



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019**

COURSE NAME : WELDING PRODUCT TESTING
COURSE CODE : BBW 30202
PROGRAM : BBD
DATE : JUNE/JULY 2019
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PRINTED PAGES

Q1 (a) State and explain three (3) reasons for using destructive test in welding. (9 marks)

(b) State the main characteristic that can be identified using the following test:

- (i) Brinell Test
- (ii) Charpy Test.
- (iii) Tensile Test

(3 marks)

(c) Mr John is a NDT (non-destructive test) inspector who works for a piping company. He wants to see if there is any defect inside a newly produced hollow pipe that has a diameter of 10mm.

(i) What type of test should be used by Mr John in the first place? Explain your answer. (5 marks)

(ii) What equipment must be used to assist the inspection suggested in Q1(C)(i)? (2 marks)

(iii) Explain two (2) conditions for performing the inspection suggested in Q1(C)(i). (6 marks)

Q2 (a) State three (3) reasons for using Non-Destructive Test (NDT) and list three (3) types of defect that can be detected by NDT. (6 marks)

(b) List down three (3) benefits and three (3) limitations of NDT. (6 marks)

(c) Figure Q2(c) illustrates a type of defect in a welding product.

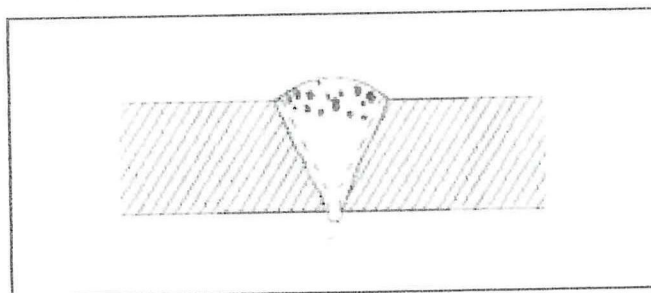


Figure Q2(c): Front view of cross-section

- (i) What type of defect is shown in Figure Q2(c)? (2 marks)
- (ii) Suggest a test to detect the above defect. Give a reason for your suggestion. (4 marks)
- (iii) State three (3) advantages of the suggested test. (3 marks)
- (iv) Is it possible to detect the defect using Magnetic Particle Test? Justify your answer. (4 marks)

- Q3**
- (a) Explain clearly the procedures of performing dye penetrant test on a surface. (9 marks)
 - (b) In penetrant testing (PT), penetrant should have good properties in order to produce high quality outcome.
 - (i) Explain one of the properties OF a good penetrant. (2 marks)
 - (ii) List down two types of penetrant used in PT. (2 marks)
 - (c) An internal defect of a product is inspected using ultrasonic testing method. Figure Q3(c) shows the output on the screen of the test equipment.

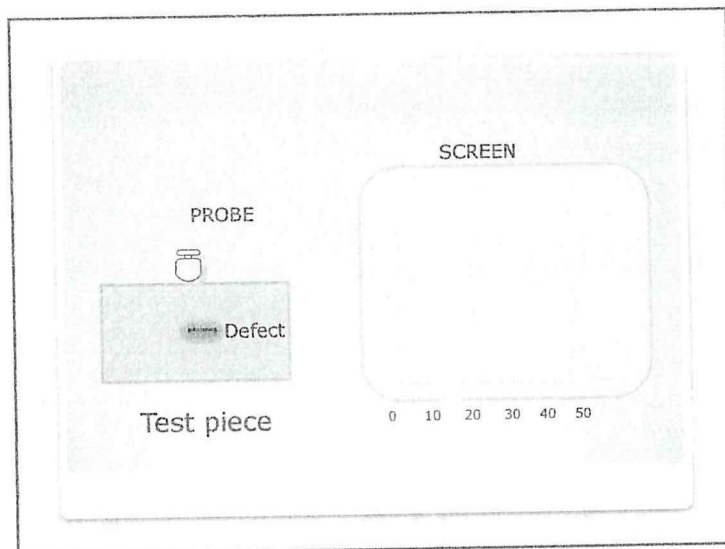


Figure Q3(c)

- (i) What is the thickness of the test piece?
 - (ii) What is the distance of the defect from the top surface?
 - (iii) What precaution should be taken in order to get a better signal to detect the defect?
 - (iv) What other test can be used for detecting the same defect? (8 marks)
- (d) What is the problem if the angle of a probe is less than the first critical angle or more than second critical angle? (4 marks)
- Q4** (a) State the basic steps in performing an inspection using Eddy Current Test. (6 marks)
- (b) State three (3) purposes of Eddy Current Test. (3 marks)
- (c) A surface crack can be detected using Magnetic Particle Testing (MPT) method. Explain the procedures of the test. (12 marks)
- (d) What is the disadvantage of using permanent magnet in MPT? (2 marks)

- END OF QUESTIONS -