



**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) Discuss, giving examples, four common types of hazards experienced in agricultural workshops. [12 marks]
- b) What are the key elements necessary for a fire to propagate? [3 marks]
- c) Explain the common classes of fire that a farm workshop operator should be aware of. [3 marks]
- d) Figure 1 shows a variety of punches used in workshop processes..
- (i) State the properties that such punches must possess and why such properties are important. [7 marks]
- (ii) Name the punches [5 marks]
- (iii) Name the uses of each of the punches in the figure. [10 marks]

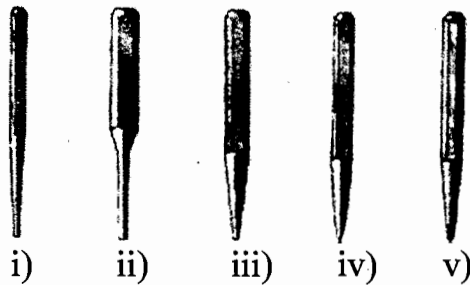


Figure 1. Types of punches

SECTION II ANSWER ANY TWO QUESTIONS

QUESTION 2

- a) Figure 2 shows angles of a cutting tool.
- (i) Name the angles in Figure 2. [3 marks]
 - (ii) Discuss the functions of the angles in Figure 2. [6 marks]

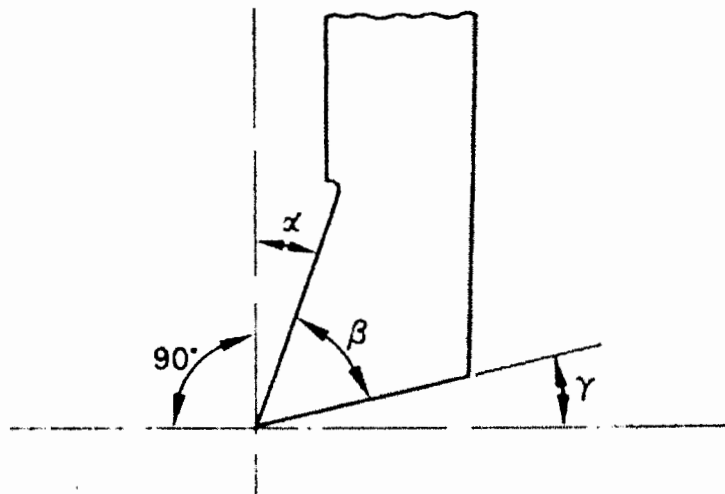


Figure 2. Cutting tool angles

- b) Distinguish between a hand file and a flat file? [3 marks]
- c) Black board chalk is widely used during filing operations.
- (i) What is the function of chalk in the filing process? [3 marks]
 - (ii) How does chalk achieve the functions in (i) above? [5 marks]
- d) Write short notes on draw filing and cross filing indicating their differences in filing process, quality of surface finish achieved and applications under which each method is used.

[10 marks]

QUESTION 3

- a) i) Distinguish between ferrous and non-ferrous metals. [4 marks]
- ii) Give three examples of metals in each category of metals in i). [6 marks]
- b) i) State three properties common to plastics. [3 marks]
- ii) What are the advantages and limitations of use of plastics due to the properties stated in b)i). [9 marks]
- c) Comment on the common practice of sharpening tools without applying a cooling liquid. [8 marks]

QUESTION 4

- a) Describe two major types of joints used to assemble components together and give examples of where they are used. [6 marks]
- b) Give advantages and disadvantages of each type of the joint in a) above. [8 marks]
- c) Distinguish between tempering, annealing and normalising as methods of conditioning steel during a fabrication process. [9 marks]
- d) 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. [7 marks]