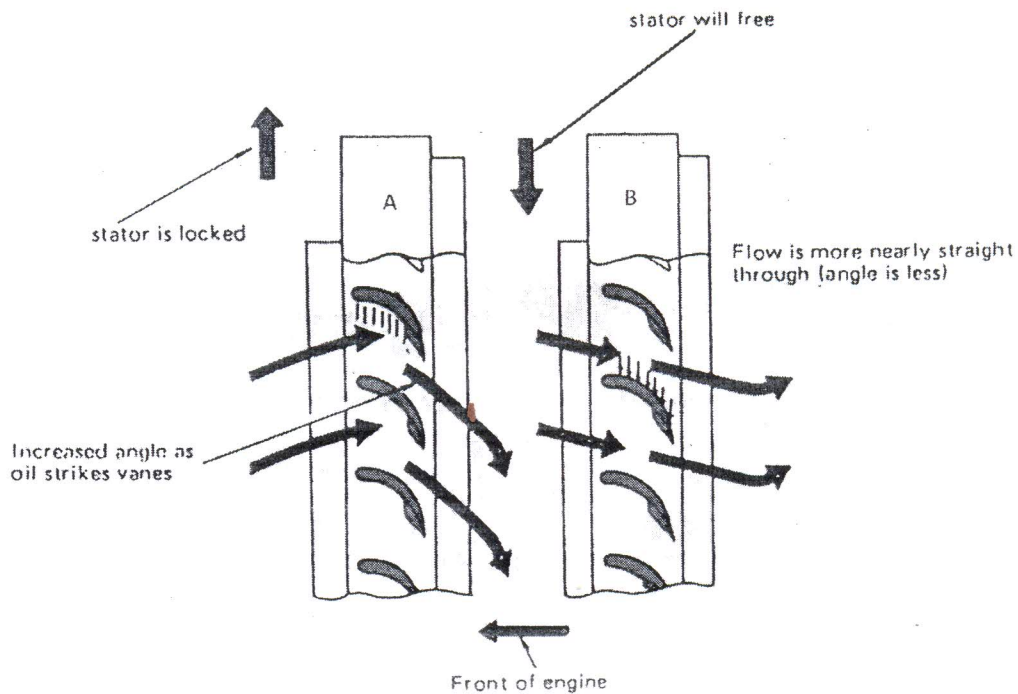
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**SECTION A (Total: 60 marks)**

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

**Question 1**

- a) What is the definition of automatic transmission / transaxle? (5 marks)
  
- b) What are the possible causes that may lead to deteriorations of automatic transmission fluid? (5 marks)
  
- c) List down the functions of automatic transmission fluid. (5 marks)
  
- d) By referring to figure 1 below determine the condition of the stator 'A' and 'B' and describe the fluid flow for the both condition. (5 marks)



**Figure 1. Torque converter stator**

**Question 2**

- a) What are the main components of the torque converter?  
(5 marks)
- b) What are the main function of pulse generators A and B and where are the pulse generator A and B located in the automatic transmission?  
(5 marks)
- c) When is the rotary flow and vortex flow of the transmission fluid become stronger during transmitting the engine power to gear box input shaft?  
(5 marks)
- d) Write down the functions of hydraulic system inside the automatic transmission.  
(5 marks)

**Question 3**

- a) List down the **THREE** stages of torque converter operation.  
(5 marks)
- b) Explain how the 3<sup>rd</sup> gear is obtained in automatic transmission that uses ravnigneaux type planetary gear set.  
(5 marks)
- c) What are the basic components of hydraulic system used in automatic transmission?  
(5 marks)
- d) By referring to table 1 below, write the combination of "ON" and "OFF" position of shift control solenoid valve for the respective gear (shifting) position.  
(5 marks)

NOTE \*rewrite the table into your answer script\*

Shifting	SCSV A	SCSV B
1st		
2nd		
3rd		
4th		

**Table 1. shift control solenoid valve operation**

SECTION B (Total: 40 marks)

INSTRUCTION: Answer TWO questions only.

Question 1

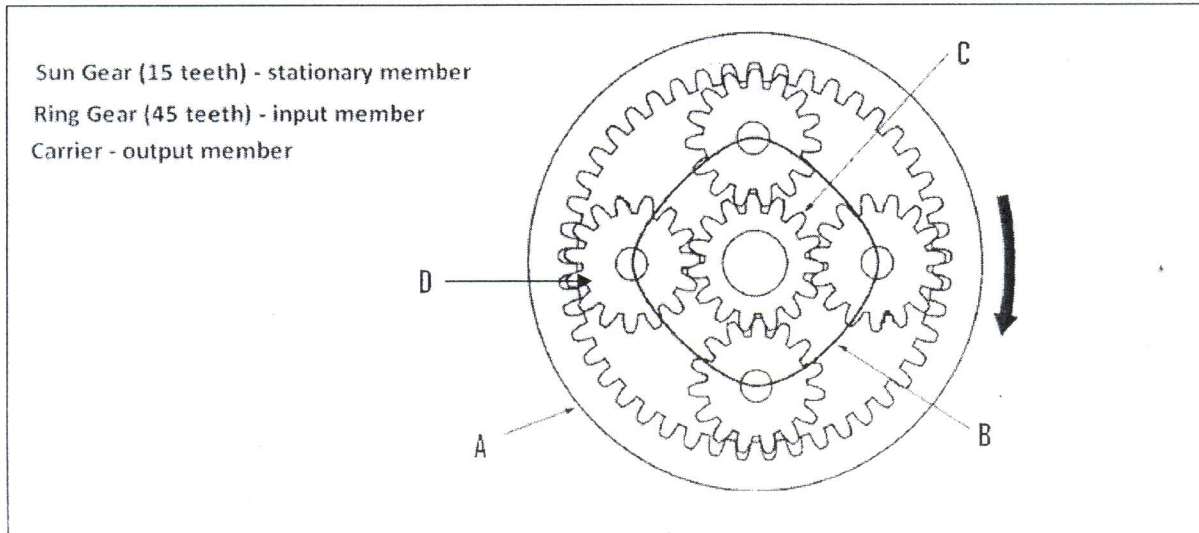


Figure 1. Simple planetary gear set

- a) By referring to figure 1, name all the **FOUR** main components of planetary gear set. (4 marks)
  
- b) Determine the direction of rotation of component **B** and **D** if the rotation of component **A** is clockwise. (6 marks)
  
- c) Calculate the gear ratio that can be obtained from these planetary gear set combination. (10 marks)

**Question 2**

- a) Clearly explain what is the front clutch and explain how the power is transmitted through it.  
(10 marks)
- b) What are the safety mechanisms that are usually equipped with automatic transmission vehicle and clearly explain how does the system works?  
(10 marks)

**Question 3**

- a) After performed the converter stall test, the engine RPM reading that was obtained is below the specification in both D and R range,
- i. What are the probable causes of the transmission  
(7 marks)
  - ii. What is the required stall speed for the converter stall test  
(3 marks)
- b) Write down the complete procedure of checking the automatic transmission fluid level.  
(10 marks)

END OF QUESTION