UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2020/2021

COURSE NAME	:	MANUFACTURING TECHNOLOGY
COURSE CODE	:	BDA 30502
PROGRAMME	:	BDD
EXAMINATION DATE	:	JULY 2021
DURATION	:	2 HOURS
INSTRUCTION	:	1. ANSWER **ALL** QUESTIONS IN **SECTION A** **2.** ANSWER **TWO (2)** QUESTIONS ONLY FROM **SECTION B**

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

SECTION A

Q1 (a) In a sand-casting operation, explain what factors determine the time at which you would remove the casting from the mold.

(6 marks)

(b) Would you recommend preheating the molds in permanent-mold casting? Also, would you remove the casting soon after it has solidified? Explain.

(6 marks)

(c) Examine the adverse effects of vibrations and chatter in machining.

(7 marks)

(d) Why is powder metallurgy (P/M) not attractive for parts with low production quantities? Explain.

(6 marks)

Q2 (a) Why do most welding failures occur in the heat-affected zone? Explain.

(7 marks)

(b) Examine what are some of the characteristics and consequences of welding with processes that have low rates of heat input?

(8 marks)

(c) How is feed related to speed in machining operations such as turning ? Evaluate and Explain.

(10 marks)

SECTION B

Q3 (a) Examine how hot-rolled products can have directional properties and residual stresses?

(9 marks)

(b) What is the difference between open-die and impression-die forging and why is open die-forging not a practical technique for large-scale production of identical products?

(8 marks)

(c) Sheared or blanked edges are generally not smooth, describe why and how to improve the quality of a sheared edge?

(8 marks)

Q4 (a) Describe your opinions regarding recycling of plastics versus developing plastics that are biodegradable.

(8 marks)

(b) Examine the reasons that some forming and shaping processes (for plastics) are more suitable for certain plastics than for others.

(9 marks)

(c) Why do mechanical and physical properties depend on the density of powder metallurgy P/M parts? Explain.

(8 marks)

Q5 (a) Why do compacting pressure and sintering temperature depend on the type of powder metal used? Explain.

(8 Marks)

(b) Evaluate what does the strength of a weld nugget in resistance spot welding depend on?

(7 Marks)

(c) Must the filler metal be of the same composition as that of the base metal to be welded? Evaluate.

(10 Marks)

- END OF QUESTION -