



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020**

COURSE NAME : CASTING TECHNOLOGY
COURSE CODE : BNM 30303
PROGRAMME CODE : BNM
EXAMINATION DATE : DECEMBER 2019/JANUARY 2020
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

- Q1** (a) Define the term casting, foundry and foundrymen. (6 marks)
- (b) Calculate Grain Fineness Number (GFN) of the moulding sands listed in **Table Q1(b)**. Correlating to the characteristics of moulding sands, suggest the best moulding sands between sand samples A or B. Justify your answer. (10 marks)
- (c) Name the tool as in **Figure Q1(c)** and explain the function in the making of a green sand mould. (4 marks)
- Q2** (a) Sketch and explain the different of single piece pattern and match plate pattern. (4 marks)
- (b) Explain the true-centrifugal casting with schematic illustration. (10 marks)
- (c) Porosity is one of the castings defects which detrimental to the castings' quality. Solve the porosity problem in a castings by giving **THREE (3)** best solutions. (6 marks)
- Q3** (a) List all the allowances applied in the pattern making. (6 marks)
- (b) **Figure Q3 (b)** shows a fabricated part produced by several manufacturing processes such as forging and machining. As a technologist, decide which casting process is most suitable to produce 500 units of this part in a single manufacturing process which can provide good dimensional accuracy, excellent surface finish and at comparatively low cost compared to the die casting process that can offer the same quality. By aid of sketches, outline the casting process and analyze which factor makes it comparatively low cost. (10 marks)
- (c) Core can be produced by cold cured core process. Briefly describe the process. (4 marks)
- Q4** (a) Define is castings defect. (2 marks)
- (b) Give **THREE (3)** classification of casting defect. (6 marks)
- (c) **Figure Q4 (c)** shows the casting defect of some cast parts, which are porosities. Distinguish the types of the porosities present, name it and explain how those porosities are formed in the casting? (12marks)

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Table Q1 (b)

Sieve No (ASTM)	Multiplying factor, M_i	Retained sand, f_i (g)	
		Sample A	Sample B
40	30	7.8	-
50	40	9.73	-
70	50	15.41	22.36
100	70	11.24	16.18
140	100	5.82	9.05
200	145	-	2.41
Total		50	50

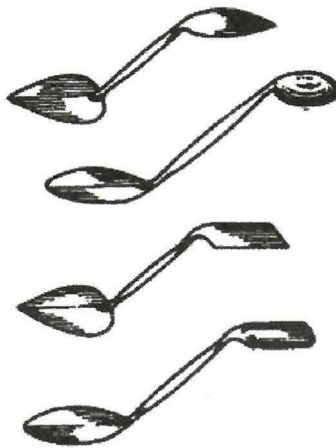


Figure Q1 (c)

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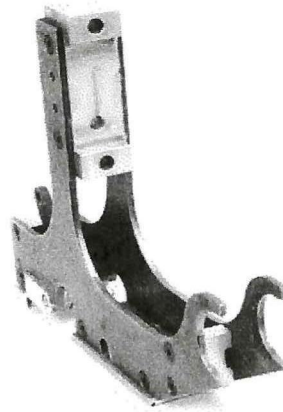
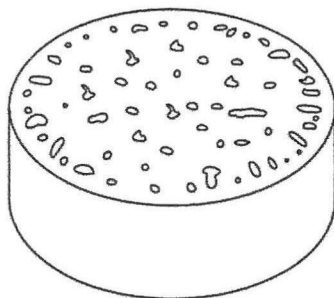
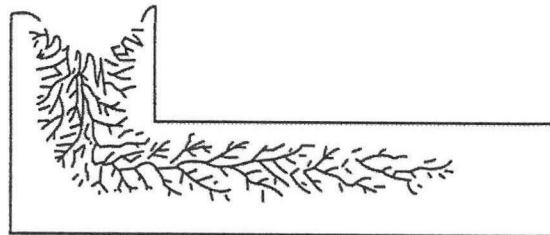


Figure Q3 (b)



A



B

Figure Q4 (c)

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