



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : **WELDING PRODUCT TESTING**
COURSE CODE : **BBW 30202**
PROGRAM : **BACHELOR OF VOCATIONAL
EDUCATION (WELDING AND
METAL FABRICATION)**
DATE : **DECEMBER 2015/JANUARY 2016**
DURATION : **2 HOURS**
INSTRUCTION : **ANSWER ALL QUESTIONS**

THIS QUESTION PAPER CONSISTS OF FOUR (4) PRINTED PAGES

- S1** (a) State and explain three (3) reasons for using destructive test in welding. (6 marks)
- (b) What are the three (3) differences between Charpy test and Izod test. (6 marks)
- (c) Suggest a test for each of the following measurements:
- (i) Toughness of welded product.
 - (ii) Hardness.
 - (iii) Soundness and ductility. (6 marks)
- (d) Explain the procedures of tensile test. (7 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 limitations of NDT. (6 marks)
- (c) Figure Q2(c) illustrates a type of defect in a test-piece.

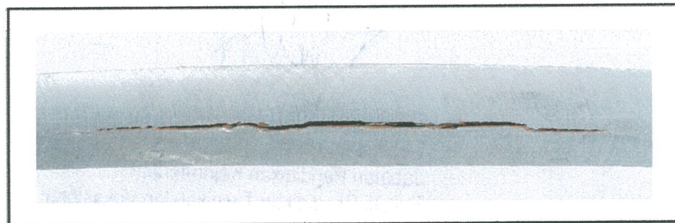


Figure Q2(c): Front view of cross-section of a defect

- (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 Penetrant Test? Justify your answer. (4 marks)

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- Q3** (a) Explain clearly the procedures of performing dye penetrant test on a surface. (9 marks)
- (b) It is very important to carry out pre-cleaning process on the test piece surface before conducting penetrant test. Explain why pre-cleaning is needed in penetrant test. (4 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.

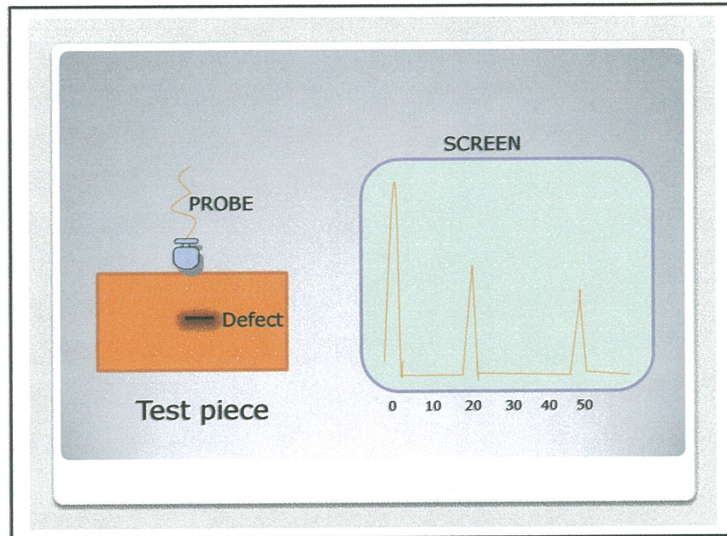


Figure Q3(c)

- (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)

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- S4 (a) Sketch and explain the basic principle of Eddy Current Test. (6 marks)
- (b) List 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. (6 marks)
- (d) What are the limitations of MPT? (4 marks)
- (e) By sketching a simple diagram, explain the basic concept of Radiographic Testing Method. (6 marks)

End of Questions

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