



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2014/2015**

COURSE NAME : MANUFACTURING TECHNOLOGY  
COURSE CODE : BPB 23303  
PROGRAMME : 2 BPB  
EXAMINATION DATE : DECEMBER 2014/ JANUARY 2015  
DURATION : 3 HOURS  
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1**
- (a) List **FOUR (4)** types of pattern. (4 marks)
  - (b) Explain why should turbulent flow of molten metal into the mould be avoided. (2 marks)
  - (c) Discuss the desirable mould properties for sand mould casting. (10 marks)
  - (d) Explain **ONE (1)** the possible cause and remedial measure for the following casting defects.
    - (i) Blow holes (2 marks)
    - (ii) Shrinkage (2 marks)
- Q2**
- (a) Describe the **THREE (3)** basic steps in the conventional powder metallurgy shaping process. (9 marks)
  - (b) List **FIVE (5)** limitations and disadvantages of powder metallurgy process. (5 marks)
  - (c) Explain the production of tungsten carbide (for making tools and dies) by powder metallurgy process. (6 marks)
- Q3**
- (a) Sketch **FOUR (4)** types of bulk deformation processes. (6 marks)
  - (b) Explain the advantages of hot working in metal forming process. (5 marks)
  - (c) Explain the **THREE (3)** principal operations in pressworking that cut sheet metal. (6 marks)
  - (d) Explain the reasons for springback in sheet metal forming. (3 marks)

- Q4**
- (a) Draw a diagram to classify material removal processes. (6 marks)
  - (b) Describe **FOUR (4)** types of chips occur in metal cutting. (8 marks)
  - (c) Distinguish between peripheral milling and face milling with examples. (6 marks)
- Q5**
- (a) Sketch **FOUR (4)** welding positions. (4 marks)
  - (b) Discuss the reasons why most welding operation are inherently dangerous. (4 marks)
  - (c) Describe the following processes
    - (i) Shielded Metal Arc Welding (SMAW) (3 marks)
    - (ii) Gas Metal Arc Welding (GMAW) (3 marks)
    - (iii) Gas Tungsten Arc Welding (GTAW) (3 marks)
  - (d) Determine suitable welding operation to joint 2 pieces of aluminium plate (2mm thickness) with justification. (3 marks)

**- END OF QUESTION -**