higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

FOUNDRY THEORY N1

(11020221)

22 November 2019 (X-Paper)
09:00–12:00

This question paper consists of 5 pages and 1 answer sheet.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
FOUNDRY THEORY N1
TIME: 3 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.

2. Read ALL the questions carefully.

3. Number the answers according to the numbering system used in this question paper.

4. Answer QUESTION 15 on the ANSWER SHEET (attached). Write your EXAMINATION NUMBER in the space provided and place the ANSWER SHEET inside the ANSWER BOOK.

5. Write neatly and legibly.

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QUESTION 1

State EIGHT criteria for pattern-making material. **[8]**

QUESTION 2

Explain, with a sketch, why taper allowance is important. **[2]**

QUESTION 3

Name and explain FIVE properties of moulding sand. **[5]**

QUESTION 4

Give FIVE advantages of design castings. **[5]**

QUESTION 5

Name the FIVE stages into which the entire process of producing castings can be classified. **[5]**

QUESTION 6

What do government regulations require for each receiver of a compressor? **[2]**

QUESTION 7

Make a neat sketch of a lifting beam used to turn a mould box over. **[5]**

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QUESTION 8

Define each of the following terms:

8.1 Greensand

8.2 Dry sand

8.3 Facing sand

8.4 Backing or floor sand

8.5 Black sand

8.6 Synthetic sand

8.7 Core sand

8.8 Oil sand

(8 × 2) **[16]**

QUESTION 9

Explain each of the following terms:

9.1 Green bond

9.2 Dry bond

9.3 Permeability

9.4 Refractoriness

(4 × 2) **[8]**

QUESTION 10

Tabulate FIVE advantages and FIVE disadvantages that synthetic sand has when compared to naturally bonded sand. (5 + 5) **[10]**

QUESTION 11

Name the THREE gates used in moulding. **[3]**

QUESTION 12

Which THREE questions should be asked with regard to feeding? **[3]**

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QUESTION 13

Name the shape for which each of the following formulas are used when calculating the mass of solid castings:

13.1 a^2 or $\frac{d^2}{2}$

13.2 $\frac{B \times H}{2}$

13.3 πr^2 or $0{,}7854\ d^2$

13.4 $\frac{3}{4}\pi R^3$ or $\pi/6\ D^3$

13.5 $\pi R^3\ H/3$

(5 × 1) **[5]**

QUESTION 14

Explain THREE methods of venting cores. **[3]**

QUESTION 15

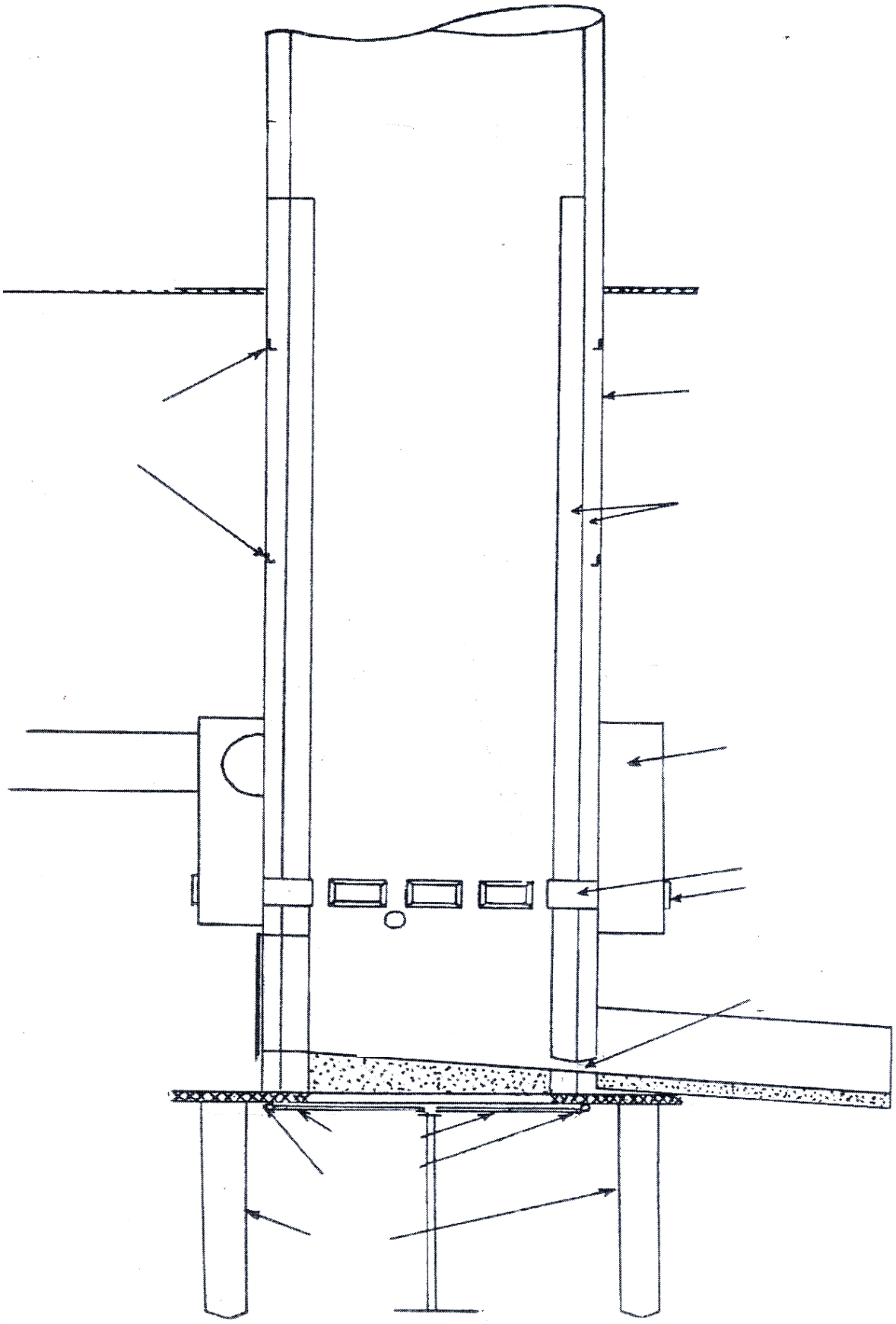
Label the drawing on the ANSWER SHEET (attached). **[20]**

TOTAL: 100

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ANSWER SHEET **EXAMINATION NUMBER:** | | | | | | | | | | | | | |

NAME: _____



[20]

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