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CONFIDENTIAL

SET A

UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2010 SESSION

SUBJECT CODE	:	FMD 11102
SUBJECT TITLE	:	MACHINE ELEMENTS
LEVEL	:	DIPLOMA
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 ANY two (2) questions.
6. Answer all questions in ENGLISH ONLY.

THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total : 60 marks)

INSTRUCTIONS: Answer ALL three (3) questions.
Please use the answer booklet provided.

Question 1

(a) Chain drives are used in many industrial applications. Explain in detail five (5) main characteristics of chain drives in comparison to any other machine component (such as gears, belts, shafts etc.)

(10 marks)

(b) One of the most common types of chains is roller chain. Describe the features of a roller chain with the use of a simple sketched diagram.

(10 marks)

Question 2

Using a simple example, describe and explain the important features of the following gears that are commonly used in many industrial applications:-

(a) spur gears

(10 marks)

(b) worm gears

(10 marks)

Question 3

Using a simple diagram, label and define all the seven (7) important production dimensions. Calculate and determine each dimension value for a gear that has a module of 20 mm and 150 teeth.

(20 marks)

SECTION B (40 marks)

INSTRUCTIONS: Answer only TWO (2) questions.
Please use the answer booklet provided.

Question 4

(a) Explain some important differences between 'toothed' and 'V' belt drives.

(10 marks)

(b) Belts require extensive maintenance. List down the important steps used in belt drive maintenance.

(10 marks)

Question 5

(a) The driving wheel of gear mesh runs at 1000 rpm and the transmission ratio is 5:13. Determine the driven gear revolution speed. Sketch a simple diagram of the drive.

(10 marks)

(b) Two gears are engaged in motion having 30 and 55 teeth respectively, and are also separated from each by a length of 350 cm from the center axes. Calculate the module of the gear drive. Sketch a simple diagram of the drive system.

(10 marks)

Question 6

(a) Draw a simple sketch of a disk-type adjustable speed drive. Explain some important features of the drive.

(10 marks)

(b) Draw a simple sketch of a roller-type hydraulic adjustable speed drive. Explain some important features of the drive.

(10 marks)

END OF QUESTION