



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
JANUARY 2010 SESSION**

SUBJECT CODE : FFB 32303
SUBJECT TITLE : DESIGN AND FABRICATION (STRUCTURE)
LEVEL : BACHELOR OF ENGINEERING TECHNOLOGI
IN WELDING AND QUALITY INSPECTION
TIME / DURATION : 9.00am – 11.30am
2.5 HOURS
DATE : 05 MAY 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. Please use new page for the following question.
 5. Answer should be written in blue or black ink except for sketching, graphic and illustration.
 6. This questions no consists of 5 (FIVE) questions. Answer **FOUR (4)** questions only.
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THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

INSTRUCTION: Answer ANY FOUR (4) questions ONLY.

Please use the answer booklet provided. You are advised to use new page of answer book for each question.

Question 1

- a) Generally the objective of structural design is to produce a structure that will not become unserviceable or collapse in its life time, and to fulfill client requirement and the user at reasonable cost. Give four (4) major points one should consider in designing a structure.
- b) Basically steel is man-made material and consisting of 98% iron. Name other **four (4)** elements commonly added in steels.
- c) Name **three (3)** semi-finished steel and **four (4)** products of secondary rolling mill.

(25 marks)

Question 2

- a) Explain the basic construction of Beam Bridge
- b) Refer to the Figure 1 and answer the following questions
 - i. Draw the free body diagram
 - ii. If the weight of the beam is 5000kg, find the reaction at points A and B

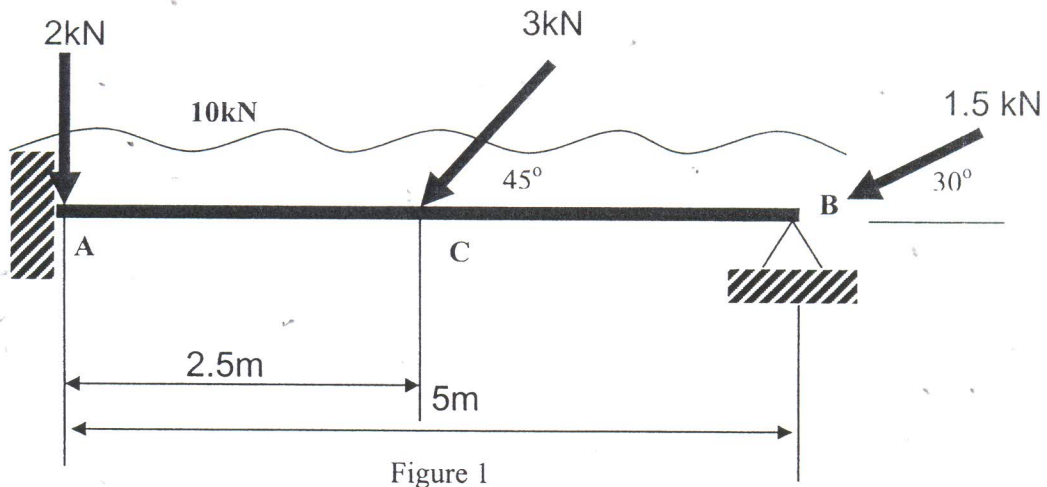


Figure 1

(25 marks)

Question 3

- a) A36 and A588, both are structural shape steels. Briefly discuss both products in term of properties, strength and their usage in structural fabrication industries.
 b) Study the structure in Figure 2 below and find the reactions at the support A and B.

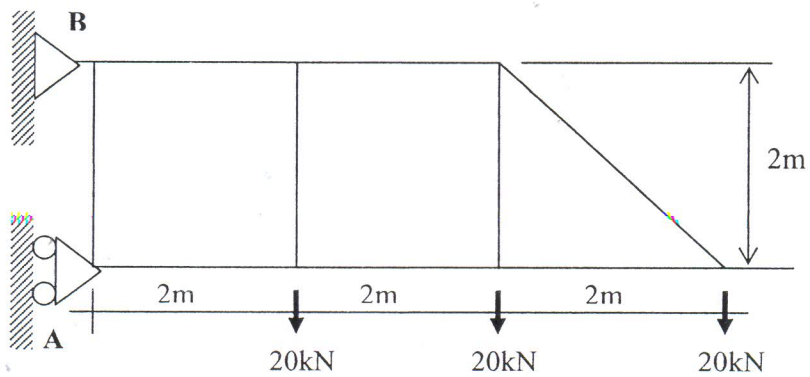


Figure 2

(25 marks)

Question 4

- a) Name and draw five (5) symbols of support system in structure drawing.
 b) Name and briefly explain two (2) types of Limit State Design for welded structure.
 c) Give four (4) provisions regarding fillet welds listed in Claus 6.7.2 of BS5950.
 d) What do you understand by throat size of partial penetration butt weld? Briefly explain according to Claus 6.9.2 BS 5950.

(25 marks)

Question 5

- a) Give three (3) conditions in which the strength of symmetrical loaded fillet welds can be taken as equal to the strength of the plate.
- c) Figure 3 shows welded members were subject to static load. of 500kN. The welding was fillet design on both sides with the welding length is 600mm. Calculate the maximum stress on the weldments.

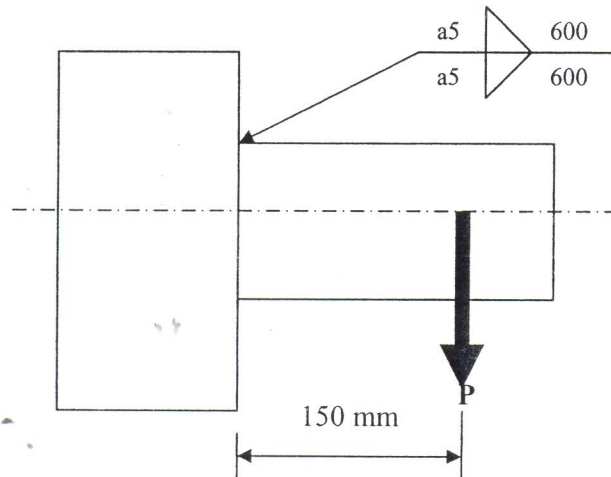


Figure 3

(25 marks)