



**UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER**

PROGRAMME: BSC LWM. II

COURSE CODE: LUM 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) A metal stand in a rural region of Swaziland has been in use for several years and requires painting. Discuss the procedure of
 - (i) preparing the metal surface for painting; [8 marks]
 - (ii) painting the surface. [9 marks]

- b) List the measurements you can obtain using a try square. [8 marks]

- c) Figure 1 shows a variety of punches used in workshop processes..
 - (i) Name the punches [5 marks]
 - (ii) Name the uses of each of the punches in the figure. [10 marks]

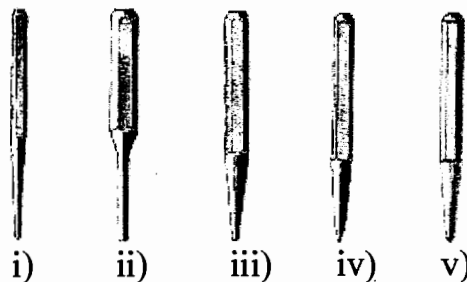


Figure 1. Types of punches

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]

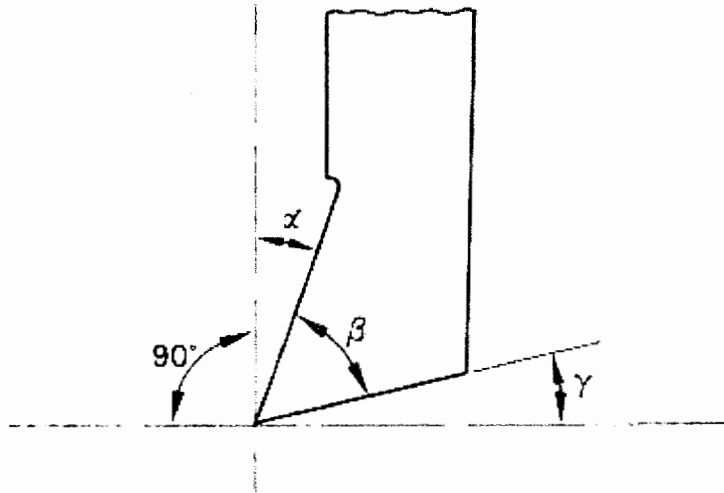


Figure 2. Cutting tool angles

- 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) Distinguish between ferrous and non-ferrous metals. [4 marks]
Give three examples of metals in each category of metals. [6 marks]
- b) Discuss the advantages and limitations of using cold rolled steel as compared to hot rolled steel in agricultural workshops. [12 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]
Give advantages and disadvantages of each type of the joints above. [8 marks]
- b) Define welding. [3 marks]
- Conventional understanding of welding tends to be associated with arc welding that requires electricity supply to the workshop. Is it possible to still weld in off-grid rural Swaziland? In case it is possible, state the type of welding that would be used. [5 marks]
- c) 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. [8 marks]