higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

MOULDERS' THEORY N2

14 November 2022

This marking guideline consists of 4 pages.

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QUESTION 1: CORES AND CORE MAKING

1.1
- Core sand preparation
- Core moulding
- Baking
- Core finishing (4)

1.2
- Green sand core
- Horizontal core
- Vertical core
- Balanced core
- Hanging core
- Drop core (6)

1.3
- High refractoriness
- Good permeability
- Good stability
- Good collapsibility
- Sufficient strength and hardness (5)

1.4
- Half a core box
- Dump core box
- Split core box
- Strickle core box
- Gang core box (5)

[20]

QUESTION 2: MOULDING AND MOULDING SAND

2.1
- Squeezer machine
- Top squeezer machine
- Bottom squeezer machine
- Jolt machine
- Sand slinger (5)

2.2
- Green sand moulding
- Dry sand moulding
- Bench moulding
- Floor moulding
- Pit moulding
- Sweep moulding
- Plate moulding
- Machine moulding
- Loam moulding (9)

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2.3
- It is stronger than green-sand moulding
- It is not damaged while handling
- More dimensional accuracy
- A smooth surface finish can be obtained
- Casting defects like blow holes will not occur (5)

[19]

QUESTION 3: GENERAL MOULDING OPERATIONS

3.1
- Permeability
- Plasticity
- Adhesiveness
- Cohesiveness
- Refractoriness
- Collapsibility (6)

3.2
- Pouring cup
- Sprue
- Runner
- Gate
- Riser (6)

3.3
- A core is used to make a hole or a hollow in a casting.
- A core print is a projection made in the pattern.
- It is used to form a core seat in the mould.
- The core is correctly seated in this seat. (4)

3.4
- Sand casting
- Centrifugal casting
- Gravity die casting
- Continuous casting
- Pressure-die casting
- Chilled casting
- Malleable casting (8)

3.5
- Fins: thin metal projections on the parting line.
- Run out: leakage of metal from the mould. (2)

3.6
- Cold shuts: incomplete filling of mould cavity
- Hot tears: internal or external discontinuity in the casting. (2)

3.7
- Gives strength and hardness to a core
- Process cost is less
- It saves time on heating
- It can be stored for a long time (4)

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3.8
- It is defined as the ratio between✓ the total percentage of sand retained on each pan✓ and sieve.✓
- It is the sum of product/total sum of the % of sand retained on each pan and each sieve.✓✓ (5)

3.9 C (1)

3.10 The rate of flow of air passing through✓ a standard specimen✓ under standard pressure is✓ called the permeability number.✓ The permeability of these holes should be properly controlled, or blow holes and gas inclusions are likely to form.✓ (5)

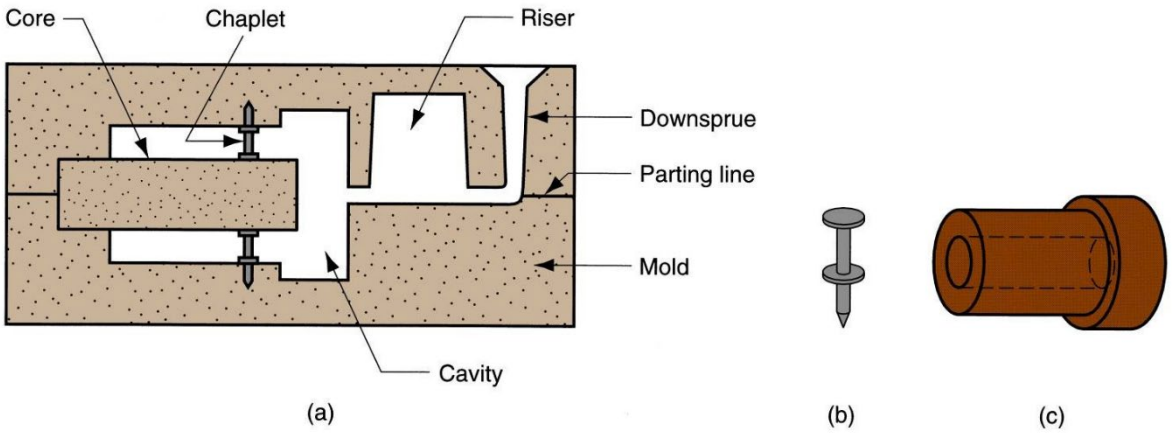
3.11 D (1)
[44]

QUESTION 5: PATTERN PROCESSES

5.1 B
5.2 D
5.3 C
5.4 C
5.5 D
5.6 C
5.7 A
5.8 E
5.9 C
5.10 E

(10 × 1) **[10]**

QUESTION 5



(One mark for each correct label) **[7]**

TOTAL: 100

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