



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
Department of Mechanical & Automotive Engineering
UNIVERSITY EXAMINATION FOR:
BTech Electrical and Electronic Engineering
TMC 4151 : Workshop Technology and Practice I
SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: SEPTEMBER 2018
TIME: 2 HOURS
DATE: Pick Date Sep 2018

Instruction to Candidates:

You should have the following for this examination

- *Answer booklet*
- *Non-Programmable scientific calculator*

This paper consists of **FIVE** questions. Attempt any **THREE** questions.

Maximum marks for each part of a question are as shown.

Do not write on the question paper.

Question ONE

Occupation Safety and Health Act of 2007 is a proactive approach rather than a reactive approach towards safety addressing the three aspects of safety, Health and Welfare. Discuss (20mks)

Question TWO

- i. Describe the following types of files. (5 mks)
 - a. Hand file
 - b. Flat file
 - c. Dreadnought file
 - d. Round file
 - e. Triangular file
- ii. Describe the filing process (5mks)
- iii. With aid a well labeled sketch, describe the following measuring and marking tools
 - a. Scriber
 - b. Telescopic gauges
 - c. Sine bar
 - d. Dial gauge
 - e. Gauge blocks

Question THREE

- i. Differentiate soldering and welding.(2mks)
- ii. State **TWO** safety precautions in Arc welding. (2mks)
- iii. Name the **TWO** major classification of welding. (4mks)
- iv. State at least **TWO** types of fusion welding.(2mks)
- v. State and explain **THREE** equipment used in ox acetylene gas welding (6mks)
- vi. State **FOUR** welding defects. (2mks)
- vii. State **TWO** places where welding processes may be applied(2mks)

Question FOUR

- i. State **FOUR** types of lathe machine.(2mks)
- ii. With aid of a sketch show the main parts of a lathe machine(4mks)
- iii. Name **TWO** material used to make the turning tool for the lathe machine.(2mk)
- iv. Calculate the time required to machine a work piece 170 mm long, 60 mm diameter to 165 mm long 50 mm diameter. The work piece rotates at 440 rpm, feed is 0.3 mm/rev and maximum depth of cut is 2 mm. Assume total approach and over travel distance as 5 mm for turning operation.(4mks)
- v. Differentiate between drilling and boring.(2mks)
- vi. State **FOUR** work holding devices used in drilling operations .(2mks)
- vii. Name at least **FOUR** cutters used in milling operation (2mks)
- viii. Describe the shaper working mechanisms (2mks)

Question FIVE

- i. State **TWO** common types of chisels and their respective uses.(2mks)
- ii. State **TWO** operations that can be carried out in a lathe machine.(2mks)
- iii. State **TWO** suitable safety precaution to be observed when carrying out a welding job.(2mks)
- iv. For the material form below, identify the process used for making a permanent joint in each case.
 - i. Tinsplate, **(ii)** Mild steel plate, **(iii)** Acrylic, **(iv)** Light gauge aluminium. (4mks)
- v. Name **TWO** gases used in gas welding (2mks)
- vi. State **TWO** advantages and **TWO** limitations of Resistance Spot Welding (4mks)
- vii. Discuss at least **TWO** types of rivets. (4mks)

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