

SUBJECT: MATERIALS TECHNOLOGY

LEVEL: 3

TEST 1

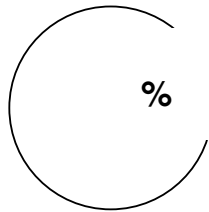
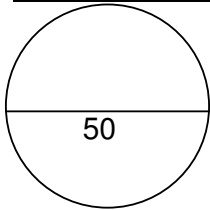
DATE: **MARCH 2017**

EXAMINER: **E.NDEBELE**

NAME OF MODERATOR: **S.MAUPA**

Student Surname		Name	
ID. Number		Group	

Topic and outcomes covered	Topics; 1
Duration	1 Hour
Evidence Required	Answer Paper of the test
Instrument	Test Question Paper



Rating Scale	Remark	Rating
5	Outstanding	80 - 100
4	Highly competent	70 - 79
3	Competent	50 - 69
2	Not yet Competent	40 - 49
1	Not achieved	0 - 39

SIGNATURES:

Student declaration:

I declare that the evidence provided is my own work.

STUDENT: _____

DATE: _____

FEEDBACK: _____

REVISION: _____

DATE: _____

Indicate which questions you found difficult (tick ✓)

1	2	3	4	5	6	7	8	9
								45

LECTURER: _____

DATE: _____

COMMENT: _____

POST MODERATION _____

DATE: _____

**COLLEGE
MODERATION
EXTERNAL
MODERATION** _____

DATE: _____

MATERIALS TECHNOLOGY

TIME: 1 HOUR

MARKS: 50

Instructions and Information

1. Answer all the questions.
2. Read all the question carefully.
3. Number the answers according to the numbering system used in this question paper.
4. Write neatly and legible.
5. time: 1 hour, total: 35 marks

Good Luck and do your best!!

Question 1

- 1.1 Name the physical properties of metals and give a short description of each property. (14)
- 1.2 What is the difference between ferrous and non-ferrous metals? (2)
- 1.3 Explain the following terms:
 - 1.3.1 Base metals
 - 1.3.2 Alloy
 - 1.3.3 Slag
 - 1.3.4 Ore
 - 1.3.5 Corrosion (5)[21]

Question 2

- 2.1 Carbon is added to iron in varying amounts to form different types of ferrous metal. Name the types of ferrous metals. (3)
- 2.2 Name any five (5) alloying elements use in steel. (5)
- 2.3 Name two property and two use of each of the following non-ferrous metals.
 - 2.3.1 Aluminium
 - 2.3.2 Copper
 - 2.3.3 Tin (12)[20]

Question 3

- 3.1 Name the two methods of shaping **molten** metal. (2)
 - 3.2 What is the disadvantage for using sand moulds. (1)
 - 3.3 Name and describe the methods of shaping **solid** metal. (6)
- [9]

Grand Total = 50

----- THE END -----

MARKING GUIDELINE (MATERIALS TECHNOLOGY)

Question 1

- 1.1 1.1.1 – Malleability- Ability of a metal to be hammered, rolled or pressed into various shapes without cracking or breaking. (1)
- 1.1.2 – Ductility - Ability of a metal to be drawn or stretched permanently into a fine wire without cracking or breaking. (1)
- 1.1.3 – Compressive strength - Ability of a metal to resist breaking when placed under pressure (1)
- 1.1.4 - Tensile strength- Ability of a metal to resist breaking when pulled apart. (1)
- 1.1.5 - Hardness - Ability of a metal to resist being broken,bent,scratched or cut (1)
- 1.1.6 - Brittleness - Tendency of a metal to break or crumble to pieces when a sudden load is applied. (1)
- 1.1.7 - Toughness - Ability of a metal to resist shock or blows. (1)
- 1.1.8 - Conductivity – Ability of a metal to conduct heat or electricity. (1)
- 1.2 Ferrous metals consist mainly of iron with small amounts of other elements ,while non-ferrous metals do not contain iron at all. (2)
- 1.3 1.3.1 – Base metals are non precious metals e.g. copper, tin or zinc (1)
- 1.3.2 - An alloy is a metal that is made by combining 2 or more metallic elements especially to give greater strength and resistance to corrosion. (1)
- 1.3.3 – Slag is waste matter separated from metals during the smelting or refining of ore.(1)
- 1.3.4 - An ore is a naturally occurring solid material from which a metal or valuable mineral can be extracted profitably. (1)
- 1.3.5 - Corrosion is the gradual destruction of materials by chemical reaction with its environment . (1)

[21]

Question 2

- 2.1 cast iron (1)
wrought iron (1)
steel (1)

- 2.2 carbon
boron
chromium
cobalt
manganese
molybdenum
nickel
silicon
tungsten (ANY FIVE) (5)

- | | <u>Properties</u> | <u>Uses</u> |
|-----------------------|---|---|
| 2.3 2.3.1 – Aluminium | - High electrical conductivity
Light
Resistant to corrosion | - vehicle parts ,foil,gears,door frames |
| 2.3.2 - Copper | - Soft,Ductile,Malleable, | - cables,wires,pipes,electrical bolts |
| 2.3.2 – Tin | - Weak,Ductile,Malleable, | - pots,pans,coating for metals,canning [20] |

Question 3

- 3.1 Casting in sand moulds (1)
Die casting (1)
- 3.2 They have to be made over and over again. (1)
- 3.3 Extrusion – This is the process of pushing molten material through a die of the desired cross-section. (2)
Rolling - This is a process in which metal stock is passed through one or more pairs of rolls to reduce the thickness and to make thickness uniform. (2)
Drawing - This is the process of pulling (drawing) metal through a die to reduce its thickness. (2)
- [9]**

Grand Total = 50