

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

CONFIDENTIAL

COURSE NAME

: MANUFACTURING TECHNO.

COURSE CODE

: BDA 30502

PROGRAMME

: 3 BDD

EXAMINATION DATE : JUNE/JULY 2016

DURATION

: 2 HOURS

INSTRUCTION

: 1. ANSWER **ONE** QUESTION

FROM SECTION A

2. ANSWER ALL QUESTIONS

FROM SECTION B

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

SECTION A

Q1 (a) Identify at least **THREE** (3) sector industry area and discuss some of the reasons why machining is commercially important.

(7 marks)

(b) Discuss **FOUR (4)** advantages and disadvantages of machining on scope of industries.

(8 marks)

(c) A slab milling operation is performed to finish the top surface of a steel rectangular work piece 250 mm long by 70 mm wide. The helical milling cutter, which has a 80 in diameter and eight teeth, is set up to overhang the width of the part on both sides. Cutting conditions are: v = 50 m/min, f = 0.12 mm/tooth, and d = 3.00 mm.

Determine:

- a) The time to make one pass across the surface
- b) The material removal rate during cutting process

(10 marks)

Q2 (a) Describe with the aid of diagram the processing step involved in producing a product in Powder Metallurgy (PM).

(7 marks)

- (b) Powder Metalurgy (PM) is the important process in manufactuing to produce a good product.
 - a) Explain about the PM process
 - b) Explain at least FOUR (\$4) importance of PM

(8 marks)

(c) Discuss and sketching in detail sintering metal powder moleculs bonding process in Powder Metallurgy (PM)? Describe the sintering processes in detail.

(10 marks)

CONFIDENTIAL

BDA30502

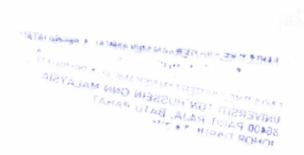
- Q3 (a) With the aid of a diagram, differentiate the Rolling process and give TWO
 (2) examples of Intermediate rolled form and Final rolled form
 (5 marks)
 - (b) Compression molding process is one of the best manufacturing process that involved punch, cavity and ejector for producing the part. With the aid of a diagram illustrate the step of the process?

 (5 marks)
 - (c) Explain Direct and Indirect extrusion works with the aid of diagrams.

(7 marks)

(d) Analyze at least **FOUR (4)** comparison differences between Hot Extrusion and Cold Extrusion

(8 marks)



SECTION B

- Q4 (a) Briefly elaborate the basic principle of fusion welding? (5 marks)
 - (b) Demonstrate in detail at least **FIVE** (5) equipments a typical Arc Welding Process complete with aid of diagram. (10 marks)
 - (c) With the aid of a diagram, investigate the impression die and discuss **THREE (3)** processing step on how it works. (10 marks)
- Q5 (a) There are two types of plastics namely Thermoplastics and Thermosets.

 Distinguish the differences between them in an appropriate table.

 (4 marks)
 - (b) Describe the characteristics and limitations of plastic injection moulding product and give **THREE** (3) examples of products that is normally made by such technique?. (5 marks)
 - (c) Describe the blown calendaring (Blown-film) process and give **THREE** (3) examples of products that are normally made by such technique.

(6 marks)

(d) With the aid of appropriate diagram, illustrate in details the plastic extrusion process? (10 marks)

And the second second

CONFIDENTIAL

BDA30502

In turning operation, FIVE (5) basic cutting techniques have been used **Q6** (a) widely in industry to perform shape and contour. Illustrate in figure and label completely.

(5 marks)

In machining cutting tool theory, there is 2 methods of cutting called (b) Orthogonal cutting and oblique cutting that widely used in industries. Compare at least FOUR (4) assumptions between these two

(8 marks)

- A company made an investigation of single point tool of their machining (c) department. They found a majority of the problems are tool failure obviously occurred during the cutting process.
 - i. Discuss THREE (3) mode of failures
 - Draw a diagram of tool failure/wear ii.
 - Examine and suggest an option to reduce tool failure during machining. iii.

(12 marks)

- END OF QUESTION -

PROBE THE PORT OF THE PROPERTY OF THE PROPERTY. UNIVERSITI TUN HURSEIM ONN MALAYSI" SEADS PARTI RAJA, BATU PAMA* MISTAT PURAO NOMON