higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

FOUNDRY THEORY N1

22 November 2022

This marking guideline consists of 4 pages.

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QUESTION 1

1.1 D
1.2 A
1.3 C
1.4 B
1.5 A
1.6 B
1.7 A
1.8 C
1.9 B
1.10 B
1.11 C
1.12 B
1.13 A
1.14 A
1.15 C
1.16 B
1.17 D
1.18 C
1.19 B
1.20 A

(20 × 1) **[20]**

QUESTION 2

2.1 B
2.2 D
2.3 D
2.4 A
2.5 A
2.6 B
2.7 A
2.8 A
2.9 C
2.10 A

(10 × 1) **[10]**

QUESTION 3

3.1 B
3.2 D
3.3 C
3.4 C
3.5 D

(5 × 2) **[10]**

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QUESTION 4

4.1 B✓ – Health effects or injuries can occur if a worker is exposed✓ to hazards, which is basically a potential for a process to do harm.✓ The risk of getting injuries generally increases with the duration and frequency✓ of exposure of the worker in the foundry.✓ So, proper equipment should be used with care when working in a foundry.✓ (6)

4.2 A✓ – The process involved in the production of castings gives rise to heat,✓ liquid metal splashes, dust, noise, vapours✓ and toxic gases in the foundry environment.✓ If these hazards are not controlled properly✓ in the foundry, serious health problems can occur among workers.✓ (6)

4.3 D✓ – Airborne contaminants such as dust✓ can cause lung disease, especially due to the presence of silica dust in the foundry.✓ The silica dust is generated due to mixing,✓ moulding, shakeout and cleaning✓ operations and also during sand conditioning.✓ (6)

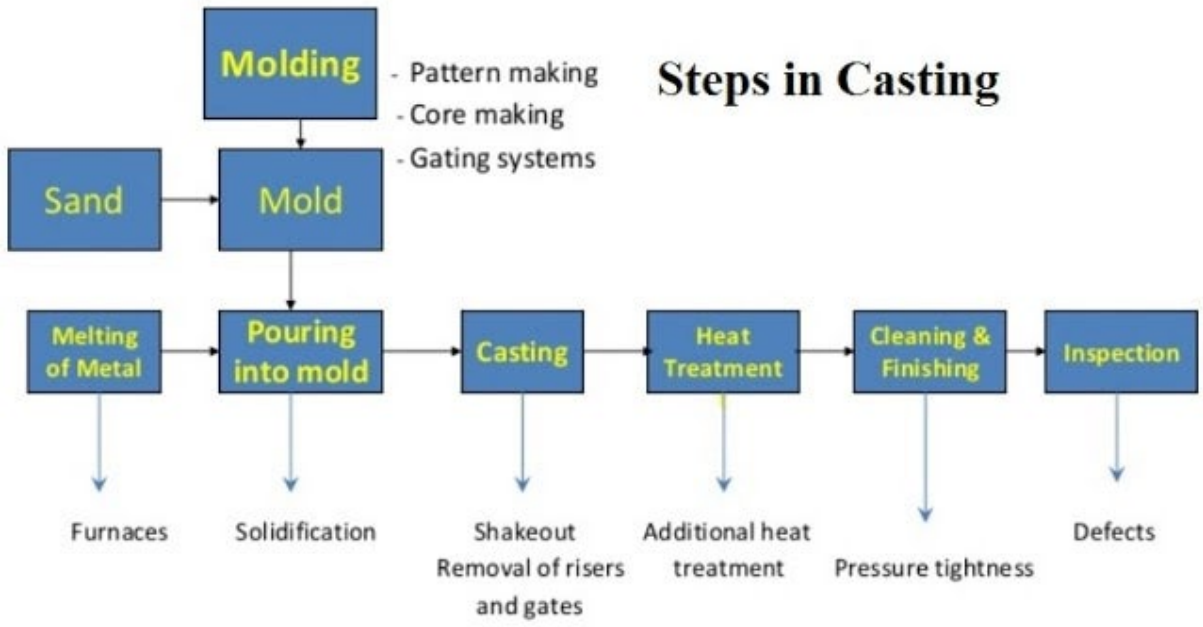
4.4 Hard hat, safety shoes, coveralls, safety glasses, ear protection, gloves, masks (2)
[20]

QUESTION 5

5.1 B
5.2 D
5.3 C
5.4 A
5.5 A

(5 × 1) **[5]**

QUESTION 6



[20]

QUESTION 7

7.1 The fine grains are the sand particles✓ that have a smaller grain size. This lower grain size particles always form a smooth✓ surface over which the curves and edges can be✓ dimensionally mapped. The fine particles allow less distortion✓ of the metal and the surface obtained by them on the casting is smooth.✓ (5)

7.2 A core is a device that is normally made up of sand.✓ The technology of metallic cores is emerging in manufacturing technology.✓ The core, when used once, usually comes✓ out in a burnt form and hence✓ even though it is disposable, it cannot be reused.✓ (5)

7.3 When a metal undergoes solidification,✓ it undergoes a decrease in volume, which is called contraction,✓ and hence it is a major parameter in the metallurgical transformation✓ that is taken into consideration✓ in the design of any component for foundry applications.✓ (5)

[15]

TOTAL: 100

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