



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

PROGRAMME: BSC ABE. II

COURSE CODE: ABE 207

TITLE OF PAPER: WORKSHOP TECHNOLOGY

TIME ALLOWED: TWO (2) HOURS

SPECIAL MATERIAL REQUIRED: NONE

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY TWO
OTHER QUESTIONS.**

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GRANTED BY THE CHIEF INVIGILATOR**

SECTION I COMPULSORY

QUESTION 1

- a) Define an alloy as used in production of metals for engineering applications:
[5 marks]
- b) (i) Name any five alloys in a).
[5 marks]
- (ii) State the effects of alloys in (i) on the properties of the base metals
[5 marks]
- (iii) Give examples of application of alloyed metal in (ii).
[5 marks]
- c) Define the term “engineering material”.
[4 marks]
- (ii) Distinguish between ferrous and non-ferrous metals.
[4 marks]
- (iii) Which is the most available ferrous metal?
[2 marks]
- d) Sharpening of tools in rural Africa has been done on stones accompanied by water. Discuss the use of water in sharpening tools with a critic on the common practice of using a power grinding stones without water.
[10 marks]

SECTION II ANSWER ANY TWO QUESTIONS

QUESTION 2

- a) What are the main objectives of safety in an agricultural workshop?
[9 marks]
- b) Safety can be greatly improved by using colour codes in workshops. Name any five colour codes and their meanings.
[10 marks]
- c) Distinguish between a hand file and a flat file?
[6 marks]
- d) Black board chalk is widely used during filing operations. What is the function of chalk in the filing process?
[5 marks]

QUESTION 3

- a) Grid electricity has made the operation of agricultural workshops very productive. Discuss the advantages and disadvantages of power tools
[10 marks]
- b) Discuss the advantages and limitations of using cold rolled steel as compared to hot rolled steel in agricultural workshops.
[10 marks]
- c) Discuss the importance of FINISHING in the production of any component.
[10 marks]

QUESTION 4

- a) Components are joined to form complex devices for engineering applications.
- (i) Describe two major types of joints used to assemble components together and give examples of where they are used.
[6 marks]
 - (ii) Give advantages and disadvantages of each type of the joints in i) above.
[8 marks]
- b) An electrode for arc welding has the mark E6013 showing its group according to ISO (International Standards Organisation). Explain the information expressed in the group mark.
[10 marks]
- e) Distinguish between marking and measuring tools.
[6 marks]