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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : MANUFACTURING TECHNOLOGY
COURSE CODE : BPB 23303
PROGRAMME CODE : BPA
EXAMINATION DATE : JUNE / JULY 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

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- Q1** (a) Discuss **TWO (2)** major categories of arc welding. (4 marks)
- (b) List **SIX (6)** precautions in arc welding work. (6 marks)
- (c) Describe **FIVE (5)** steps in arc welding process. (10 marks)
- Q2** (a) Describe the names and functions of each components as shown in **Figure Q2**.

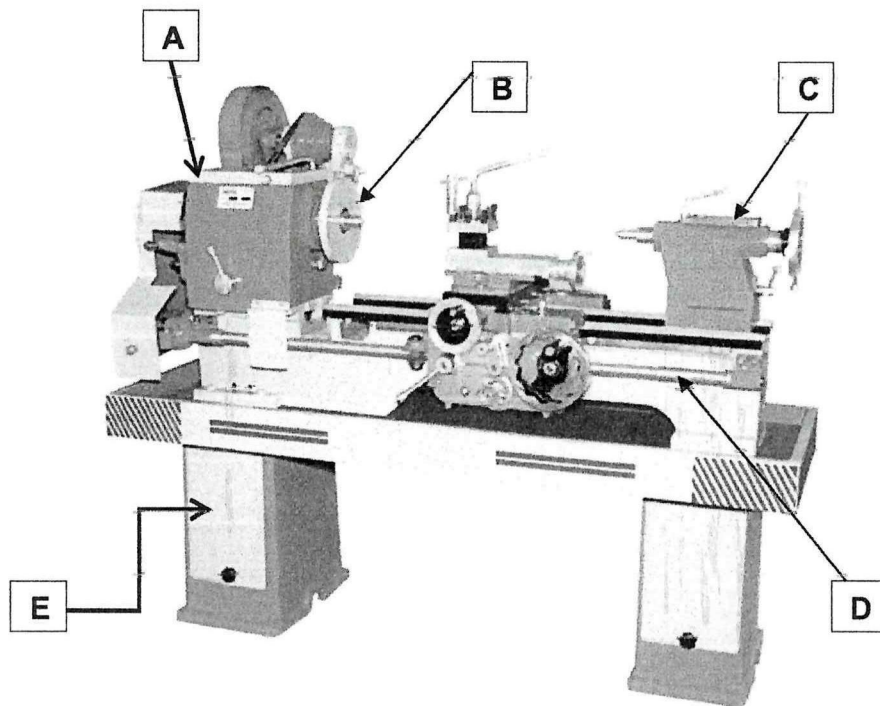


Figure Q2: Conventional Lathe Machine

(10 marks)

- (b) In steel production work part of drilling operation to be performed with a 12.2 mm diameter. The hold is blind hold at a depth of 50 mm and the point angle is 100° . The cutting speed of drilling is 26 m/min and the feed is 0.20 mm/rev.

Calculate:

- (i) Spindle speed (2 marks)
- (ii) Feed rate (3 marks)
- (iii) Machining Time (5 marks)
- (iv) Approach allowance (5 marks)
- (v) Metal Removal Rate (5 marks)

- Q3** A production turning operations were conducted using a cemented carbide tool. The diameter of cylindrical work part has 30 cm and 60 cm length. A feed is 0.3 mm/rev, the depth of cut is 0.3 cm and the cutting speed is 110 m/min.

Calculate:

- (i) Rotational speed (5 marks)
- (ii) Final diameter (5 marks)
- (iii) Machining time (5 marks)
- (iv) Material Removal Rate (10 marks)

Q4 (a) Describe TWO (2) common bending methods. (5 marks)

(b) Figure Q4 shows a sheet metal blank, L-shaped part is to be bent in a V-bending block. The part wide has a starting blank is 44.5 mm and metal thickness is 3.2 mm. Die opening dimension is 28 mm. The straight length consist 38 mm and additional after bent is 25 mm. Meanwhile, the angle of bending is 60° and modulus of elasticity is 205(10³) MPa with yield strength is 275 MPa. The tensile strength is 450 MPa. Assume, the factor to estimate stretching, $R/t = 4.75/3.2 = 1.48$ means less than 2.0, $K_{ba} = 0.33$.

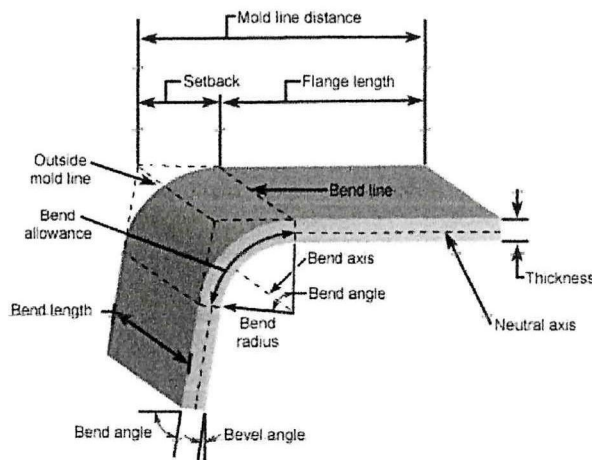


Figure Q4: Metal L-shaped

Calculate:

- (i) Bend Allowances (5 marks)
- (ii) Total length of metal sheet blank (5 marks)
- (iii) Bending force (10 marks)

- END OF QUESTIONS -