

Uva Wellassa University of Sri Lanka

Faculty of Applied Sciences

Department of Science and Technology

100 level 1st Semester Examination – Jul./Aug. 2019

SCT 142-3 Engineering Workshop



0038

Instructions to candidates.

Duration: Three (03) hours

Number of questions: (06) Six Essay Questions

Mark allocation: 150 mark

Answer all questions.

1.
 - a. List out 5 (five) the common types of accidents that can happen in industrial working environment.

(5 Mark)
 - b. Describe the effects on the factory owner due to the accidents within the factory premises.

(5 Mark)
 - c. List out 5 (five) common safety methods used to prevent accidents at workplace.

(5 Mark)
 - d. Name 2 (two) personnel protective equipment used for following purposes.
 - i. Head Protection
 - ii. Eye and face protection
 - iii. Foot and leg protection
 - iv. Hand Protection
 - v. Hearing Protection

(10 Mark)

2.
 - a. Describe the difference between **economical manufacturing** and **technological manufacturing**.

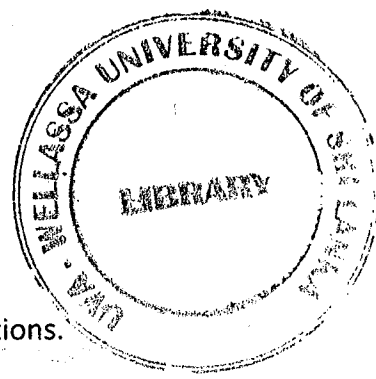
(3 Mark)
 - b. Name and describe the manufacturing industry types giving examples.

(9 Mark)
 - c. List out 5 (Five) Manufacturing processes.

(5 Mark)
 - d. List out the steps in casting process.

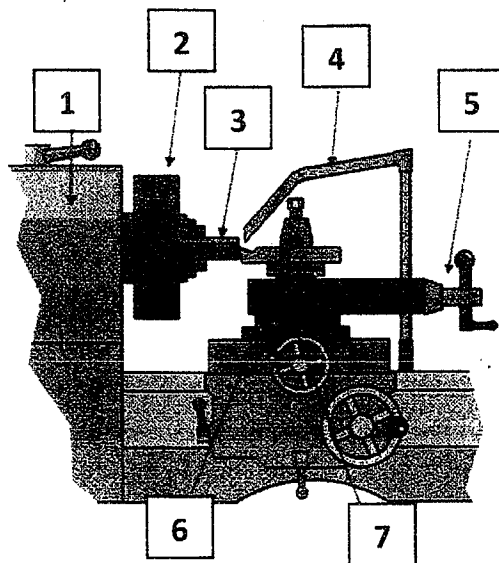
(6 Mark)
 - e. State 2 (two) advantages of forging products over casting.

(2 Mark)



- 3.
- a. Name and Describe the 2 (two) metal cutting operations. (2 Mark)
 - b. Describe the three modes of tool failures. (3 Mark)
 - c. Explain how continuous chips with built-up edge forms during cutting operations. (5 Mark)
 - d. Describe why coolant is important in machining operation. (5 Mark)
 - e. Explain the importance of coating in a cutting tool. (10 Mark)

- 4.
- a. Suppose you are planning to construct a lathe machine. List 5 (five) necessary parts that should be included to design/construct the lathe machine. (2.5 Mark)
 - b. Label the parts of the lathe machine as shown in the following figure according to the order.

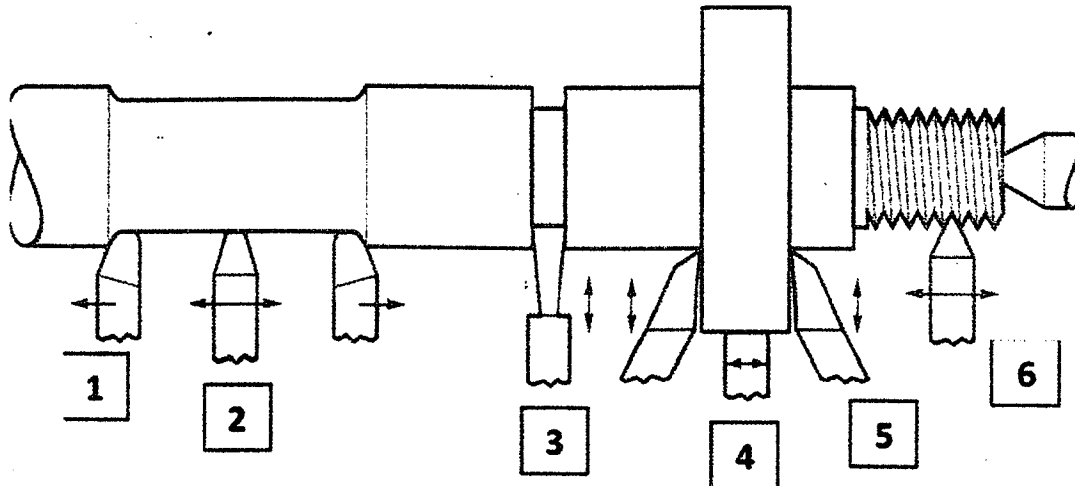


- c. Describe the tailstock of a lathe machine. (3.5 Mark)
- d. List the type of center that can be fixed to the tailstock. (5 Mark)
- e. Describe the following operations performed using the lathe machine. (2 Mark)
 - i. Turning
 - ii. Facing
 - iii. Knurling

(6 Mark)



- f. The following figure shows a machined part by a lathe machine. Name the lathe operation which is suitable to produce the shape according to the given numbers.



(6 Mark)

5.

- a. Briefly explain the principle of milling. (5 Mark)
- b. Name and describe the two milling methods with the aid of sketches. (10 Mark)
- c. Name 2 (two) types of milling machines. (4 Mark)
- d. Describe following work holding devices used in milling machine briefly.
 - i. Plain Milling Machine Vise
 - ii. T-bolts and Clamps
 - iii. Angle Plates

(6 Mark)

6.

- a. Name 4 (four) types of welding positions. (4 Mark)
- b. Describe the disadvantages caused due to continuous welding works. (3 Mark)
- c. Name and describe the 3 (three) type of welding flames used in Oxy-Acetylene welding with the aid of sketches. (6 Mark)
- d. Name 3 (three) type of welding rods. (3 Mark)
- e. Describe Personal Protective Equipment (PPE) used in welding. (5 Mark)
- f. List out all the facts that should be considered in the selection of grinding process and machine for a particular application

(4 Mark)