Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2013/2014

COURSE NAME	:	PLANT FABRICATION TECHNOLOGY
COURSE CODE	:	BNL 20303
PROGRAM	:	2 BNL
DATE	:	JUNE 2014
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1 (a) **Figure Q1(b)** shows the sections through a steel-framed building. Complete the table naming the various features of the structure.

Table Q1

Member	Description
A	
B	
C	
D	

(8 marks)

(b) List the common used connections in a structural steelwork and discuss the relative advantages and limitations of each of the systems.

(8 marks)

(c) Differentiate between seamed and seamless pipe and list the advantages and limitations of both types.

(6 marks)

(d) What colour coding should be used for the following pipework applications:

i) Electrical conduit
ii) Cold water
iii) Steam
iv) Natural gas

(4 mark)

Q2 (a) With the aid of sketches, outline the different types of joint by braze welding

(3 marks)

(b) Describe basic principles of brazing

(3 marks)

(c) List the materials that may be joined by the brazing process

(4marks)

Q3 (a) Pitting is a corrosion type. Describe the term of pitting.

(2 marks)

(b) List **FOUR (4)** necessary factors of the process environment to be considered, in order to select the correct material for construction

(4 marks)

(c) Choose a suitable material of construction for the following duties:

(i) 98 % w/w sulphuric acid at 70 °C

(2 marks)

(ii) 30 % w/w hydrochloric acid at 50 °C

(2 marks)

(iii) 10 % w/w sodium chloride solution

(2 marks)

Q4 (a) State **TWO (2)** reasons why the V form thread is used for the threaded connection in the assembling fabricated steelwork

(2 marks)

(b) Compare **FIVE (5)** methods (locking devices) of preventing threaded connection working loose by illustration.

(5 marks)

(c) List **FOUR (4)** factors that have to be considered when selecting a rivet for a particular application.

(4 marks)

Q5 (a) Explain what is a meant by a composite material and list **TWO (2)** advantages of such a material.

(5 marks)

(b) Explain how lamination can be used to control the spread of cracks in brittle materials.

(3 marks)

(c) With the aid of sketches illustrate how sheet plastic materials may be formed by:

(i) Vacuum forming
(ii) Blow forming
(iii) Pressing

(9 marks)

(d) Describe the purpose of the electrode and the electrode coating when stick welding occurs.

(2 marks)

(e) A typical standard coding which should be plainly marked on a box of electrodes could be **E 50 Ini R 6 4 H6.** Analyze the meaning of the code.

(4 marks)

Q6 (a) A common fault when welding is lack of penetration. Explain **FOUR (4)** main causes of this fault.

(6 marks)

(b) Explain what is meant by lack of fusion and state **THREE (3)** possible causes of this fault.

(6 marks)

(c) Compare the difference between tungsten inert gas (TIG) welding and metal inert gas (MIG).

(6 marks)

-END OF QUESTIONS-

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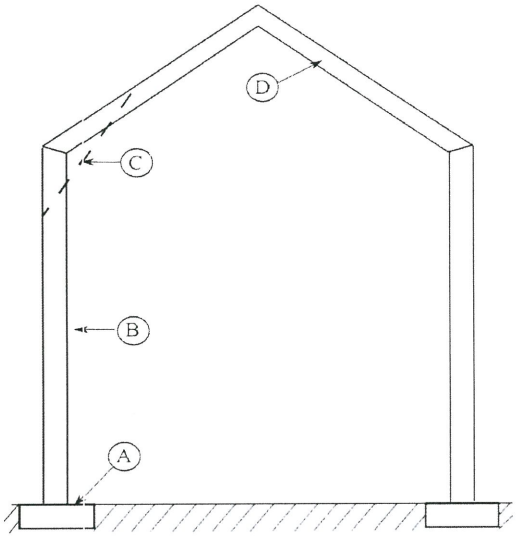

Figure Q1(b)