



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA



VOCATIONAL SUBJECTS

SUBJECT: Materials

LEVEL: 2

Home Activity 1

Total: 95 Marks

22 April 2020

1. Define the following terms:

- 1.1 Materials
- 1.2 Units of measure
- 1.3 Mass
- 1.4 Volume
- 1.5 Density
- 1.6 Relative density
- 1.7 Bulk density
- 1.8 Solid density
- 1.9 Particle density
- 1.10 Loose bulk density
- 1.11 Compacted bulk density
- 1.12 Coefficient of linear thermal expansion
- 1.13 Electrical conductivity
- 1.14 Electrical resistivity
- 1.15 Thermal conductivity
- 1.16 Thermal resistivity
- 1.17 U-value
- 1.18 Flammability
- 1.19 UV resistance
- 1.20 Durability
- 1.21 Permeability.
- 1.22 Porosity
- 1.23 Lustre
- 1.24 Ductility
- 1.25 Brittleness
- 1.26 Stiffness
- 1.27 Malleability
- 1.28 Toughness
- 1.29 Stress
- 1.30 Strain

(30x2)

2. Explain the relationship between stress and strain in both the elastic range and plastic range.

(4)

3. Explain the concept of sustainability, referring to using:

- 3.1 Renewable resources,
- 3.2 Recycling
- 3.3 Energy efficient building design.

(3x3)

4. List 4 advantages of using materials that meet the SABS/SANS standards. (4)

5. Identify and explain the criteria used for selecting materials for a particular application, with regard to the following concepts:

- 5.1 Safety
- 5.2 Combustibility
- 5.3 Economics
- 5.4 Recycling
- 5.5 Material properties
- 5.6 Suitability for building and construction.

(6x3)

TOTAL: 95