SET A

UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
SEPT 2013 SESSION

SUBJECT CODE	:	**FFB 12103**
SUBJECT TITLE	:	**WELDING AND CUTTING PROCESS**
LEVEL	:	**BACHELOR**
TIME / DURATION	:	**(2 ½ 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 THREE (3) question only.

6.   Answer ALL questions in English

THERE ARE 5 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

(a)   The oxyacetylene welding (OAW) process uses a combination of oxygen and acetylene gas to provide a high temperature flame. OAW is a manual process in which the welder must personally control the torch movement and filler rod application.

   (i)   List **THREE (3)** types of flame.

(3 marks)

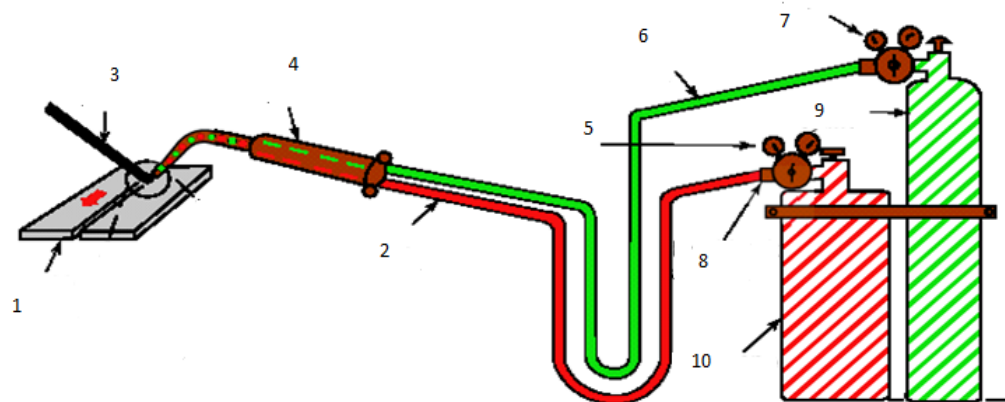   (ii)   Label all the **TEN (10)** items for and oxy-acetylene setup as in Figure 1.

Figure 1 – Oxy Acetylene Setup

(10 marks)

   (iii)   Why should acetylene cylinders be stored in the upright position?

(2 marks)

   (iv)   Name the flame commonly used for brazing purpose.

(2 marks)

Question 2

In arc welding, the intense heat needed to melt metal is produced by an electric arc. The arc is formed between the actual work and an electrode (stick or wire) that is manually or mechanically guided along the joint.
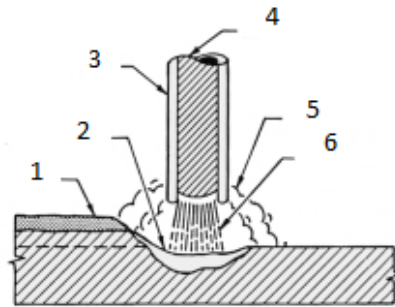

Figure 2 – Arc Process

(i)   Label all the items in Figure 2.

(6 marks)

(ii)   Name the two kinds of invisible rays which can injure eyes and skin

(2 marks)

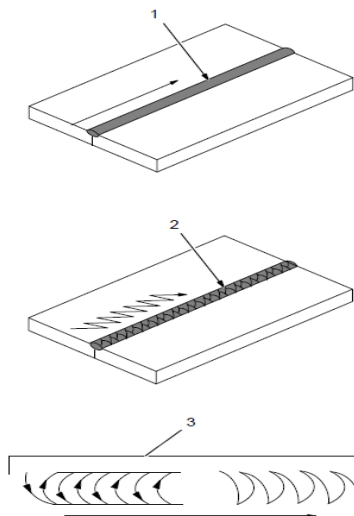(iii)   Name the electrode movement in welding as in Figure 3

(3 marks)

Figure 3 – Electrode Movement

(iv)   Interpret the acronym below for the world welding association,

        (a)   ANSI

        (b)   API

        (c)   ASME

        (d)   AWS

(4 marks)

(iii)   Describe the meaning of welding electrode E6013

(3 marks)

Question 3

The shielding gas serves to blanket the weld and exclude the active properties in the surrounding air.

(i)   List down **TWO (2)** types of shielding gases use in GTAW process.

(2 marks)

(ii)   Name the types of tungsten electrode used to weld carbon steel

(2 marks)

(iii)   Name the resources for plasma cutting.

(1 mark)

SECTION B (Total: 60 marks)

INSTRUCTION: Answer THREE (3) questions only.

Please use the answer booklet provided.

Question 1

(i)   Define open circuit voltage (OCV) and operating voltage (OV).

(5 marks)

(ii)   Define 'arc blow'.

(5 marks)

(iii)   Describe how to control 'arc blow'.

(5 marks)

(iv)   State the purpose of a welding transformer.

(5 marks)

Question 2

(i)   List and define the **THREE (3)** units used to measure a welding current.

(6 marks)

(ii)   State the **THREE (3)** different types of current used for welding

(3 marks)

(iii)   Define oxy-acetylene cutting process.

(4 marks)

(iv)   Sketch the position for an oxy-acetylene cutting torch tip.

(3 marks)

(v)   State **TWO (2)** differences of a oxy-acetylene cutting torch as compared to oxy-acetylene welding torch.

(4 marks)

Question 3

(i)   State the purpose of a rectifier

(5 marks)

(ii)   Define a welding machine with 60% duty cycle.
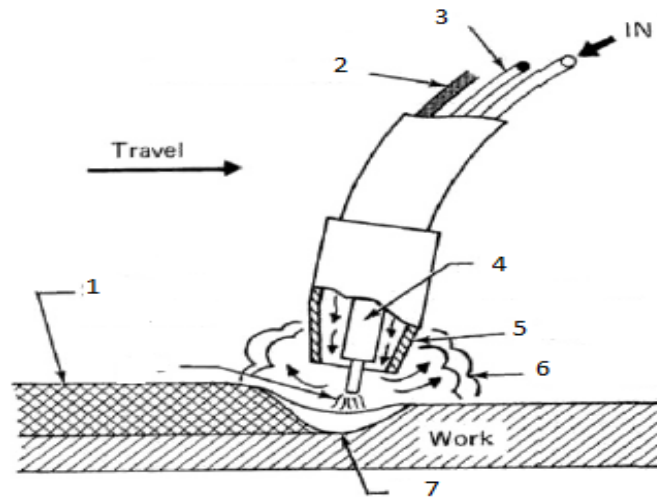
(5 marks)

Figure 4 - Gas Metallic Arc Welding (GMAW)

(iii)   Label all the 7 items in **Figure 4** for Gas Metallic Arc Welding (GMAW).

(7 marks)

(iv)   List the **THREE (3)** welding position.

(3 marks)

Question 4

(i)   State FIVE (5) advantages of Gas Tungsten Arc Welding process (GTAW).

(5 marks)

(ii)   Sketch and label the 9 items for a Gas Tungsten Arc Welding (GTAW) system.

(15 marks)

END OF QUESTION